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# Consumer ethnocentrism in an everyday food-consumption context: A cross-country analysis using exploratory graph analysis

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ABSTRACT

Consumer ethnocentrism continues to play a central role in shaping food-related consumption attitudes, yet its internal structure and contextual variability remain debated, particularly across European countries. This study examines consumer ethnocentrism in a common everyday food-consumption setting, using apples as a familiar and comparable reference product across three European countries (the United Kingdom, Hungary, and Italy), representing distinct cultural and economic environments. Using a unified survey design ($N = 1814$), the study employs exploratory graph analysis to investigate the dimensional structure and stability of ethnocentric attitudes. The results indicate that while a general ethnocentric tendency can be identified across countries, consumer ethnocentrism appears to differ not only in observed intensity but also in internal organisation. There are country-specific clustering patterns among items of ethnocentrism, suggesting that moral obligation, emotional attachment, and economic concerns vary in salience across national contexts. The results also show that pragmatic, job-protective aspects of domestic preference are widely shared, while extreme or punitive expressions of ethnocentrism receive limited support across all countries. Sociodemographic effects exhibit heterogeneous patterns: age, education, and gender influence ethnocentrism differently across national samples, whereas subjective financial strain is only weakly but consistently associated with ethnocentric attitudes. The findings highlight the multidimensional and context-dependent nature of consumer ethnocentrism and demonstrate the added value of network-based approaches for cross-country measurement and comparison in food-related consumer research. Furthermore, the results have implications for international food markets, indicating that origin-related attitudinal responses are shaped by country-specific attitudinal structures rather than uniform ethnocentric tendencies.

## 1. Introduction

The radical and rapid changes that have taken place in recent years have led to a greater appreciation of local economies, and demand for domestic products has once again taken on a central role in consumer decisions (Bisoffi et al., 2021; Czine et al., 2024). In parallel with globalisation, the interest of economic actors in the social and psychological factors that influence consumers' attitudes toward domestic and imported products has increased (Balabanis and Siamagka, 2017; Cleveland et al., 2009; Cleveland and McCutcheon, 2022). During these processes, consumer decisions are not only driven by value for money or product quality – so-called economic rationality –, but also by identity-based preferences (Maró et al., 2025; Nieto-Villegas et al., 2026). The desire to prioritise domestic products and support the national economy is increasingly evident in consumer behaviour (Shimp and Sharma, 1987; Török et al., 2024; Verlegh, 2007). While preferences for local products are often discussed alongside domestic product preferences, the two concepts are not equivalent. Local food consumption is frequently driven by factors such as sustainability, freshness, and support for regional economies (Feldmann and Hamm, 2015; Jeon et al., 2025; Thøgersen et al., 2017), whereas consumer ethnocentrism (CE) is rooted in national identity and moral considerations (Balabanis and Siamagka, 2017; Balabanis and Siamagka, 2022; Bryła and Domański, 2023).

Building on this conceptual background, CE describes the tendency of consumers to prefer domestic products over foreign ones, often not

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based on rational considerations, but rather on their national and cultural identity. It expresses the belief that buying foreign products is wrong, and even morally objectionable (Shimp and Sharma, 1987). Such consumers view buying domestic products as a moral or patriotic duty, while they often reject imported ones, regardless of their price or quality. As a result, stronger CE tends to produce a systematic domestic bias in purchase intentions, since ethnocentric consumers exhibit stronger preferences and a greater willingness to pay for domestic products (Camacho et al., 2022; Maró et al., 2023a; Siamagka and Balabanis, 2015). CE has been the subject of numerous marketing science studies (Siamagka and Balabanis, 2015; Trivedi et al., 2024), but it is particularly important in relation to food markets. The related products are often judged not only on their consumer characteristics (price, quality), but also on their social, cultural, and national symbolic value (Fernández-Ferrín et al., 2018; Maró et al., 2023b). Several studies have shown that ethnocentric consumers are more likely to buy domestic products and are often willing to pay higher prices for them (Fernández-Ferrín et al., 2018; Jiménez-Guerrero et al., 2014; Ouellet, 2007). The effect of CE is particularly strong in the case of products with geographical indications and local origin, which have not only economic but also national symbolic value (Czine et al., 2024; Fernández-Ferrín et al., 2018). In practical terms, CE has been shown to influence decision-making regarding a wide range of food products; from functional foods and vegetables to speciality beverages. For example, Xin and Seo (2020) found CE affected Chinese consumers' interest in imported health foods, while studies in Europe have identified CE effects on purchases of cheese, vegetables, beer, and wine (Bellia et al., 2022; Jiménez-Guerrero et al., 2014; Maró et al., 2023c).

CE is a global phenomenon, but its extent and form vary significantly across countries (Balabanis and Siamagka, 2022). Balabanis and Siamagka (2017) and Tsai et al. (2013) have shown that CE levels are higher in collectivist, less egalitarian societies, while lower in individualistic countries. Demographic variables (e.g., age, gender, education, income) also influence ethnocentric attitudes, but their impact varies across countries (Akbarov, 2022; Czine et al., 2024; Miguel et al., 2023). However, few comparative studies have been conducted within Europe, especially those that simultaneously analyse Western, Southern, Central, and Eastern European countries. Yet these regions are not only economically and culturally distinct but also differ in their attitudes toward domestic products, globalisation, and national identity. The UK has long championed home-produced staples (e.g., British Food Fortnight) and is increasingly relying on its own national products in a post-Brexit environment (Dey et al., 2023), while Italy is building its international agricultural image through protected food products (e.g., cheeses and wines) (Bellia et al., 2022; Bonaiuto et al., 2021). In Hungary, a post-socialist EU Member State with recent emphasis on the national agricultural tradition, in recent years, state communication has been consciously shaping the image of "Hungaricums" (Hungarian specialities) and local products (Maró et al., 2023a; Maró et al., 2023c). Thus, CE influences not only consumer preferences but also trust in brands, perceived risk, and perceived product quality (Balabanis and Siamagka, 2017; Verlegh, 2007).

Based on the above, numerous research gaps can currently be identified. First, to the best of our knowledge, no study has examined three countries in different parts of Europe simultaneously, using the same methodology. Comparative analyses exist, but they often compare two countries or countries with similar cultural and economic backgrounds (Řezanková et al., 2023; Yousaf et al., 2022). There is generally a lack of multi-country surveys that use a common methodology to compare CE across multiple European states. Second, most studies focus on special, processed, or premium products (see e.g., Bellia et al., 2022; Maró et al., 2023a), while simple, everyday agricultural products, such as the apples in this study, are relegated to the background (Miguel et al., 2022). Third, the structural validity of the Consumer Ethnocentric Tendencies Scale (CETSCALE) has rarely been examined in a comparative manner in different cultural contexts (Siamagka and Balabanis, 2015). Thus, the aim of the present research is to examine consumer ethnocentrism in the UK, Italy, and Hungary and explore whether its structure and underlying dimensions show cross-country variation. Specifically, the study addresses the following research questions:

(1) Does the dimensional structure of the CETSCALE differ across countries?
(2) How do the underlying components of consumer ethnocentrism vary across national contexts?
(3) To what extent are these dimensions associated with sociodemographic characteristics?

An identical questionnaire and measuring instruments were used throughout the research, thus providing a consistent methodological framework across countries. Network-based exploratory graph analysis (EGA) was applied to the measurement data to identify the underlying dimensions. Furthermore, the effects of demographic variables on the development of ethnocentrism were examined. The study is novel in several respects. On the one hand, it is among the first to examine CE in the context of basic agricultural products across three European countries using a unified methodology. On the other hand, selecting the typical, common, and well-known apple as the focal product enables us to examine the role of CE in an everyday food-consumption context. Third, the comparative analysis of the underlying structure of CETSCALE improves understanding of the scale's international applicability. These results contribute to the international theoretical and methodological discourse on CE and allow us to generate practical conclusions for food producers and brand managers. To achieve this, the following section presents a review of the theoretical background of CE and the relevant international literature, with a focus on studies related to food products. This is followed by a detailed presentation of the research methodology, including the sampling procedure, questionnaire structure, and statistical methods that were used. The fourth section presents the results, the exploration of the underlying structure of the CETSCALE, and the observed patterns and dimensions of CE in the UK, Hungary, and Italy. The study concludes with a discussion and a conclusions section. The discussion compares the findings with those of previous studies and elaborates on the theoretical and practical significance of the results. The conclusion provides a concise summary of the study, outlines its main contributions, discusses the limitations of the research, and provides suggestions for future studies.

## 2. Literature review

### 2.1. Consumer ethnocentrism

The concept of ethnocentrism originated in the fields of social psychology and sociology. According to Sumner (1906), ethnocentrism means that an individual considers their own group to be the centre of the world and evaluates all other groups in relation to it, usually considering outgroups as inferior. Later perspectives, such as realist group conflict theory, suggest that ethnocentrism can also arise from competition between groups and the struggle for scarce resources (Jackson, 1993). These social and psychological foundations indicate that the background to an ethnocentric attitude is, on the one hand, a strong "we" consciousness (group pride) and, on the other hand, the denigration of the "them" group.

Shimp and Sharma (1987) introduced the concept of CE. CE refers to the belief that purchasing foreign products is morally inappropriate, as ethnocentric consumers consider domestic products as superior and imports as harmful to the national economy and employment. Consumers with strong ethnocentric attitudes tend to favour domestic products and avoid foreign ones, with purchase decisions influenced not only by price and quality but also by country-of-origin information. CE is generally regarded as a relatively stable attitude, sometimes described as a quasi-personality trait (Sharma et al., 1994), although its intensity

may increase during economic crises or under protectionist political conditions. While distinct from patriotism and nationalism, CE is closely related to them. Patriotic and nationalistic values tend to strengthen ethnocentrism, whereas cosmopolitan orientations weaken it (Balabanis et al., 2001; Sharma et al., 1994).

Several demographic factors have also been found to be associated with the degree of CE. In general, ethnocentrism is stronger among older age groups and those with lower educational attainment, while younger, more educated people tend to be more open to foreign products (Josiassen et al., 2011; Maró et al., 2023a; Watson and Wright, 2000). Place of residence is also a determining factor. Prior research suggests that people living in rural areas tend to be more ethnocentric than those living in urban areas, which may be partly explained by the former's closer connection to the local economy, and partly by their greater isolation from global influence (Hanus, 2020; Wojciechowska-Solis, 2022). This is also consistent with the observation that local identity plays a prominent role in food consumption (Fernández-Ferrín et al., 2018; Maró et al., 2023b). There may also be differences depending on gender. For example, in a Polish survey, respect for tradition and national pride increased ethnocentrism in both men and women, but for women, younger age reduced it (Wojciechowska-Solis, 2022). According to further research, women generally have a stronger emotional attachment to domestic products, while rational considerations (price, brand awareness) play a greater role in men's decisions, although these differences may vary by country (Bryła, 2021; Zafer Erdogan and Uzkurt, 2010). CE is a complex attitude, rooted in the psychological mechanisms of group affiliation, and is most evident in the field of marketing in the assessment of domestic versus foreign products (Shimp and Sharma, 1987; Siamagka and Balabanis, 2015). Building on this conceptual foundation, the following subsection examines how consumer ethnocentrism manifests in the specific context of food consumption, where identity, culture, and everyday practices are closely intertwined.

### 2.2. Consumer ethnocentrism in food consumption

While early ethnocentrism research focused primarily on manufactured goods, food products have increasingly become a focal domain due to their symbolic, cultural, and moral embeddedness (Feldmann and Hamm, 2015; Orth and Firbasová, 2003; Verbeke and Poquiviqui López, 2005). In the food context, ethnocentrism is closely associated with perceptions of authenticity, trust, and cultural continuity. Food products function not only as utilitarian goods but also as carriers of national and regional identity, making them particularly susceptible to ethnocentric evaluations (Askegaard and Kjeldgaard, 2007). The literature shows that ethnocentric consumers tend to perceive domestic food as safer, healthier, and of higher quality than imported alternatives, even when objective quality differences are minimal or absent (Chambers et al., 2007; Chryssochoidis et al., 2007). Recent studies further emphasise the moral dimension of food-related ethnocentrism. Purchasing domestic food is frequently framed as a socially responsible act that supports local farmers, strengthens rural economies, and reduces environmental externalities associated with long(er) supply chains (Jeon et al., 2025; Maró et al., 2023b; Thøgersen et al., 2017). These normative considerations may strengthen ethnocentric tendencies and the systematic bias against foreign food products, particularly with categories of food closely linked to national culinary traditions. Consumer ethnocentrism is positively associated with consumers' willingness to pay (WTP) for domestic food products, as ethnocentric consumers are more willing to accept price premiums for nationally produced foods that align with identity-based and moral considerations (Balabanis and Diamantopoulos, 2004; Lusk et al., 2006). Recent studies confirm that CE remains a significant determinant of WTP in contemporary, globalised food markets (Akbarov, 2022; Gao et al., 2024). Evidence also suggests that ethnocentrism has a stronger influence on preferences for national and local foods than for foreign geographically indicated products, highlighting its role as a normative driver of food valuation (Aprile et al., 2012; Maró et al., 2023a).

Cross-country differences suggest that the level and behavioural consequences of CE may vary across countries. These differences are commonly attributed to variations in cultural values, economic development, openness to international trade, and historical experiences (Balabanis et al., 2001; Bryła and Domański, 2023; Sharma et al., 1994). In food markets, such contextual effects are particularly pronounced, as domestic agricultural systems and national food cultures differ widely across countries (Bryła and Domański, 2023; Norris and Cranfield, 2019; Scarpa et al., 2005; Singh et al., 2024; Vanhonacker et al., 2010). Consumers in countries with strong culinary traditions and symbolic attachment to domestic food products may exhibit more pronounced ethnocentric responses in food-related decisions. In contrast, consumers in more import-dependent or cosmopolitan food systems may display weaker or more selective ethnocentric tendencies. However, the strength and direction of these relationships remain context-dependent and product-category specific. These cross-country and product-category variations highlight the importance of analysing CE within specific cultural and market contexts rather than treating it as a uniform construct. Furthermore, given this context-dependent nature of CE, examining its internal structure across countries is particularly relevant in comparative food consumer research.

## 3. Materials and methods

### 3.1. Product of interest

In the case of the investigation, apples were chosen as the product of investigation because they are a typical, widely consumed, and easily recognisable agricultural commodity present in almost every European market, which allows for the investigation of CE in a context that is less influenced by branding or premium positioning (Maró et al., 2023a; Miguel et al., 2022). Moreover, apples are often associated with national or local identity in food marketing, making them suitable for an analysis of ethnocentric attitudes in a cross-cultural setting (Fernández-Ferrín et al., 2018). Although the empirical context of the study is provided by apple consumption, the primary focus of the analysis is on uncovering the underlying attitudinal structures of consumer ethnocentrism. It should be noted that apples served as a common everyday food-consumption context rather than as the primary object of analysis. The focus of the study was not on apple-specific attitudes or apple purchase behaviour, but on how consumer ethnocentrism is structured and expressed across national contexts when examined through a familiar and comparable food product. Thus, descriptive statistics related to apple consumption of our survey's respondents are reported in Appendix I.

### 3.2. Data collection and sample description

The data collection for the online questionnaire was carried out in November 2023 by Szinapszis Ltd., a professional market research firm and member of the Quercus Consulting Group. Ethical approval for the study was granted by the Ethics Committee of Corvinus University of Budapest (KRH/261/2023). The detailed characteristics of the sample are presented in Table 1. The sample can be considered representative of the general population in each country in terms of gender and age distribution. In all three national samples, the proportions of female and male respondents are close to parity, and the age distribution is balanced across six age categories. Educational attainment, however, reveals national differences: while in the UK 46.0% of respondents report having completed higher education, this proportion is 37.8% in Hungary and only 33.5% in Italy. Regarding place of residence, urban and rural categories are relatively well represented. The share of respondents living in large cities ranges from 36.2% in Italy to 41.5% in Hungary, while village residents account for between 11.8% (Italy) and 19.2%

**Table 1**
Presentation of British, Hungarian, and Italian samples.

| | British sample ($n$ = 600) | Hungarian sample ($n$ = 614) | Italian sample ($n$ = 600) |
|---|---|---|---|
| *Gender (%)* | | | |
| Female | 52.17 | 50.33 | 51.00 |
| Male | 47.50 | 49.51 | 49.00 |
| Other/Prefer not to say | 0.33 | 0.16 | 0.00 |
| *Age category (%)* | | | |
| 18–24 | 11.67 | 10.10 | 8.17 |
| 25–34 | 21.67 | 18.08 | 14.83 |
| 35–44 | 19.33 | 20.85 | 18.00 |
| 45–54 | 20.17 | 23.29 | 23.33 |
| 55–64 | 17.83 | 15.96 | 25.83 |
| 65–70 | 9.33 | 11.73 | 9.83 |
| *Education level (%)* | | | |
| Lower secondary education or below | 16.33 | 2.77 | 9.50 |
| Upper secondary education or a college qualification below a degree | 37.67 | 59.45 | 57.00 |
| Higher education | 46.00 | 37.79 | 33.50 |
| *Residence (%)* | | | |
| City | 39.50 | 41.53 | 36.17 |
| Medium/Large town | 44.83 | 39.25 | 52.00 |
| Village | 15.67 | 19.22 | 11.83 |
| *Subjective income level** | | | |
| Average agreement (s.d.) [median] | 4.46 (1.74) [5.00] | 4.17 (1.86) [4.00] | 4.35 (1.62) [4.50] |

Note: * Subjective income was measured using a single-item indicator based on respondents' agreement with the statement 'I'm just getting by financially' (where 1 indicates strongly disagree and 7 indicated strongly agree). This item captures perceived financial strain and is conceptually similar to widely used survey measures of subjective economic situation (e.g., the 'ability to make ends meet' item in the European Social Survey (2026). Such measures are commonly used as proxies for perceived financial well-being.

(Hungary). Subjective income levels differ slightly across countries, as measured by respondents' agreement with the statement "I'm just getting by financially".

### 3.3. Data analysis

In the first step of the data analysis, exploratory graph analysis (EGA) was applied, a network-based dimensionality-reduction and structure-detection technique. The aim of applying this method was to identify potential underlying latent constructs within the examined set of variables by analysing the structural relationships among them (Golino and Epskamp, 2017). EGA was considered particularly useful for this study because it does not rely on strict assumptions about the number or nature of latent factors. Instead, it infers the structure of psychological constructs by mapping the strength of statistical connections among individual items (e.g., statements about consumer attitudes). This network-based approach is well-suited to examining complex, culturally sensitive constructs like consumer ethnocentrism, where multiple dimensions—such as moral duty, emotional attachment, and economic concerns—may coexist and vary across countries. By revealing naturally clustering items, EGA provides a more objective, data-driven view of the structure of CE, thereby reducing researcher bias and providing a data-driven representation of the internal structure of CE across samples. The set of variables analysed comprised the CETSCALE items presented in Table 2.

The CETSCALE developed by Shimp and Sharma (1987) remains the most widely applied instrument for measuring CE. Although originally conceptualised as unidimensional, prior research has produced mixed evidence regarding its factor structure, particularly in cross-cultural and food-related applications. Several studies have identified multidimensional solutions that distinguish between affective, normative, and

**Table 2**
Descriptive statistics for CETSCALE items.

| Statement | United Kingdom Average (s.d.) [median] | Hungary Average (s.d.) [median] | Italy Average (s.d.) [median] | F-value ($p$-value) [$\eta^2$] |
|---|---|---|---|---|
| 1. British/Hungarian/ Italian people should always buy British/ Hungarian/Italian-made products instead of imports. | 4.41[a] (1.64) [5.00] | 4.87[b] (1.69) [5.00] | 5.25[c] (1.42) [5.00] | 45.45 (<0.01**) [0.045] |
| 2. Only those products that are unavailable in the United Kingdom/ Hungary/Italy should be imported. | **4.90**[a] (1.51) [5.00] | **5.14**[b] (1.65) [6.00] | 5.14[b] (1.43) [5.00] | 5.21 (0.01**) [0.006] |
| 3. By purchasing British/ Hungarian/Italian products, we can protect British/ Hungarian/Italian jobs. | **5.44**[a] (1.30) [6.00] | **5.47**[a] (1.43) [6.00] | **5.50**[a] (1.29) [6.00] | 0.38 (0.69) [<0.001] |
| 4. I prefer British/ Hungarian/Italian products above all. | **4.82**[a] (1.47) [5.00] | **4.90**[a] (1.70) [5.00] | **5.53**[b] (1.27) [6.00] | 48.77 (<0.01**) [0.043] |
| 5. Purchasing foreign-made products is un-British/Hungarian/ Italian. | 3.78[a] (1.66) [4.00] | 3.35[b] (1.86) [3.00] | 4.31[c] (1.63) [4.00] | 46.80 (<0.01**) [0.050] |
| 6. It is not right to purchase foreign products because it puts British/Hungarian/ Italian people out of jobs. | 4.02[a] (1.66) [4.00] | 3.68[b] (1.83) [4.00] | 4.51[c] (1.55) [5.00] | 37.67 (<0.01**) [0.039] |
| 7. A real British/ Hungarian/Italian should always buy British/Hungarian/ Italian-made products. | 3.78[a] (1.73) [4.00] | *3.18*[b] (1.99) [3.00] | 4.69[c] (1.68) [5.00] | 106.72 (<0.01**) [0.106] |
| 8. We should purchase products manufactured in Hungary instead of letting other countries get rich from us. | 4.49[a] (1.60) [5.00] | 4.20[b] (1.82) [4.00] | 4.93[c] (1.48) [5.00] | 30.85 (<0.01**) [0.032] |
| 9. It is always best to purchase British/ Hungarian/Italian products. | 4.69[a] (1.51) [5.00] | 4.11[b] (1.79) [4.00] | **5.26**[c] (1.40) [5.00] | 78.90 (<0.01**) [0.081] |
| 10. There should be very little trading or purchasing of goods from other countries unless out of necessity. | 4.21[a] (1.61) [4.00] | 4.63[b] (1.64) [5.00] | 4.77[b] (1.50) [5.00] | 20.90 (<0.01**) [0.022] |
| 11. British/Hungarian/ Italian people should not buy foreign products because this hurts British/ Hungarian/Italian businesses and causes unemployment. | 3.89[a] (1.62) [4.00] | 3.57[b] (1.85) [4.00] | 4.59[c] (1.60) [5.00] | 56.93 (<0.01**) [0.059] |
| 12. Curbs should be put on all imports. | 3.81[a] (1.66) [4.00] | 3.21[b] (1.95) [3.00] | 4.45[c] (1.59) [5.00] | 75.21 (<0.01**) [0.078] |
| 13. It may cost me in the long run, but I prefer to support British/ Hungarian/Italian products. | 4.48[a] (1.46) [5.00] | 3.98[b] (1.81) [4.00] | 5.00[c] (1.34) [5.00] | 64.74 (<0.01**) [0.068] |
| 14. Foreigners should not be allowed to put their products on our market. | *3.22*[a] (1.76) [3.00] | *3.13*[a] (1.88) [3.00] | *3.96*[b] (1.68) [4.00] | 42.30 (<0.01**) [0.043] |
| 15. Foreign products should be taxed heavily to reduce their entry | *3.75*[a] (1.74) [4.00] | 3.59[a] (1.91) [4.00] | *4.24*[b] (1.61) [4.00] | 23.93 (<0.01**) [0.024] |

(*continued on next page*)

**Table 2** (*continued*)

| Statement | United Kingdom | Hungary | Italy | F-value (*p*-value) [$\eta^2$] |
|---|---|---|---|---|
| | Average (s.d.) [median] | Average (s.d.) [median] | Average (s.d.) [median] | |
| into the United Kingdom/Hungary/ Italy. | | | | |
| 16. We should buy from foreign countries only those products that we cannot obtain within our own country. | 4.52[a] (1.58) [5.00] | 4.48[a] (1.82) [5.00] | 4.92[b] (1.47) [5.00] | 14.58 (<0.01**) [0.014] |
| 17. British/Hungarian/ Italian consumers who purchase products made in other countries are responsible for putting their fellow British/Hungarian/ Italian people out of work. | *3.70*[a] (1.81) [4.00] | *3.19*[b] (1.95) [3.00] | *4.30*[c] (1.68) [4.00] | 57.06 (<0.01**) [0.059] |

Note: Differences between groups were tested using one-way analysis of variance. Where statistically significant differences were found, Tukey's post-hoc test was applied. When the assumption of homogeneity of variances was violated (as assessed by Levene's test), Welch's ANOVA was used, followed by the Games-Howell post-hoc test to verify consistency with the results of Tukey's test. Identical superscripts indicate that group means do not differ significantly, whereas differing superscripts denote statistically significant differences between group means at the 5% level or lower. **Significant at the 1% level. The three statements with the highest mean scores across all three countries are marked in bold, while the three lowest are indicated in italics.

economic protectionism components of CE (Bizumic and Duckitt, 2012; Cleveland et al., 2009). More recent methodological contributions highlight that the dimensionality of CE may vary across cultural contexts and product categories (Bizumic, 2018; Sharma, 2015). In this regard, the use of exploratory graph analysis (EGA) or exploratory factor analysis is a theoretically and methodologically justified approach. By avoiding restrictive a priori assumptions, EGA helps identify latent structures that may differ across national samples, thereby providing a flexible, data-driven basis for subsequent analyses.

During the implementation of the EGA, a network structure based on partial correlation coefficients was constructed using the Graphical Least Absolute Shrinkage and Selection Operator (GLASSO) procedure. The regularisation parameter ($\lambda$) was determined based on the Extended Bayesian Information Criterion (EBIC) (Golino and Epskamp, 2017). To identify dimensions, latent constructs, or clusters, the walktrap algorithm was employed, which aims to maximise the number of connections within latent constructs while minimising connections between them (Pons and Latapy, 2005). To assess the internal consistency of the identified dimensions, McDonald's omega ($\omega$) coefficient was calculated (McDonald, 1999; McNeish, 2018). To examine local (in)dependence among variables, the Weighted Topological Overlap (wTO) values were computed between variable pairs (Christensen et al., 2023).

The relationships between the identified dimensions and sociodemographic variables were examined using one-way analysis of variance (ANOVA) and Spearman's rank correlation. In the case of ANOVA, the null hypothesis ($H_0$) assumes equality of group means, $H_0$: $\overline{X_1}=\overline{X_2} = \ldots = \overline{X_k}$, where k denotes the number of groups, while in the case of rank correlation, the null hypothesis assumes that the correlation coefficient equals zero ($H_0$: $r_S = 0$, where $r_S$ denotes the Spearman rank correlation coefficient) (Field, 2013). In addition, one-way ANOVA was also applied to examine cross-country differences in the observed item-level evaluation of individual CETSCALE items. In this context, the null hypothesis assumes that the mean responses to a given statement are equal across countries.

Throughout the statistical hypothesis testing, the probability of committing a Type I error was set at a maximum of 5% ($\alpha = 0.05$). To assess the cross-country comparability of the CETSCALE, a multigroup confirmatory factor analysis (MG-CFA) was conducted. This additional analysis aimed to evaluate the extent to which the scale operates equivalently across the examined countries. Measurement invariance was tested at multiple levels, including configural, metric, and scalar invariance, following established guidelines. All data analyses were performed in R (R Core Team, 2024), using the following packages: "EGAnet" (Golino et al., 2025), "qgraph" (Epskamp et al., 2012), "dplyr" (Wickham et al., 2025), "purrr" (Wickham and Henry, 2025), "lavaan" (Rosseel, 2012), "semTools" (Jorgensen et al., 2025) and "psych" (Revelle, 2025).

## 4. Results

### 4.1. Country-level analysis results

In the first phase of the analysis, descriptive statistics were examined for the 17 CETSCALE items across the three countries (Table 2). The highest levels of agreement across all three countries were consistently observed for Statement 3 ("By purchasing British/Hungarian/Italian products, we can protect British/Hungarian/Italian jobs") and Statement 4 ("I prefer British/Hungarian/Italian products above all"), indicating that pragmatic, job-protecting, and preference-based aspects of CE are universally endorsed, regardless of cultural or economic context. Statement 2 ("Only those products that are unavailable in the United Kingdom/Hungary/Italy should be imported") also received high scores in the UK and Hungarian samples, suggesting a selective, economically motivated acceptance of imports. In contrast, Italian respondents more strongly endorsed Statement 9 ("It is always best to purchase British/ Hungarian/Italian products"), reflecting a more absolutist form of domestic preference, potentially rooted in Italy's strong national food identity and protection of origin-labelled products (Bellia et al., 2022).

The lowest levels of agreement were found for the more exclusionary or morally charged items, such as Statement 14 ("Foreigners should not be allowed to put their products on our market") and Statement 17 ("British/Hungarian/Italian consumers who purchase products made in other countries are responsible for putting their fellow British/Hungarian/Italian people out of work"). These items received low support across all countries, indicating general resistance to extreme or punitive forms of ethnocentric rhetoric. Similarly, Statement 15 ("Foreign products should be taxed heavily to reduce their entry into the United Kingdom/Hungary/Italy") was met with strong disagreement in the UK and Italy, indicating a clear rejection of protectionist fiscal interventions. In the Hungarian sample, Statement 7 ("A real British [person]/Hungarian/Italian should always buy British/Hungarian/ Italian-made products") was among the least endorsed items, suggesting that essentialist, identity-driven definitions of "true" national consumer behaviour are less accepted. These results reflect a general resistance to extreme, morally prescriptive, or punitive expressions of CE, even in countries where milder forms of domestic preference are otherwise common.

Statistically significant differences ($p < 0.01$) were observed across almost all items, except for Statement 3, indicating cross-country variation in observed item-level responses. In most cases, Italian respondents expressed significantly higher observed agreement with the items than their British and Hungarian counterparts, suggesting stronger item-level endorsement of domestic preference. In contrast, the UK sample generally exhibited lower observed agreement with several ethnocentric items, possibly related to a more open-market tradition and the post-Brexit trade liberalisation context. Taken together, these findings suggest that while certain functional and economic aspects of ethnocentrism are widely shared, normative, identity-based, or protectionist elements show different patterns of item-level endorsement across national contexts.

### 4.2. Exploratory graph analysis results

In the next step, the underlying latent structure of the CETSCALE items was examined across the three countries using EGA. In the UK, three latent dimensions were identified (Fig. 1). The resulting network consisted of 80 edges, indicating a moderate level of density (Edge density = 0.59), while the model fit, as assessed by the Total Entropy Fit Index (TEFI), was −11.18. The reliability of the identified dimensions was confirmed through McDonald's omega coefficients, which indicated good internal consistency (McDonald $\omega_{Community1} = 0.87$, McDonald $\omega_{Community2} = 0.94$, McDonald $\omega_{Community3} = 0.84$). The assessment of local (in)dependence among the items revealed no signs of substantial redundancy. In all item pairs, the Weighted Topological Overlap (wTO) remained below the conservative threshold of 0.20, indicating acceptable distinctiveness between variables.

In the British sample, the three latent dimensions that were revealed reflect different aspects of CE. The red-coloured statements (Community 1) are associated with a protectionist, anti-import attitude. This dimension includes items referring to the perceived negative economic effects of imports, such as unemployment (Statement 11), as well as moral judgments and calls for restrictive measures, like tariffs (Statements 14 and 15) and national loyalty (Statement 17). The green-coloured statements (Community 3) represent more pragmatic and economically grounded national preferences. These items reflect moderate forms of ethnocentrism, emphasising the economic benefits of buying domestic products (e.g., Statement 8), the conditional necessity of purchasing foreign goods (Statement 16), and cautious support for limiting international trade without its outright rejection (Statement 10). This suggests a rational, cost-benefit-oriented perspective rather than ideological exclusion. Finally, the blue-coloured statements (Community 2) reflect identity-based national commitment, where support for domestic products is rooted primarily in emotional or symbolic attachment rather than economic rationale. This includes more prescriptive and normative items that promote an unconditional preference for domestic goods as part of one's national identity.

To assess the stability of the EGA structure that was obtained, a non-parametric bootstrap procedure with 10,000 simulated samples was conducted. The results indicated that the most frequently occurring number of dimensions was two, not three. Specifically, the probability of a two-dimensional structure emerging during the simulations was close to 80%, whereas the three-dimensional solution occurred in just over 20% of the replications ($Median_{Dimension\ numer} = 2$; $CI_{l,95\%} = 1.18$, $CI_{u,95\%} = 2.82$). As shown in the right-hand panel of Fig. 1, the items assigned to the third dimension (Statements 16, 10, and 8) were classified into this dimension with low probabilities, ranging from 13% to 21%, suggesting that they are more likely to belong to either the first or the second dimension. This result questions the robustness of the three-dimensional structure, particularly regarding the separability of the third latent factor.

In Hungary, a three-dimensional solution was also identified (Fig. 2). The network contained 77 edges, reflecting a moderate level of density (Edge density = 0.57), and model fit was acceptable (TEFI = −11.34). The internal consistency of the three communities was again satisfactory, with McDonald's ω values of 0.90, 0.96, and 0.86 for Communities 1, 2, and 3, respectively. An assessment of local (in)dependence revealed minor redundancy between certain item pairs. Specifically, a moderate degree of overlap was found between Statements 1 and 2 (wTO = 0.21), and between Statements 2 and 3 (wTO = 0.22). However, these values remained within acceptable thresholds; therefore, no items were excluded from further analysis.

The red-coloured cluster (Community 1) reflects economic protectionism and the moral rejection of foreign products. This dimension encompasses statements regarding the taxation of foreign goods (Statement 15), perceived links between imports and unemployment (Statement 11), economic fears and the need to safeguard the national economy, and moral disapproval of purchasing foreign products (e.g., Statement 17). These items emphasise restrictive and judgmental attitudes toward international trade. The green-coloured statements (Community 3) express positive preferences for domestic products, reflecting a more affirmative and selective form of ethnocentrism. These items act as a conceptual bridge between the protectionist dimension and the identity-based attitudes found in the next cluster. Rather than

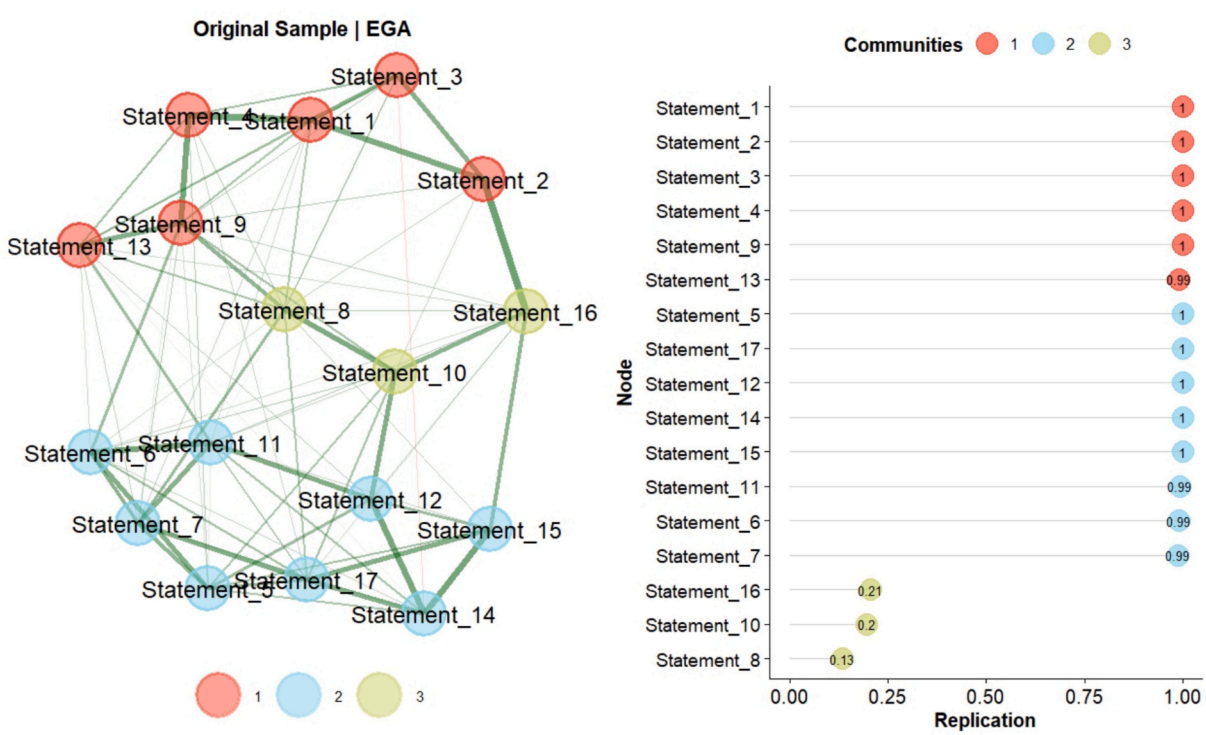


**Fig. 1.** EGA network for the British sample.

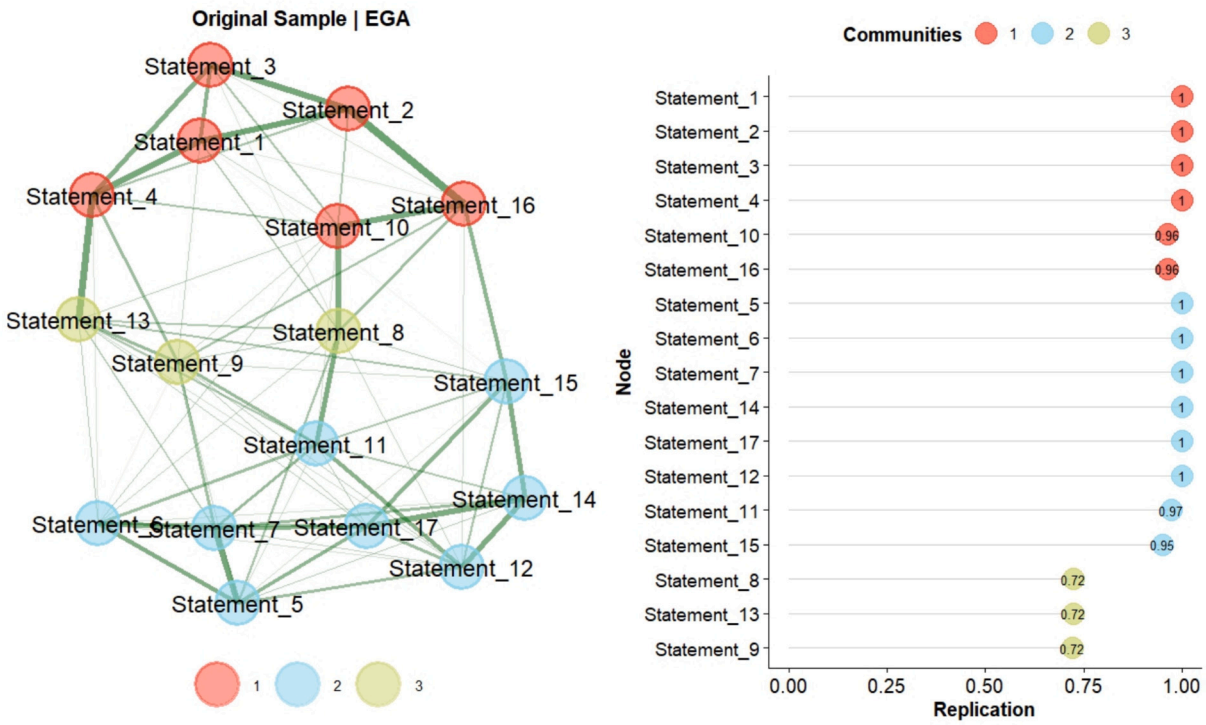


**Fig. 2.** EGA network for the Hungarian sample.

indicating a tendency to reject foreign products, these items highlight an economic and attitudinal preference for domestic ones, without moral condemnation. Finally, the blue-coloured statements (Community 2) represent national commitment and identity-driven ethnocentrism. These items include strong prescriptive assertions, such as the perceived moral–cultural obligation to purchase domestic products and the influence of symbolic markers of national identity on consumer behaviour (e.g., Statement 7). This dimension is characterised by emotionally and culturally motivated loyalty, rather than economic reasoning.

As in the previous case, the stability of the structure was assessed using a bootstrap procedure based on 10,000 simulated samples. The results were consistent with the findings from the original sample, supporting the selection of a three-dimensional model. Specifically, the probability of the two-dimensional solution occurring during the

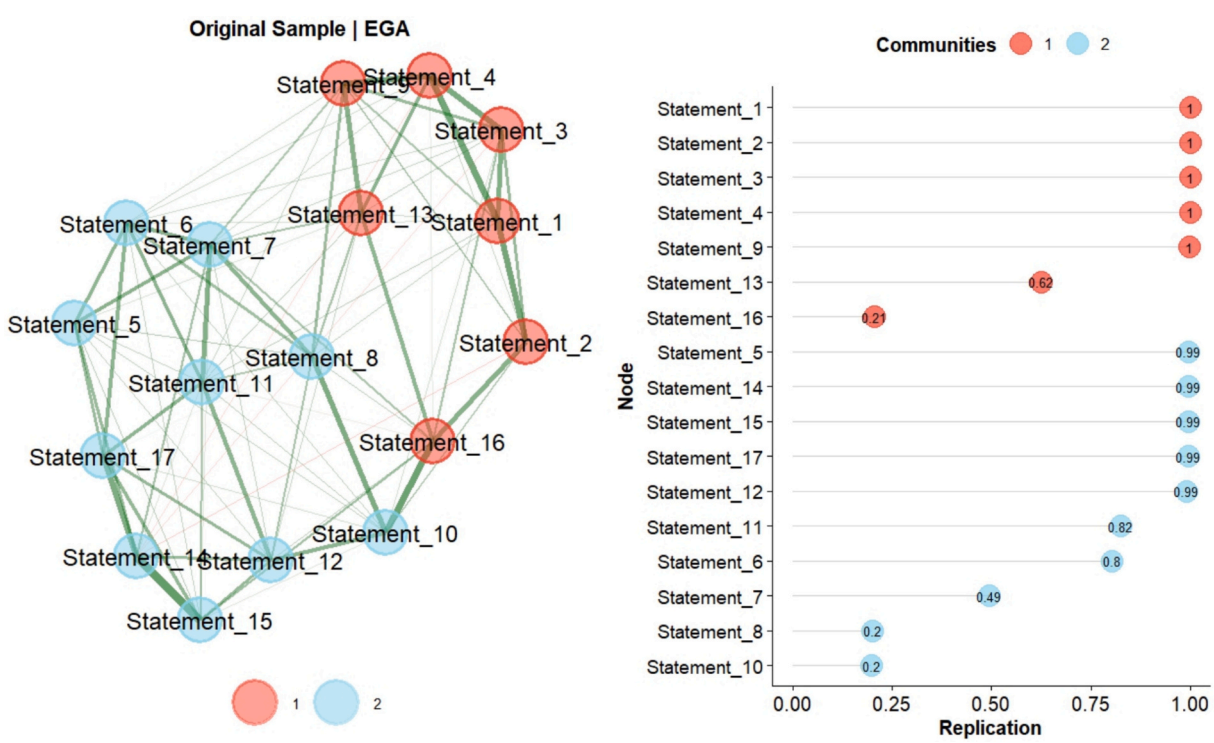


**Fig. 3.** EGA network for the Italian sample.

simulations was approximately 28%, while the three-dimensional configuration emerged in about 72% of the replications ($Median_{Dimension\ number} = 3$; $CI_{l,95\%=}2.12$, $CI_{u,95\%} = 3.88$). As shown in the right-hand panel of Fig. 2, the statements assigned to the third dimension (Statements 8, 13, and 9) were classified into this dimension with relatively high probability (approximately 72%), confirming the empirical relevance and stability of the third latent construct.

In Italy, by contrast, only two latent dimensions were identified (Fig. 3). The resulting network contained 83 edges, reflecting a moderate level of density (Edge density = 0.61), and model fit was satisfactory (TEFI = −13.06). The internal consistency of the dimensions was again confirmed, with McDonald's ω values of 0.91 for Community 1 and 0.95 for Community 2. The assessment of local (in)dependence revealed minor redundancy between two item pairs: Statements 1 and 4 (wTO = 0.20), and Statements 14 and 15 (wTO = 0.24). However, both values remained within acceptable limits; again, therefore, no variables were excluded from the analysis.

The blue-coloured statements (Community 2) reflect a set of positive domestic-preference attitudes that emphasise that purchasing national products is both desirable and appropriate, without necessarily rejecting imported goods. These include, for instance, Statements 5, 6, and 7, which support domestic product consumption based on cultural or normative preferences rather than due to hostility. These items suggest a normative yet moderate endorsement of national consumption, often based on perceived quality, responsibility, or patriotic considerations. By contrast, the red-coloured statements (Community 1) are indicative of economically defensive and protectionist attitudes, characterised by a more hostile stance toward foreign products. This dimension includes Statements 1, 2, 3, 4, and 16, which morally or economically justify rejecting imports. These items reflect a critical and often uncompromising approach to international trade, emphasising concerns over job loss (Statement 11), economic self-sufficiency (Statement 10), and moral obligations (Statement 17), aligning with a more exclusionary, economically motivated form of ethnocentrism.

Finally, the stability of the results for the Italian sample was also examined using 10,000 simulated bootstrap samples. The results were almost entirely at odds with the conclusions applicable to the British sample, as the simulation supported the selection of a three-dimensional model over a two-dimensional one. The probability of the two-dimensional solution occurring during the simulations was approximately 20%, while the three-dimensional solution appeared in roughly 73% of the replications ($Median_{Dimension\ numer} = 3$; $CI_{l,95\%=}2.03$, $CI_{u,95\%} = 3.97$). As shown in the right-hand panel of Fig. 3, Statements 16, 8, and 10 were only assigned to one of the two pre-existing dimensions in about 20% of the replications, suggesting that these items are likely to form a third latent dimension. This is a notable finding: in the British sample, the same three items formed a third dimension, although this dimension was not supported by the corresponding stability analysis. This contrast suggests potential cross-cultural divergence in how this subgroup of items functions across different ethnocentric attitude structures.

### 4.3. Measurement invariance

To assess the cross-country comparability of the CETSCALE, measurement invariance was examined using multigroup confirmatory factor analysis (MG-CFA). This analysis evaluates whether the scale operates equivalently across countries, thereby informing which types of cross-country comparisons can be meaningfully interpreted. Measurement invariance was tested at three levels: configural, metric, and scalar invariance. The results supported configural and metric invariance, as the change in the comparative fit index remained below the recommended threshold of 0.01 (ΔCFI = 0.003). This indicates that the scale measures the underlying construct in a comparable way across countries and that the relationships between variables can be meaningfully interpreted. However, scalar invariance was not supported (ΔCFI = 0.022), suggesting that item intercepts differ across national contexts. Consequently, while relationships between variables can be compared across countries, caution is warranted when interpreting mean differences, as these may be influenced by cross-cultural differences in response styles or item interpretation.

### 4.4. Sociodemographic determinants

In the final stage of the analysis, the dimensions identified by the EGA were further examined to explore their associations with sociodemographic variables. In the first step, dimension scores were calculated. They were derived as weighted aggregates of responses to items within each dimension, with weights based on the network loadings identified by the EGA structure. The results are presented in Appendix II. In the British sample, age was the only sociodemographic variable with a statistically significant effect. For the first dimension, respondents aged 55 and above showed significantly higher levels of agreement with the associated statements than those in the 18–24 age group. In the case of the second dimension, a significant difference was found between respondents aged 25–34 and those aged 45–54, with members of the younger age group expressing significantly stronger agreement. Given the ordinal nature of the subjective income variable (which was measured on a 7-point agreement scale using the statement "I'm just getting by financially"), its association with the dimension scores was examined using Spearman's rank correlation. No significant correlation was identified between subjective income status and the values of the dimensions ($r_s$(Subjective income, Dimension 1) = 0.07; $p = 0.10$; $r_s$(Subjective income, Dimension 2) = 0.05; $p = 0.24$; $r_s$(Subjective income, Dimension 3) = 0.04; $p = 0.39$) for the United Kingdom.

In Hungary, only one sociodemographic variable showed a statistically significant association with the CETSCALE dimensions (Appendix II). However, in contrast to the British sample, where age was the significant predictor, here, the significant variable was educational attainment. For Dimension 1, a significant difference was found between respondents with secondary and higher education levels, the former exhibiting significantly stronger agreement with the statements in this dimension. In Dimensions 2 and 3, respondents with higher education showed significantly lower levels of agreement with the respective statements than those with a maximum of primary or lower education or secondary education. As in the UK, no noteworthy correlation was observed between subjective income status and the dimension values. Although statistically significant correlation coefficients were identified for the second and third dimensions, their strength was weak ($r_s$(Subjective income, Dimension 1) = 0.07; $p = 0.09$; $r_s$(Subjective income, Dimension 2) = 0.12; $p < 0.01$; $r_s$(Subjective income, Dimension 3) = 0.09; $p = 0.03$).

The Italian sample is associated with the most statistically significant findings. Gender, age, and educational level were all significantly associated with heterogeneity in the CETSCALE dimension scores (Appendix II). Regarding gender, female respondents reported significantly stronger agreement with statements associated with Dimension 1 than male respondents. In terms of age, multiple significant differences were identified through post hoc analyses. Respondents aged 35 and above showed significantly greater agreement with the Dimension 1 statements than those in the 18–24 age group. For Dimension 2, a significant difference was also observed between the 18–24 and 35–44 age groups, with the latter exhibiting significantly stronger agreement according to the post hoc test results. With respect to educational attainment, a significant difference was also observed between groups. Respondents with secondary education demonstrated significantly greater agreement with the Dimension 1 statements than those with higher education. The Italian sample showed no strong correlation between subjective income status and the values of the identified dimensions. A relatively weak, positive correlation was identified ($r_s$(Subjective income, Dimension 1) = 0.18; $p < 0.01$; $r_s$(Subjective income, Dimension 2) = 0.27; $p < 0.01$), which suggests that as subjective financial conditions worsen, the level

of agreement with the statements related to the dimensions increases.

## 5. Discussion

### 5.1. Interpretation and discussion of the results

The present study examined CE among consumers in three countries (Hungary, Italy, and the United Kingdom). The results are in line with the conclusions of Vianelli et al. (2015), according to which ethnocentrism mainly strengthens the positive bias toward domestic products but has less power to explain the negative attitude toward foreign ones (the concept of "asymmetric ethnocentrism"). Consumers enthusiastically support domestic products (even despite a quality or price disadvantage), often without rejecting foreign alternatives. This distinction confirms that affective-prosocial elements of CE (e.g., patriotic pride, loyalty) exert a stronger influence on decisions in favour of domestic products than rational evaluations of foreign goods (Shan Ding, 2017). Cross-country differences were also observed in the item-level and dimension-score patterns. According to the literature, consumers in more developed economies are generally less ethnocentric than citizens of developing or transitional economies (Czine et al., 2024; Maró et al., 2023a; Tomić Maksan et al., 2019). In the UK, observed CETSCALE scores tended to be lower, whereas in Hungary, a post-socialist economy, higher levels appeared to be observed, although these differences should be interpreted with caution. Italy appeared to lie between these two patterns. Among Italian consumers, ethnocentrism was strongly expressed in certain areas (e.g., "Made in Italy" is traditionally prestigious and an aspect of national pride), although cosmopolitan attitudes also existed. These results support the claims of Balabanis et al. (2001), who emphasised that the extent and drivers of ethnocentrism vary across countries due to demographic and cultural differences.

Global economic influences interact with cultural values rather than directly determining CE (Balabanis and Siamagka, 2022). Macro factors such as national income levels or the presence of multinational companies are not associated with higher or lower levels of ethnocentrism unless they interact with specific cultural attitudes (e.g., collectivism, authoritarianism, distrust of foreigners). The findings of this study support this idea. The observed patterns suggest that ethnocentrism is not simply a matter of geography or development but may also reflect underlying cultural attitudes. Hungary, for example, is a culture associated with less social trust and stronger group loyalty than Western European countries (Czine et al., 2024; Péti et al., 2021). This may explain why Hungarian consumers are more likely to perceive foreign products as an economic threat and feel a moral obligation to support domestic products. In contrast, in the UK, national identity has long been associated with a cosmopolitan outlook and the historical importance of international trade, which curbs CE. However, a strengthening protectionist discourse may lead to an increase in CE in some groups (Dey et al., 2023). For Italy, the dual effect of cultural factors is evident. On the one hand, there is strong local patriotism and regional/national pride (e.g., concerning the prestige of Italian products), but on the other, Italy is also a Mediterranean, open-economy EU Member State, where cosmopolitan attitudes are strong among younger and metropolitan consumers (Bonaiuto et al., 2021).

These country-specific patterns are evident not only in the structure of ethnocentric attitudes but also in the factors associated with them. The results of the research suggest that, in the present sample, in Hungary, ethnocentrism is more affective-normative (i.e., associated with patriotic feelings and a sense of duty), whereas in the British sample, consumer decisions appear to be driven more by pragmatic, price–quality considerations, or by a weaker relevance of product origin in purchase decisions. Vida and Reardon (2008) and Maró et al. (2025) also point out that during economic downturns and crises, emotional (affective) mechanisms, such as CE, intensify, as consumers fear that choosing foreign products may exacerbate problems with domestic industry. This consideration may also have been reflected among Hungarian and Italian respondents, as the survey period coincided with crises or recessionary conditions. British consumers, on the other hand, may feel less personally responsible for protecting the domestic economy through their purchases, which can be traced back to a cultural heritage of cultural individualism and trust in the market.

The application of EGA revealed cross-country variation in the observed structure of CE. Although the items of the CETSCALE can generally be associated with a single overarching factor (indicating the presence of a general CE construct), EGA revealed the existence of country-specific item groupings. In Hungary, EGA highlighted that items reflecting moral obligation (e.g., patriotic duty to buy domestic products) tended to cluster closely together, while those related to economic concerns (e.g., the idea that buying foreign products leads to unemployment) formed a separate group. In contrast, the British sample appeared to exhibit a more homogeneous structure of ethnocentric attitudes. This may suggest a more uniform pattern of CE reasoning in the UK. In Italy, the EGA results indicated partial differentiation between emotionally or prosocially driven elements (e.g., patriotic feelings and pride in domestic products) and more instrumental considerations (e.g., price–value comparisons between domestic and imported products). These observed cross-country differences highlight the multidimensional nature of CE and suggest that its underlying components may vary in salience across cultural contexts. From a methodological perspective, the use of EGA is also important in that it provides a more objective assessment of scale dimensionality, reducing researcher subjectivity in determining the number of latent dimensions. The results lend partial support to the claim of the multidimensional structure of CE proposed by Siamagka and Balabanis (2015).

Moreover, EGA underscores the value of pursuing a network-based interpretation of consumer attitudes, in which specific attitudinal elements co-occur and mutually reinforce one another. For example, agreement with statements emphasising the moral obligation to support domestic products often co-occurred with negative affect regarding purchasing foreign products, forming identifiable clusters within the network structure. Furthermore, ethnocentric attitudes are not universal but are structured in ways that depend on cultural and economic contexts, consistent with the findings of Le et al. (2013) and Zeugner-Roth et al. (2015). While the three-dimensional model appeared to be unstable in the British sample, it appeared to be more stable in the Hungarian and Italian samples. This divergence may be partially explained by the context-dependent nature of CE (El Banna et al., 2018), as well as by differences in the strength of the relationship between national identity and consumption practices across countries. Regarding sociodemographic variables, the effects exhibited distinct patterns across countries. In the UK, age was significantly associated with ethnocentric attitude dimensions, whereas in Hungary, educational attainment was the only sociodemographic variable with a significant effect. In contrast, the Italian sample showed a broader pattern, with gender, age, and education all showing significant associations with ethnocentric attitude dimensions. On one hand, this might be caused by the differences in the samples of the countries (e.g., share of respondents with higher education level in the UK was substantially higher than in Hungary and Italy). On the other hand, other country-specific characteristics might also explain these phenomena: in the post-socialist environment of Hungary, higher education fosters cosmopolitanism that directly counters state-endorsed nationalism, whereas in the UK, differences between generations, manifested in age, might capture the shift in national identity post-Brexit. Overall, these findings are consistent with the literature (Czine et al., 2024; Josiassen et al., 2011; Maró et al., 2023a), suggesting that the intensity of CE is strongly shaped by individual background characteristics. Meanwhile, the impact of subjective income status appears to be weak but consistently positive across the samples. These cross-country differences should be interpreted with caution, as full scalar measurement invariance was not established. Consequently, observed differences in mean levels may partly reflect cross-country differences in response styles or item interpretation, rather than only

substantive differences in latent consumer ethnocentrism.

### 5.2. Implications

The results of this study suggest several theoretical and practical implications. From a theoretical perspective, the findings support the view that CE should be interpreted within a broader cultural and contextual framework. The cross-country differences in both the structure and stability of ethnocentric attitudes that were observed indicate that models that rely solely on economic or sociodemographic explanations are insufficient. Instead, the results highlight the relevance of cultural context in shaping how ethnocentrism is organised and expressed. In line with previous research, the findings suggest that CE is not a uniform or universal construct but one whose internal structure may vary across national settings. The results thus provide empirical support for a multidimensional conceptualisation of CE. Although the CETSCALE items were generally associated with a single overarching factor, the EGA revealed country-specific clustering patterns, indicating that distinct components (such as moral obligation, emotional attachment, and economic concerns) may play different roles across cultural contexts.

From a methodological standpoint, the study demonstrates the added value of EGA in assessing scale dimensionality in cross-country research. The EGA-based stability analyses suggested that a three-dimensional structure was more stable in Hungary and Italy than in the UK, highlighting the context-dependent nature of ethnocentric attitudes. These results suggest that applying data-driven, network-based approaches can deepen understanding of the internal organisation of consumer attitudes and reduce researcher subjectivity in factor determination.

In practical terms, the findings have implications for international marketing and brand management. They indicate that the observed intensity and structure of ethnocentric attitudes may vary across countries, implying that standardised origin-based marketing strategies may not be equally effective across markets. Moreover, the identification of distinct ethnocentric components suggests that consumer segments within the same country may respond differently to messages emphasising domestic origin, economic protection, or emotional attachment. Recognising this heterogeneity can help firms align their communication strategies with prevailing consumer attitudes in specific markets. For example, marketing messages that resonate with morally or emotionally driven ethnocentric segments may differ from those targeting consumers whose preferences are shaped primarily by economic considerations. This highlights the importance of tailoring origin-related communication not only at the country level but also across consumer segments within national markets.

## 6. Conclusion

The research described in this paper examined CE in the context of an everyday food product across three European countries using a unified research design and EGA. The findings highlight that while CE is present across all three contexts, it differs in both observed intensity and internal structure. A general ethnocentric tendency exists, as CETSCALE items are associated with a common underlying factor. However, EGA revealed country-specific clustering patterns among the items, indicating that distinct components of ethnocentrism (e.g., moral obligation, emotional attachment, and economic concerns) vary in relative salience across national contexts. Stability analyses further showed that a multidimensional structure appeared to be more stable in Hungary and Italy, while a comparable structure proved unstable in the UK, underscoring the context-dependent nature of ethnocentric attitudes. Sociodemographic effects also showed heterogeneous patterns across countries. Age, education, and gender were associated with ethnocentric attitudes to differing degrees depending on the national context, while subjective financial situation was only weakly but consistently associated with ethnocentrism. These findings highlight that CE cannot be fully understood without accounting for cultural and contextual variation.

At the same time, several limitations should be acknowledged. The study is based on cross-sectional, self-reported survey data, which limits causal inference. In addition, although the same measurement instrument was applied across countries, potential differences in how the CETSCALE functions across countries may have influenced the observed dimensional structures. In particular, the absence of full scalar measurement invariance suggests that cross-country comparisons of observed mean levels should be interpreted with caution, as they may partly reflect response-style or item-interpretation differences across countries rather than only substantive differences in latent consumer ethnocentrism. Furthermore, the analysis focused on a single product category, which may restrict the generalisability of the findings. Future research should examine the robustness of these patterns across additional product categories and cultural contexts, further assess measurement invariance using complementary methodological approaches, and link specific dimensions of CE to behavioural outcomes such as actual purchase choices or willingness to pay.

Supplementary data to this article can be found online at https://doi.org/10.1016/j.foodqual.2026.106019.

## Ethical

Ethical approval for the study was obtained through the Ethical Committee of Corvinus University of Budapest (KRH/261/2023).

## CRediT authorship contribution statement

**Péter Czine:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Zalán Márk Maró:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Áron Török:** Writing – review & editing, Writing – original draft, Validation, Supervision, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

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## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Data availability

The datasets used and/or analysed during the current study are available from the corresponding author on request.

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