



Business strategies of cured meats enterprises: Gastronomic tradition and market competitiveness

Federico Modica^{a,*}, Caterina Sciortino^b, Filippo Sgroi^b, Antonino Nazareno Virga^{a,c}, Aldo Migliazzo^d, Anna Maria Sutura^e, Giusi Giamporcuro^a

^a Department of Agricultural, Food and Forestry Sciences, University of Palermo, Italy

^b Department of Economics, Business and Statistics, University of Palermo, Italy

^c Meat and Agribusiness Chain Research Consortium, Messina, Italy

^d Zooprophyllactic Institute of the Sicilian Region, Italy

^e Department of Chemical, Biological, Pharmaceutical and Environmental Science, University of Messina, Italy

ARTICLE INFO

Keywords:

Sottocolarino PGI
Sicilian firms
Production disparities
Economic suggestions
Gastronomic heritage
Non-parametric analysis

ABSTRACT

This study examines the economic performance and strategic positioning of Sicilian salami firms specializing in the production of Salame Sant'Angelo PGI, a traditional gastronomic product. Using data collected from eight salami firms between 2015 and 2023, we analyze annual production volumes to distinguish between firms with above-average and below-average production. High-production firms capitalize on economies of scale through technological advancements and strategic market positioning, while low-production firms emphasize artisanal craftsmanship and product differentiation. These findings underscore the necessity of tailored economic strategies that preserve cultural heritage while fostering competitiveness. The study bridges quantitative analysis with traditional production practices to enhance the sustainability and market potential of Sicilian salami firms.

1. Introduction

In recent years, the Protected Geographical Indication (PGI) and Protected Designation of Origin (PDO) agri-food sector has experienced a constant growth trend, surpassing 20 billion euros despite the political instability that has occurred over this three-year period (Ismea & Fondazione Qualivita, 2023). In a precarious context, these products have had a positive impact by promoting food and wine tourism, enhancing the quality of Italian agri-food products, and particularly supporting local economies, especially in rural inland areas (Sgroi, 2022). Considering this, many PDO and IGP brands, while remaining faithful to strict regulations and maintaining a strong connection to the territory, have adopted technologies that make production and distribution processes more flexible, capable of responding to market changes and environmental challenges (Belletti et al., 2007).

However, despite their economic significance, there remain substantial challenges in maintaining the balance between modernization and tradition. Many small-scale producers struggle to compete with industrial-scale firms that benefit from economies of scale. Additionally, global market trends, changing consumer preferences, and increased

competition from non-certified products pose significant risks to the long-term sustainability of these traditional industries. While large firms can leverage technological innovations to reduce costs and enhance production efficiency, smaller producers often find it difficult to integrate these advancements without compromising the authenticity of their products (Toromade et al., 2024).

In developed countries the technological shift is a fundamental factor of competitiveness. PDO and GPI products are important means of preserving regional identities and promoting the resilience of rural areas. This is a quality certification that guarantees high standards, preserving traditional practices and contributing to sustainable economic development through the direct link between the product and its geographical origin. In this way they contribute to the cultural, social and economic hardiness of the local communities taking part, thus becoming the backbone for the development of rural territories. In several studies in various countries consumers tend to prefer products protected by geographical indications (GI), such as "Protected Designation of Origin" (PDO) and "Protected Geographical Indication" (PGI) clauses, than unprotected ones. Packaged products with a GI label are preferred by many consumers who are correlated to the perception of

* Corresponding author.

E-mail address: federico.modica@unipa.it (F. Modica).

<https://doi.org/10.1016/j.foohum.2025.100611>

Received 24 December 2024; Received in revised form 2 April 2025; Accepted 14 April 2025

Available online 14 April 2025

2949-8244/© 2025 The Author(s). Published by Elsevier B.V. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

high quality, authentic and cultural heritage (Di Vita et al., 2013; Tumer, 2013; Cei et al., 2023). Research has emphasized the significance of sustaining traditional food items to uphold regional identities and bolster local economies (Giovannucci et al., 2009). The European Union's PGI designation protects the reputation of such local foods, supports rural development, and promotes agricultural diversity (Belletti et al., 2017).

Despite this, existing literature lacks comprehensive analysis on the specific economic strategies that allow both large-scale and small-scale producers of Salame Sant'Angelo PGI to thrive in a competitive market. While previous studies have explored the general benefits of PGI and PDO certifications, there is a need for research that differentiates between the business models of high-production and low-production firms. Understanding these disparities can provide targeted policy recommendations to ensure that traditional salami production remains economically viable.

These factors emphasize the essential importance of these certifications in tackling contemporary issues like globalization and the diminishing of regional uniqueness. By the protection of unique local products, these certifications also encourage sustainable agricultural practices, foster innovation, and provide economic incentives for small-scale producers. This interplay between heritage conservation and market demand makes PDO and PGI certifications crucial to sustaining rural economies. The value of maintaining traditional food products lies not only in their cultural importance, but also in their ability to strengthen local economies and preserve biodiversity. By tying production to specific regions, these certifications encourage the sustainable use of natural resources and help preserve the social fabric of rural communities (Quaranta et al., 2016). This study examines how high-production firms leverage economies of scale to optimize efficiency and expand their market presence, whereas low-production firms sustain their market positioning through artisanal expertise and premium differentiation. Understanding these production dynamics can inform economic policies and strategic decisions aimed at balancing efficiency with cultural preservation. In particular the aim is to examine the differences between production dynamics of Salami firms and to provide economic recommendations to balance competitiveness with cultural heritage. In doing so, this research fills a gap in the literature by providing a structured analysis of production disparities, offering insights into the strategic adaptations of firms operating within the PGI-certified salami sector.

The paper is structured as follows:

2. Protected Geographical Indication (PGI) and Salame Sant'Angelo in Sicilian Gastronomy – an overview of the product's historical and cultural significance.
3. Relationship Between Supply and Demand for Food Products in Post-Modern Society – a discussion on consumer behavior and market trends affecting traditional food production.
4. Data and Methods – an explanation of the dataset and statistical methodologies used to analyze production disparities.
5. Results and Discussions – presentation and interpretation of the key findings.
6. Conclusions – a summary of the implications for policy, market strategy, and future research directions.

2. Protected Geographical Indication (PGI) Salame S. Angelo in Sicilian Gastronomy

Protected Geographical Indication (PGI) Salame Sant'Angelo represents a renowned Italian cured meat product exclusively produced in the **Sant'Angelo di Brolo** region of Sicily. Known for its traditional craftsmanship and distinct flavor profile, this salami is a testament to centuries-old culinary traditions. Its production embodies a perfect blend of local expertise, natural resources, and stringent quality standards, making it a symbol of the region's rich heritage.

According to the Production Guidelines for the Protected Geographical Indication Salame Sant'Angelo, the production process follows strict standards outlined in the PGI specification. High-quality cuts of pork are carefully selected, seasoned with salt, black pepper, and potassium nitrate, then stuffed into natural casings and aged under controlled conditions. The result is a cylindrical, irregular-shaped product with an elastic yet compact texture and a ruby-red color interspersed with white fat granules. Its mildly piquant taste and fragrant aroma make it a popular choice among consumers, both as a stand-alone delicacy and as part of appetizers.

The raw ingredients used for Salame Sant'Angelo PGI must meet strict standards to preserve the authenticity and quality of the product. Only fresh pork from selected EU breeds with a minimum carcass weight of 125 kg is permitted. The use of frozen meat is strictly prohibited to ensure that raw ingredients retain their natural properties. The carefully measured addition of spices and curing agents contributes to the unique flavor profile of the salami while maintaining its shelf life.

A key factor in production is the impact of Sant'Angelo di Brolo's microclimate, which plays a crucial role in the curing process. The area's proximity to the Tyrrhenian Sea, along with its distinctive landscape, creates ideal conditions for aging the salami. Producers leverage this natural advantage, combined with their expertise as artisans, to adjust the curing duration and ensure consistent quality across batches.

Commercially, PGI Salame Sant'Angelo is available in multiple formats, including whole, vacuum-packed, and pre-sliced versions, catering to diverse consumer preferences and market demands. Based on aging period, casing type, and weight, the following categories are distinguished:

- Cularino (700–1500 g, minimum aging of 50 days)
- Sottocularino (200–700 g, minimum aging of 30 days)
- Sacco (1000–3500 g, minimum aging of 60 days)
- Fellata (300–600 g, minimum aging of 30 days)

Strict labeling regulations ensure authenticity, protecting both the product and consumers by clearly indicating its geographical origin and adherence to traditional production standards. PGI certification not only safeguards the reputation of Salame Sant'Angelo but also protects it from imitations, ensuring that consumers receive an authentic, high-quality product. By emphasizing the link between the product and its territory, the certification supports rural development and agricultural sustainability.

As a result, Salame Sant'Angelo PGI stands as a beacon of gastronomic excellence, reflecting the resilience, innovation, and cultural heritage of the Sant'Angelo di Brolo region. This salami is a versatile ingredient in Sicilian gastronomy, used in traditional appetizers such as charcuterie boards paired with local cheeses and in rustic dishes like focaccias, pizzas, and savory pies. It is also appreciated in pasta dishes, where it enhances sauces and ragù with its bold flavor, and in main courses, adding depth to baked vegetables, stews, and meat rolls.

Thanks to its certified quality, it is a key component in gourmet aperitifs, often paired with Sicilian wines or craft beers. Widely featured in restaurants, local festivals, and agritourism sites in the province of Messina, it is celebrated in both traditional and innovative dishes, symbolizing the authenticity of Sicilian culinary heritage.

3. Relationship between supply and demand for food products in post-modern society

Food products are goods with unique characteristics in consumption (Sgroi, 2021). In fact, as consumers' disposable income increases, they shift from consuming lower-priced products to higher-priced (and qualitatively better) products or food products with added service content (Malassis & Ghersi, 1995). This phenomenon underpins the evolution of socio-economic systems in post-modern societies, where consumers, having satisfied their basic nutritional needs, seek food

products with added service value or those tied to the history and tradition of a specific region. Additionally, it should be noted that as income rises, consumers become more focused on quality of life, demanding goods that ensure a higher standard of living (Sgroi, 2022).

In post-modern societies, there is a renewed interest in the phenomenon of "food consumption" due to the evolution of the modern agri-food system and a growing awareness of the importance of consumption dynamics in shaping the pace of system development. Changes in food consumption patterns in post-modern societies can significantly influence the behavior of economic system operators. The relatively stagnant growth rate of food consumption in advanced societies and the increasing openness of markets have undoubtedly heightened competition among companies, intensifying their struggle to secure market share (Magdoff & Tokar, 2010).

In addition to these factors, consumers in advanced societies exhibit increasingly diverse and ever-changing needs, driving companies to seek new products and fostering strong dynamism within individual food categories or product lines (Agu et al., 2024). Indeed, food products more than any other reflect the social and cultural values of consumers. Their essential and irreplaceable role in human life, along with the deep connection established between humans and nature through food, makes them unique products. Their consumption influences not only the economic sphere but also nutritional, hedonistic, social, and symbolic dimensions (Dagevos & van Ophem 2013).

From a supply perspective, there has been a progressive loss of the artisanal character of production processes due to the adoption of industrial production methods and organizational models. Food distribution has also influenced the evolution of behaviors among both consumers and food companies. Today, we observe oligopolistic markets both on the side of food companies and food distribution. However, the increase in disposable income has made consumers more conscious and increasingly focused on the connection with their region of origin (Modica et al., 2023). The uniqueness of food products is at the core of consumption choices in developed economies. Consequently, regional brands fully meet these new demands. Tradition and territory now appear to be strategic variables for the success and revival of food products with a history, which have often been marginalized by the rise of large corporations in food production and distribution markets (Florek & Gazda, 2021).

Recent studies have further emphasized the role of consumer perception and digitalization in shaping market opportunities for traditional food products. For instance, research by Palmieri et al. (2021) has shown how factors such as sustainability, quality perception, and regional identity influence Italian consumers' willingness to pay a premium for certified products. Similarly, the increasing adoption of digital channels has facilitated consumer access to organic and regionally certified food products, enabling a green transition in food commerce (Samoggia et al., 2021). E-commerce platforms are playing a crucial role in reshaping consumer behavior, providing new opportunities for local producers to reach broader audiences (Palmieri et al., 2024). These insights suggest that market trends for PGI-certified products are closely linked to consumer values, digital accessibility, and evolving food consumption habits.

4. Data and methods

The data for this study were collected from eight Sicilian salami firms specializing in Sottocolarino IGP production, covering the years 2015–2023. The dataset includes the following variables: Year: A numerical variable representing the year of production, ranging from 2015–2023. SalamiFirms ID: A categorical variable identifying each salami, coded as integers, from 1 to 8; Production: quantitative variable recording the annual production volume of Sottocolarino IGP in kilograms. Group: A binary categorical variable created for analysis, where: 10 represents high-production firms with production above the overall mean production, 11 represents low-production firms with production

below the overall mean production. To evaluate the differences in production between the groups, a series of statistical tests was performed. Normality of the production distribution was assessed using the Shapiro-Wilk test. The test indicated significant deviations from normality, justifying the use of non-parametric methods. To determine whether there is a significant difference in production levels between the two groups (above-average and below-average salami firms), we formulated the following hypotheses: H_0 (the production distributions of the two groups are equal) while H_1 (The production distributions of the two groups are not equal). Infact, the Wilcoxon Rank-Sum test (Mann-Whitney U) was employed to compare the production distributions between the two groups, focusing on differences in rank sums. This methodological approach enables the identification of structural differences between high and low-performing firms, providing insights into their production dynamics and informing strategic economic recommendations. All analyses were performed using software, "Stata" to ensure robust and reproducible results, and statistical significance was evaluated with p-value at the 5 % level.

5. Results and discussions

The descriptive statistics reveal significant differences in production levels among the eight firms, highlighting considerable variability in both production capacity and distributional characteristics.

Salami_Firms	Mean	SD	Min	Max	Skewness	Kurtosis
1	20291.22	2176.30	16171	22925	-0.488	2.472
2	10364.11	1925.61	7994	13113	0.358	1.604
3	3877.63	1383.53	2218	7113.64	1.457	4.541
4	4029.78	1068.44	1535	5137	-1.452	4.419
5	32227.22	6911.31	23617	40418	0.0835	1.220
6	769.33	83.231	681	925	0.5761	2.260
7	14462.42	4417.23	8004	20365	-0.173	1.596
8	21838.11	5669.53	11663	30088	-0.448	2.314
Total	13482.45	10799.41	681	40418	0.683	2.659

Firstly, Firms 5 stands out as the top producer, with an average production of 32,227.22 kg and a peak output of 40,418 kg. However, the high standard deviation (6911.31 kg) indicates significant variability within its production levels, likely due to operational differences or inconsistencies in output. Its skewness (0.0835) is close to zero, and the kurtosis (1.2203) suggests a nearly symmetric distribution with minimal outliers, reflecting stable yet high production.

Firms 1 and 8 are also high performers, with average productions of 20,291.22 kg and 21,838.11 kg, respectively. Both factories exhibit moderate variability, as shown by their standard deviations. The slightly negative skewness values (-0.4887 for Firm 1 and -0.4489 for Firm 8) suggest that their production levels are generally concentrated toward the higher end, with fewer smaller values pulling the average down. On the other end of the spectrum, Firms 3 and 4 produce significantly less, averaging 3877.63 kg and 4029.78 kg, respectively. Both distributions are highly skewed to the right (skewness values of 1.4575 and 1.4525), meaning most production values are low, but a few unusually high observations raise the mean. Their high kurtosis values (4.5418 and 4.419) further highlight the presence of extreme values and irregular spikes in production. Firm 6 has the lowest production, with an average of 769.33 kg and very little variability (SD = 83.23 kg). The negative skewness (-0.576) and moderate kurtosis (2.260) suggest that its production is highly stable but consistently low, with little fluctuation over time. Firms 2 and 7 fall somewhere in the middle, with average productions of 10,364.11 kg and 14,462.42 kg, respectively. Both factories show moderate variability and relatively symmetric distributions, as indicated by skewness values close to zero. This implies a steady and consistent production process without major extremes. Looking at all eight factories combined, the average production is 13,482.45 kg, but the substantial standard deviation (10,799.41 kg) highlights considerable differences in productivity across facilities. The overall skewness

(0.683) indicates a slight asymmetry to the right, meaning that while most factories have lower production levels, a few high performers -like Firm 5- pull the average upward. The kurtosis value (2.66) points to moderately heavy tails, emphasizing the presence of outliers or production peaks that disrupt the overall distribution.

Group	Observations (n°)	Rank Sum	Expected Rank Sum	Mean Rank	Z-Score	p-value	Adjusted Variance
10(Above Average)	36	1942.5	1314	53.96	7.078	< 0.001	7883.87
11(Below Average)	36	685.5	1314	19.04			
Combined	72	2628					

The results of the Wilcoxon Rank-Sum test clearly show a significant difference in production between the two groups: salami factories with above-average production (Group 10) and those with below-average production (Group 11). Group 10 has a total rank sum of 1942.5, much higher than Group 11's 685.5, while the expected rank sum for both groups under no difference is 1314. The z-statistic of 7.078 confirms a clear gap between the two groups, and the p-value (<0.0001) indicates that this difference is highly significant. A small adjustment for ties (- 0.13) has no meaningful impact on the variance, which remains robust at 7883.87. The results of the Wilcoxon Rank-Sum test allowed us to reject H_0 ($p < 0.0001$), indicating that production levels between the two groups are significantly different. This suggests that the higher-performing factories systematically achieve greater output than their lower-performing counterparts.

6. Conclusions

This study provides key insights into the production dynamics of Sicilian salami firms specializing in Salame Sant'Angelo PGI. A clear divide exists between high-production firms, which utilize economies of scale, and smaller firms, which rely on economies of scope to maintain artisanal quality. Our statistical analysis, including the Wilcoxon Rank-Sum test, confirms a significant difference in production outputs, reflecting complementary strategies within the sector. Regarding production theory, this polarization can be linked to the ability of larger factories to exploit economies of scale, while smaller ones focus on economies of scope, emphasizing craftsmanship and tradition. Firms with above-average production optimize production processes, reduce average unit costs, and enhance their competitiveness in broader markets through investments in technology and efficient resource management. This capability allows them to respond to global demand with high production volumes, consolidating their role in the market. Conversely, salami firms with lower production levels, despite operating on a smaller scale, stand out for their strategic focus on economies of scope, emphasizing artisanal quality and the added value of GPI and PDO certifications. These certifications are not only a guarantee of authenticity and origin for consumers but also a strategic tool for differentiating their products and capturing more demanding market niches. This duality in production, which is clearly reflected in the observed polarization, demonstrates that the Sicilian salami sector is highly competitive. On the one hand, larger factories leverage innovation and economies of scale to compete in terms of efficiency and cost; on the other, smaller producers rely on quality-oriented production, which enhances the value of local gastronomic traditions. This complementarity enables the sector to effectively respond to diverse demand, meeting both mass-market needs with standardized and accessible products and the expectations of consumers seeking high value, quality, and product provenance. From an economic perspective, the study's findings suggest many implications. For larger salami factories, technological innovation is the key levers for further improving

efficiency and maintaining competitiveness on a global scale. For smaller producers, it is essential to strengthen the promotion of IGP and DOP certifications, emphasize local identity, and invest in gastronomic tourism. In this context, integrating typical food production with tourism represents a major opportunity to promote Sicily as a global brand of gastronomic excellence. At the same time, the creation of

cooperative networks among producers could facilitate the sharing of resources, technologies, and expertise, helping to bridge the productivity gap and improve access to international markets. In conclusion, the Sicilian salami firm sector reflects a dynamic productive polarization, where industrial efficiency and artisanal excellence coexist in a virtuous balance. On one side, economies of scale allow the more productive salami factories to compete on a large scale, while on the other, economies of scope enable smaller producers to achieve a distinctive market position based on quality and strong ties to the territory. This complementarity is key to ensuring competitiveness, sustainability, and the promotion of Sicilian gastronomic traditions in an increasingly global and competitive economic environment. The findings suggest a need for further research on consumer perceptions of PGI-certified products and their impact on market competitiveness. Additionally, policy initiatives supporting small-scale producers through financial incentives and marketing strategies could enhance the resilience of traditional food industries.

CRediT authorship contribution statement

Sciortino Caterina: Supervision, Validation, Visualization. **Giamporcaro Giusi:** Writing – review & editing, Writing – original draft. **Sutera Anna Maria:** Data curation, Visualization. **Migliazzo Aldo:** Visualization, Data curation. **Virga Antonino Nazareno:** Visualization, Data curation. **Modica Federico:** Methodology, Investigation, Formal analysis, Conceptualization, Project administration, Software, Writing – original draft, Writing – review & editing, Validation. **Sgroi Filippo:** Supervision, Validation.

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.

References

- Agu, E. E., Nwabekee, U. S., Ijomah, T. I., & Abdul-Azeez, O. Y. (2024). The role of strategic business leadership in driving product marketing success: Insights from emerging markets. *International Journal of Frontline Research in Science and Technology*, 3(02), 001–018.
- Belletti, G., Burgassi, T., Manco, E., Marescotti, A., Pacciani, A., & Scaramuzzi, S. (2007). The roles of geographical indications (PDO and PGI) on the internationalisation process of agro-food products. In *International Marketing and International Trade of Quality Food Products* (pp. 517–540). Avenue Media (Bologna).
- Belletti, G., Marescotti, A., & Touzard, J. M. (2017). Geographical indications, public goods, and sustainable development: The roles of actors' strategies and public policies. *World Development*, 98, 45–57.
- Cei, L., Defrancesco, E., Gatto, P., & Pagliacci, F. (2023). Pay more for me, I'm from the mountains! The role of the EU Mountain Product term and other credence attributes in consumers' valuation of lamb meat. *Agricultural and Food Economics*, 11(1), 12.
- Dagevos, H., & van Ophem, J. (2013). Food consumption value: Developing a consumer-centred concept of value in the field of food. *British Food Journal*, 115(10), 1473–1486.

- Di Vita, G., D'Amico, M., La Via, G., & Caniglia, E. (2013). Quality Perception of PDO extra-virgin Olive Oil: Which attributes most influence Italian consumers? *Agricultural Economics Review*, 14(389-2016-23498), 46–58.
- Florek, M., & Gazda, J. (2021). Traditional food products—Between place marketing, economic importance and sustainable development. *Sustainability*, 13(3), 1277.
- Giovanucci, D., Barham, E., & Pirog, R. (2009). Defining and marketing “local” foods: Geographical indications for US products. *Journal of World Intellectual Property*, 12(3), 257–278.
- Ismea & Fondazione Qualivita. (2023). Rapporto Ismea-Qualivita 2023 sulle produzioni agroalimentari e vitivinicole italiane DOP, IGP e STG. Edizioni Qualivita. ISBN: 978-88-96530-54-2.
- Magdoff, F., & Tokar, B. (2010). *Agriculture and food in crisis: conflict, resistance, and renewal*. NYU Press.
- Malassis, L., & Ghersi, G. (Eds.). (1995). *Introduzione all'economia agroalimentare. Il mulino*.
- Modica, F., Sciortino, C., Bonanno, A., Virga, N. A., Sciortino, N., Sottile, G., & Sgroi, F. (2023). Analyzing post modern consumer behavior and beef consumption patterns: Insights from Sicilian market. *Future Foods*, 8, Article 100263.
- Palmieri, N., Boccia, F., & Covino, D. (2024). Digital channels and green transition: Consumer behaviour as for organic food e-commerce platforms. *Economia agroalimentare: XXVI*, 3(2024), 117–136.
- Palmieri, N., Pesce, A., Verrascina, M., & Perito, M.A. (2021). Market Opportunities for Hay Milk: Factors Influencing Perceptions among Italian Consumers [Opportunit  de march  pour le lait de foin: facteurs influen ant les perceptions des consommateurs italiens] (No. hal-03764785).
- Quaranta, G., Citro, E., & Salvia, R. (2016). Economic and social sustainable synergies to promote innovations in rural tourism and local development. *Sustainability*, 8(7), 668.
- Samoggia, A., Monticone, F., & Bertazzoli, A. (2021). Innovative digital technologies for purchasing and consumption in urban and regional agro-food systems: A systematic review. *Foods*, 10(2), 208.
- Sgroi, F. (2021). Food traditions and consumer preferences for cured meats: Role of information in geographical indications. *International Journal of Gastronomy and Food Science*, 25, Article 100386.
- Sgroi, F. (2022). Evaluating of the sustainability of complex rural ecosystems during the transition from agricultural villages to tourist destinations and modern agri-food systems. *Journal of Agriculture and Food Research*, 9, Article 100330.
- Toromade, A. S., Soyombo, D. A., Kupa, E., & Ijomah, T. I. (2024). Technological innovations in accounting for food supply chain management. *Finance Accounting Research Journal*, 6(7), 1248–1258.
- Tumer, E. I. (2013). Table olive consumption by socioeconomic and demographic groups of consumers in turkey. *Italian Journal of Food Science*, 25(4).