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PROFITABILITY OF ITALIAN RESTAURANTS BEFORE AND DURING THE PANDEMIC[1*]

Abstract: Restaurant businesses play a leading role in the economy of a tourist country. Traditionally the destination of many foreign guests, Italy is also renowned for its excellent cuisine based on the Mediterranean diet. This paper analyzes the trend of two profitability indices of a sample of large Italian restaurants, related to the pre-pandemic period and in the COVID-19 year, 2020. For this purpose, financial statements from the AIDA database were used. Profitability was studied using RoE (return on equity) and RoS (return on sales). The study is related to the entire country and its three macro-regions (North, Center, and South with islands). The analysis showed a dramatic fall in the year of COVID-19 despite government interventions to support the business that has been subject to forced closures. The main limitation of this study is its purely quantitative nature limited to a sample of restaurants with annual revenues over €800,000. The results are useful to Italian and foreign entrepreneurs who can relate their situation to the average situation in the sector. In the future, the study should consider other profitability and asset indices, as well as investigate investments in sustainability, taking into account the role of restaurants which should contribute to the development of fair, ethical, and sustainable tourism.
Keywords: tourism; economic ratios; RoE; RoS.

Introduction

The different reality of the Italian restaurant industry is an important pillar of the country's national economy and heritage, including cultural. It is the first component of the added value of the agrifood chain providing employment and stimulating food consumption[2]. It is also highly appreciated by tourists and contributes to the logic of sustainability, fighting against food waste and valorizing local "zero kilometre" products.

Unfortunately, COVID-19 hit the industry dramatically and unexpectedly: it lost about 40% of its revenue in 2020 compared to 2019. A total of 22,692 restaurants closed in comparison to 9,207 that started. This is the lowest figure in the last decade[3].

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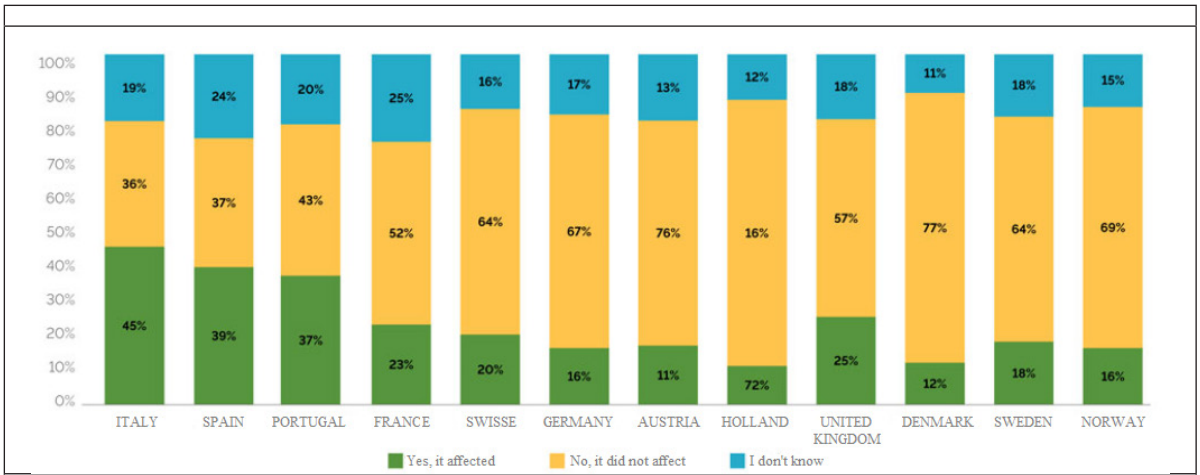
[1] This paper is the result of collaborative work. However, it is possible to attribute "Results and First Evidence" to Alessia Adamo. The other sections are by Guido Migliaccio.

[2] **Panorama Chef.** "Da un'indagine Fipe buone nuove sulla ristorazione italiana", 2020, from the site: https://www.panoramachef.it/ristorazione-italiana-professioni-della-ristorazione-tendenze/ (consulted on 13 March 2022).

[3] **Rapporto Osservatorio Ristorazione**, 2021, from the site: https://www.osservatorioristorazione.com/#:~:text=La%20ristorazione%20nel%202020%20ha,basso%20degli%20ultimi%2010%20anni (consulted on 13 March 2022).

These negative results have certainly been influenced by the reduction in Italians' propensity to spend, who were most seriously affected in Europe (fig. 1).



Source: Foodserviceweb.it (2020).

Fig. 1. Impact of the economic crisis on the propensity to visit restaurants

2020 was the year in which home consumption (delivery and takeaway) took off, often using riders; it was the only legitimate way to deal with forced closures. Kitchens closed to the public (dark, grey, ghost, and cloud kitchens) have thus prospered. This also changed restaurateurs' relationship with the technology for reservations, deliveries and payments, and even menus. It is assumed that these innovative approaches will complement traditional catering, even when the pandemic crisis is finally over.

This quantitative study focuses on the profitability of Italian restaurants over the last decade (2011–2020) to test the following hypothesis:

(H1) *Italian restaurants have worsened their economic situation because of the pandemic.*

This is despite the relief provided by the national government.

For this purpose, the paper analyzes the evolution of RoE (Return on equity) and RoS (Return on sales), considering the nation and its three macro-regions, as well as the well-known environmental and socio-economic differences that distinguish them[4]. Therefore, we would like to answer the following research questions:

RQ1: What is the evolution of the main ratios that express company profitability over the decade?

RQ2: Are there significant differences between the main Italian macro-regions?

In the following sections, a review of the literature on tourist companies is provided. Then, the methodology, results, implications and conclusions are discussed.

Literature Review (Notes)

The recent international bibliography has focused mainly on the issues of strategies that food service companies have adopted in the problematic pandemic situation. In China, for example, there are innovations in several areas of management[5]: prevention and control of infection, new relationships with government and communities, cooperation with third parties, especially with other companies (a topic also developed in Cricket et al., In press), innovative marketing approaches in which the message of constantly sanitized environments dominates (as highlighted by Kim et al., 2021[6]), etc. They have taken

[4] **Bianchi, L., & Fraschilla, A.** Divario di cittadinanza. Un viaggio nella nuova questione meridionale. Rubbettino, Soveria Mannelli, 2020.

[5] **Li, B., Zhong, Y., Zhang, T., & Hua, N.** Transcending the COVID-19 Crisis: Business Resilience and Innovation of the Restaurant Industry in China. *Journal of Hospitality and Tourism Management*, 49, 2021, pp. 44–53.

[6] **Kim, K., Bonn, M. A., & Cho, M.** Clean Safety Message Framing as Survival Strategies for Small Independent Restaurants During the COVID-19 Pandemic. *Journal of Hospitality and Tourism Management*, 46, 2021, pp. 423–431.

on different prominence in relation to infection trends. In the US restaurant industry, on the other hand, financial recovery strategies were analyzed by considering a few business cases[7]: reduced revenue was offset by delaying capital expenditures and decreasing marketing expenditures.

However, the dominant research on the resilience of restaurants (Elshaer and Saad, In press) appeared greater than on that of hotels[8].

Resilience was possible, especially by perceiving a different mood of customers mainly based on their perception of pandemic risk[9]. However, it was also necessary to develop alternative modes of service, considering the new contexts[10] in which consumer tastes change as well, with a clear impact on menu design[11].

The turning point that characterized the restaurant industry during COVID-19 was certainly the technology that encouraged remote ordering and home delivery[12].

A mention should be made to the analysis related to the performance of securities issued by food service companies, which have been affected by the particular situation[13].

However, there are, no quantitative studies based on balance sheet data. This gap prompted this research.

Research Methodology

Data collection and sample characteristics

The quantitative study used budgetary data from Bureau van Dick's AIDA database. To analyze profitability, the time evolution of two indices studied RoE (Return on equity) and RoS (Return on sales) for 10 years (2011–2020). The sample was made up of financial statements of 12,094 restaurants, with Ateco code 56.10.11. However, the data were not always available, so, for each year, the actual number of observations was subsequently indicated. In addition to the aggregate analysis for the nation of Italy, there was a detailed study developed by geographical area: North, Center, and South with islands according to the conventional classification of Italian regions. The data, therefore, were distributed as follows: North – 4,351 restaurants, Center – 3,834, South and islands – 3,909.

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[7] **Yost, E., Kizildag, M., & Ridderstaat, J.** Financial Recovery Strategies for Restaurants During COVID-19: Evidence from the US Restaurant Industry. *Journal of Hospitality and Tourism Management*, 47, 2021, pp. 408–412.

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[13] **Clark, J., Mauck, N., & Pruitt, S. W.** The Financial Impact of COVID-19: Evidence from an Event Study of Global Hospitality Firms. *Research in International Business and Finance*, 58, art. no. 101452, 2021; **Lin, X., & Falk, M. T.** (In press). Nordic Stock Market Performance of the Travel and Leisure Industry During the First Wave of COVID-19 Pandemic. *Tourism Economics*.

Method

Several statistical values were calculated for each index and each year: mean, median, variance, and standard deviation. Average values were also represented graphically to show national and macro-regional trends in order to highlight differences. The interpolating function was chosen to represent the function that maximized the value of R^2 to better highlight trends and differences. To test whether the differences among the three macro-regions were statistically significant, the data were also subjected to the ANOVA test and, where appropriate, to the Tukey–Kramer test.

Results and First Evidence

Return on equity: trend analysis

RoE is an expression of a company's overall profitability, and therefore of the management's ability to remunerate the resources invested. The index has been calculated by relating net income to net capital. Its value should be as high as possible.

Table 1 shows the number of observations, as well as national and macro-regional statistical data.

Table 1 : RETURN ON EQUITY - DESCRIPTIVE STATISTICS

YEAR	ITALY					NORTH					CENTER					SOUTH AND ISLANDS				
	N.	M.	MD.	V.	DS.	N.	M.	MD.	V.	DS.	N.	M.	MD.	V.	DS.	N.	M.	MD.	V.	DS.
2020	1538	7,26	9,30	1823,57	42,70	880	4,56	6,68	1836,03	42,85	371	11,94	12,87	1683,07	41,03	287	9,51	13,45	1930,25	43,93
2019	2392	20,80	18,31	1413,84	37,60	1248	18,44	16,42	1535,76	39,19	616	24,09	19,64	1367,96	36,99	528	22,55	19,96	1158,04	34,03
2018	2387	20,58	17,64	1459,73	38,21	1231	18,72	15,64	1452,68	38,11	618	22,14	18,66	1486,74	38,56	538	23,01	19,37	1436,38	37,90
2017	2264	18,75	16,91	1545,81	39,32	1161	19,12	17,18	1634,05	40,42	592	19,22	17,08	1594,70	39,93	511	17,39	15,94	1295,11	35,99
2016	2140	20,14	16,68	1413,24	37,59	1091	19,10	15,99	1492,50	38,63	576	19,40	16,29	1422,01	37,71	473	23,42	20,35	1214,58	34,85
2015	1932	19,62	16,05	1556,64	39,45	972	20,49	17,80	1696,94	41,19	521	18,57	14,86	1525,16	39,05	439	18,95	14,97	1290,19	35,92
2014	1746	15,31	11,67	1577,93	39,72	873	14,88	10,84	1744,49	41,77	492	15,52	12,70	1523,76	39,04	381	16,00	13,04	1277,23	35,74
2013	1541	9,88	8,60	1575,46	39,69	772	9,25	7,58	1626,53	40,33	426	9,28	9,86	1793,77	42,35	343	12,03	7,39	1196,85	34,60
2012	1423	10,52	8,30	1705,66	41,30	708	9,01	8,71	1837,09	42,86	383	11,03	8,16	1758,64	41,94	332	13,15	8,22	1367,14	36,97
2011	1309	10,27	8,70	1483,72	38,52	665	9,99	8,70	1599,79	40,00	357	9,44	8,39	1694,97	41,17	287	11,95	9,15	962,96	31,03

Legend: N.= number of observations; M.= arithmetic mean; MD.= median; V.= variance; DS.= standard deviation.

Source: our elaboration

The national data show a median that differs little from the average. Thus, the distribution of the data is asymmetric: most values are below the mean. The standard deviation and the variance have high values. Therefore, we can say that RoE has a significant variation.

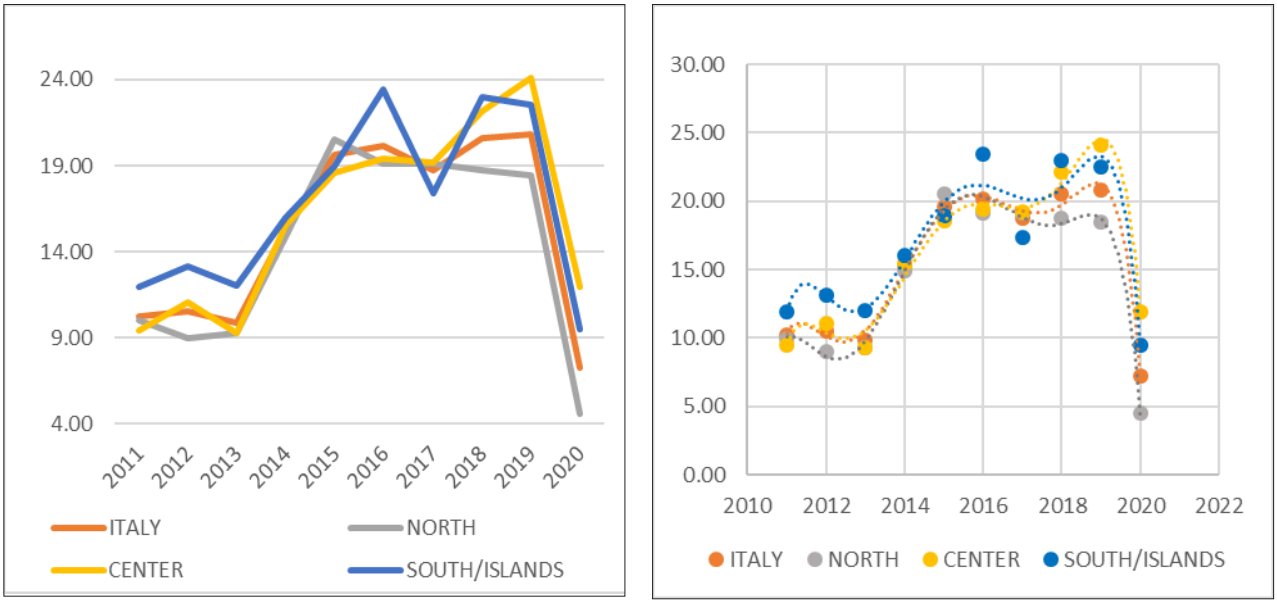
Table 2 identifies the interpolating function of the arithmetic mean trend that maximizes R^2: in all cases, the sixth-degree polynomial function was chosen.

Table 2: RETURN ON EQUITY: INTERPOLATING EQUATIONS AND R^2

ITALY	$y = -0{,}007x^6 + 84{,}867x^5 - 427551x^4 + 1E{+}09x^3 - 2E{+}12x^2 + 1E{+}15x - 5E{+}17$	$R^2 = 0{,}992$
NORTH	$y = -0{,}0063x^6 + 76{,}632x^5 - 386051x^4 + 1E{+}09x^3 - 2E{+}12x^2 + 1E{+}15x - 4E{+}17$	$R^2 = 0{,}9882$
CENTER	$y = -0{,}0072x^6 + 86{,}672x^5 - 436649x^4 + 1E{+}09x^3 - 2E{+}12x^2 + 1E{+}15x - 5E{+}17$	$R^2 = 0{,}9837$
SOUTH AND ISLANDS	$y = -0{,}0081x^6 + 97{,}763x^5 - 492545x^4 + 1E{+}09x^3 - 2E{+}12x^2 + 2E{+}15x - 5E{+}17$	$R^2 = 0{,}92$

Source: our elaboration

Figure 2 illustrates the arithmetic mean trends with broken lines and interpolated curves.



Source: our elaboration

Fig. 2. RETURN ON EQUITY – Trend: graphic representations

The lowest values characterize the North. However, in the Center and South, RoE has higher values. Reflecting this, the lowest yet not negative value was recorded in the North in 2020 (4.56%). The situation was more positive in the Center and South, particularly in 2018 (23.01%) and 2016 (23.42%). The first observation of the graphs and a careful evaluation of the descriptive statistics do not reveal significant differences between the macrozones. To better examine the differences, the annual average data were subjected to the ANOVA test (Table 3).

Table 3 : Test ANOVA ROE

SUMMARY						
Groups	*Count*	*Sum*	*Arithmetic mean*	*Variance*		
NORTH	10	143,559349	14,3559349	32,06622964		
CENTER	10	160,627039	16,06270394	29,02470989		
SOUTH/ISLANDS	10	167,964879	16,79648792	25,96925404		
VARIANCE ANALYSIS						
Origin of the variation	*SQ*	*gdl*	*MQ*	*F*	*Significance value*	*F crit*
Between groups	31,35932836	2	15,67966418	0,540304249	0,588739086	3,35413083
In groups	783,5417421	27	29,02006452			
Total	814,9010704	29				

Source: our elaboration

RoE showed greater differences within groups than between groups. The analysis of variance revealed no statistically significant differences between the groups considered (F < Fcritic). Since the null hypothesis was accepted, post-ANOVA testing is not necessary.

Return on sale: trend analysis

RoS is an expression of the operational profitability of sales, i.e. the ability of a company to produce profits from sales prices. The index is calculated by relating the operating income to total revenues. Its value should be as high as possible.

Table 4 reports the number of observations, as well as national and macro-regional statistical data.

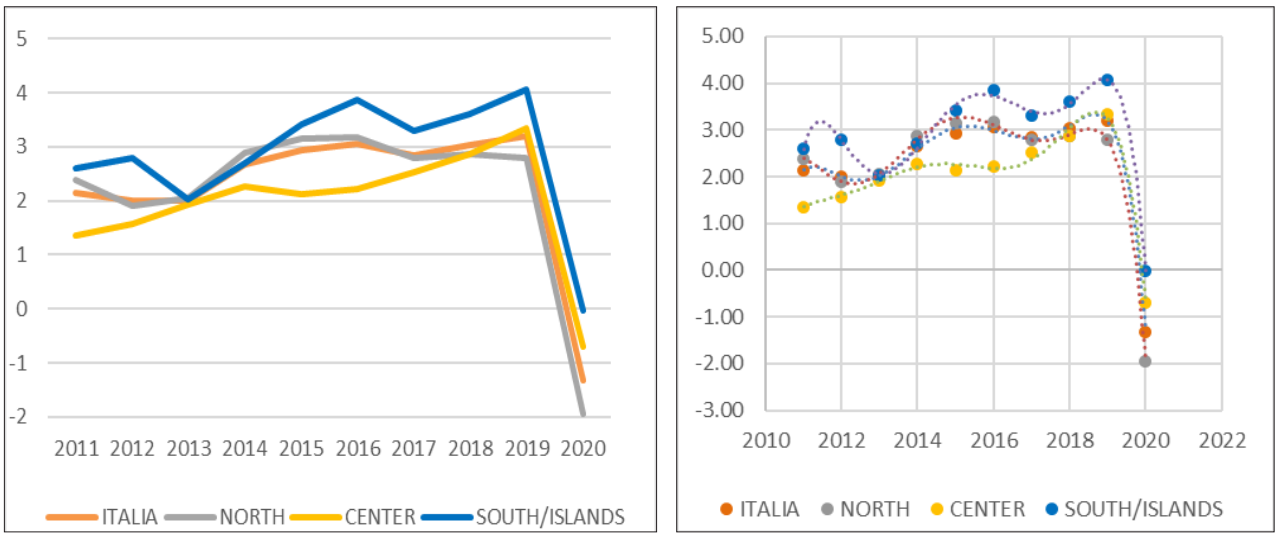
Table 4 : RETURN ON SALE - DESCRIPTIVE STATISTICS																				
YEAR	ITALY					NORTH					CENTER					SOUTH AND ISLANDS				
	N.	M.	MD.	V.	DS.	N.	M.	MD.	V.	DS.	N.	M.	MD.	V.	DS.	N.	M.	MD.	V.	DS.
2020	1881	-1,32	1,19	142,13	11,92	1106	-1,95	0,69	148,71	12,19	447	-0,71	1,31	135,96	11,66	328	-0,03	2,28	126,06	11,23
2019	2624	3,21	2,96	62,13	7,88	1381	2,80	2,68	69,26	8,32	677	3,34	2,95	52,90	7,27	566	4,06	3,40	54,94	7,41
2018	2614	3,03	2,79	65,26	8,08	1349	2,87	2,64	68,80	8,29	693	2,87	2,66	62,71	7,92	572	3,61	3,54	59,92	7,74
2017	2475	2,83	2,85	65,66	8,10	1265	2,80	2,90	78,69	8,87	662	2,52	2,48	57,43	7,58	548	3,30	3,04	45,54	6,75
2016	2303	3,06	3,00	63,78	7,99	1161	3,18	2,99	65,12	8,07	635	2,21	2,59	76,01	8,72	507	3,86	3,59	44,17	6,65
2015	2096	2,93	3,18	78,96	8,89	1061	3,15	3,41	87,53	9,36	575	2,13	2,59	82,56	9,09	460	3,41	3,40	54,03	7,35
2014	1895	2,67	3,01	69,68	8,35	956	2,88	3,11	63,96	8,00	536	2,26	2,59	72,71	8,53	403	2,71	3,20	79,39	8,91
2013	1701	2,01	2,69	69,33	8,33	875	2,05	2,59	64,28	8,02	467	1,93	2,69	68,18	8,26	359	2,02	3,03	83,72	9,15
2012	1541	2,00	2,50	66,46	8,15	785	1,90	2,39	65,78	8,11	426	1,57	2,30	66,39	8,15	330	2,79	3,23	67,90	8,24
2011	1443	2,14	2,95	82,15	9,06	740	2,39	3,04	77,05	8,78	408	1,36	2,41	94,89	9,74	295	2,60	3,37	76,95	8,77
Legend: N. = Number of observations; M = Arithmetic mean; Md = Median; V = Variance; Ds = Standard deviation.																				
Source: our elaboration																				

The national data show a median that differs little from the mean. Thus, the distribution of the data is symmetrical. The standard deviation and variance have high values: therefore, we can say that RoS has a significant variation.

Table 5 identifies the interpolating function of the trend of the arithmetic mean that maximizes R^2. In all cases, the sixth-degree polynomial function was chosen.

Table 5 : RETURN ON SALE: INTERPOLATING EQUATIONS AND R^2		
ITALY	$y = -0{,}0013x^6 + 16{,}261x^5 - 81912x^4 + 2E{+}08x^3 - 3E{+}11x^2 + 3E{+}14x - 9E{+}16$	$R^2 = 0{,}9981$
NORTH	$y = -0{,}0012x^6 + 14{,}931x^5 - 75207x^4 + 2E{+}08x^3 - 3E{+}11x^2 + 2E{+}14x - 8E{+}16$	$R^2 = 0{,}9987$
CENTER	$y = -0{,}0007x^6 + 8{,}52x^5 - 42909x^4 + 1E{+}08x^3 - 2E{+}11x^2 + 1E{+}14x - 5E{+}16$	$R^2 = 0{,}9918$
SOUTH AND ISLANI	$y = -0{,}0023x^6 + 28{,}136x^5 - 141754x^4 + 4E{+}08x^3 - 6E{+}11x^2 + 5E{+}14x - 2E{+}17$	$R^2 = 0{,}9958$
Source: our elaboration		

Figure 3 shows the arithmetic mean trends with broken lines and interpolated curves.



Source: our elaboration

Fig. 3. RETURN ON SALE – Trend: graphic representations

The lowest values characterize the Center; instead, in the North and South, RoS has higher values. Reflecting this, the lowest, negative value was recorded in the Center in 2020 (-0.71%), while the highest value was recorded in the South in 2019 (4.06%).

The first observation of the graphs and a careful evaluation of the descriptive statistics do not reveal significant differences between the macrozones. To better examine the differences, the annual average data were subjected to the ANOVA test (Table 6).

Table 6 : Test ANOVA ROS

SUMMARY						
Groups	*Count*	*Sum*	*Arithmetic mean*	*Variance*		
NORTH	10	22,05038739	2,205038739	2,321417882		
CENTER	10	19,48486639	1,948486639	1,205179462		
SOUTH/ISLANDS	10	28,33493462	2,833493462	1,402172807		
VARIANCE ANALYSIS						
Origin of the variation	*SQ*	*gdl*	*MQ*	*F*	*Significance value*	*F crit*
Between groups	4,146704651	2	2,073352325	1,261989662	0,299260755	3,354130829
In groups	44,35893135	27	1,642923383			
Total	48,505636	29				

Source : our elaboration

RoS showed greater differences within groups than between groups. The analysis of variance revealed no statistically significant differences between the groups considered (F < Fcritic). Since the null hypothesis was accepted, post-ANOVA testing is not necessary.

Conclusions, Implications, Limitations, and Future Research

The research hypothesis (H1) that Italian restaurants have worsened their profitability due to the pandemic is therefore fully confirmed. Government grants that were to reduce the negative effects of the pandemic during the closure of activities were not sufficient to maintain previous levels of profitability. The higher profits achieved during the summer months when the pandemic was less severe were also insufficient.

Hypothesis testing was achieved by answering the two research questions presenting the trend of two ratios for 10 years (RQ1) that showed no significant area differences (RQ2). This study can be useful primarily for Italian restaurateurs to compare their income situation with the area average, even with regard to typical local aspects. The results are also useful internationally considering the globalization of tourism markets. This study can also be helpful to public authorities that support the restaurant industry by choosing the best credit policy to support. The main limitation of this research is its purely quantitative nature based on a sample of financial statements of companies that have a turnover of more than €800,000. Excluded from the sample are the much smaller, often family-owned restaurants. In the future, the analysis should also consider the trend of equity ratios to be linked to income ratios given the close links between economic and financial balance. Finally, we should investigate the spread of ethical management principles, and especially the commitment of restaurants to environmental and social sustainability.

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