

Article

Ascertaining Restaurant Financial Sustainability by Analyzing Menu Performance

Conceição Gomes *, Cátia Malheiros , Luís Lima Santos  and Filipa Campos

CiTUR—Centre for Tourism Research, Development and Innovation, Polytechnic University of Leiria, 2520-614 Peniche, Portugal; catia.malheiros@ipleiria.pt (C.M.); llsantos@ipleiria.pt (L.L.S.); filipa.a.campos@hotmail.com (F.C.)

* Correspondence: conceicao.gomes@ipleiria.pt

Abstract: The complexity of companies in the restaurant industry is clear, and various techniques can be used to make decisions. The analysis of performance and the optimization of restaurant menus are considered important, which is why several approaches can be used. The objective of this study is to achieve financial sustainability in the restaurant industry through menu performance analysis and identifying strategies to improve menu profitability. A qualitative methodology of a dual case study was adopted by comparing a restaurant within a hotel and a street restaurant. The results show that for restaurant owners and managers, these approaches are useful, simple, and pertinent for measuring the performance of the restaurant menu and consequently improving results. The originality of this research lies in the fact that three analysis models were applied simultaneously, allowing for an in-depth analysis of the profitability of the menus being analyzed. This study identified the most profitable items for each restaurant and the items that needed to be changed to contribute more to the profitability of the restaurant's menu, resulting in practical implications. Through theoretical implications, this study corrects the limited knowledge about performance through the restaurant menu, creating a starting point for knowledge spreading to society. In conclusion, this research is one of the first to bridge the gap between theory and practice, taking several approaches to assess restaurant menu performances, which can be useful in restaurants to promote sustainability.



Academic Editor: Lewis Ting
On Cheung

Received: 31 January 2025

Revised: 7 March 2025

Accepted: 13 March 2025

Published: 14 March 2025

Citation: Gomes, C., Malheiros, C., Lima Santos, L., & Campos, F. (2025). Ascertaining Restaurant Financial Sustainability by Analyzing Menu Performance. *Tourism and Hospitality*, 6(1), 47. <https://doi.org/10.3390/tourhosp6010047>

Copyright: © 2025 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Keywords: restaurants; menu performance; profitability; sustainability; menu engineering

1. Introduction

Financial sustainability in the restaurant sector is increasingly important, and given the specific characteristics of these companies, management must adopt sustainable practices from a financial point of view. Effective restaurant menu management is crucial in establishing the sustainability and success of restaurants operating in a specific competing context (Gomes et al., 2023). Gnonlonfoun (2017) mentions various strategies for financial sustainability in restaurants, such as elaborating on market research; upgrading excellent customer service; and including passion. Entrepreneurs in the field of small businesses need training in financial management, in particular, in financial stability (Hembaraska et al., 2021). To ensure the financial stability of a restaurant, it is necessary to improve financial management, paying attention to three main components: efficiency and increasing equity; ensuring solvency; and ensuring the liquidity of assets. Increasing profits establishes the conditions for self-financing in a restaurant and a reduction in loans, implying financial sustainability (Hembaraska et al., 2021).

“A menu tells a story about the dining operation” (Antun & Gustafson, 2005, p. 82). However, the complexity inherent in creating a menu requires a strategic approach that extends beyond the simple selection of food or beverages, as decisions regarding the acquisition of raw materials and food preparation are necessary (Taylor & Brown, 2007).

Managing the profitability of a menu depends on several variables, and several approaches allow the performance of a restaurant’s menu to be measured in different ways, considering, for example, labor costs, the cost of the food, the total contribution margin, the unit contribution margin, the popularity of the dish, among other factors. These different variables contribute to identifying and assessing potential losses (H. Lai et al., 2020). These approaches can evaluate menu items individually and determine those that are the most profitable (Taylor & Brown, 2007).

According to the study by Antun and Gustafson (2005), menus must be dynamic, in a continuous process of improvement, constantly changing, and not remaining fixed as in the past, i.e., there must be flexibility. The same study points out that managers must be able to analyze in detail the different items that compose the menu and add or remove items that may be detrimentally affecting performance.

To ensure the success of a restaurant menu, it is crucial to conduct continuous evaluations to find a balance between profitability and customer satisfaction. This means that the tools and strategies used to manage menu performance should be consistently reviewed and adjusted to ensure that the menu dishes are financially sustainable and appealing to customers (H. B. J. Lai & Karim, 2023). To satisfy both demands, a restaurant’s menu must be well designed, as its identity is reflected through the items’ quality and the professional experience (Horváth et al., 2022).

Therefore, it is clear that the menu is the key to a restaurant’s success, and without performance analysis, it is difficult to achieve the profitability expected by managers. A restaurant’s menu influences the restaurant’s performance and, in turn, its profitability, jeopardizing its long-term financial sustainability. Designing a menu is a complex task because it presents several challenges from the point of view of its layout and performance. In fact, the way items are organized, and the place they occupy on the menu influence customer choices. In terms of performance, the perception of unit costs, unsold items, sales prices, and contribution margins are crucial for management decisions to maximize a menu’s profitability. These challenges lead to the research question of how to design a simple tool to analyze menu performance in order to guarantee better restaurant performance.

Thus, the main objective of this study is to analyze, by applying three matrix approaches, including Miller’s Menu Analysis Model, Kasavana and Smith’s menu engineering method, and Pavesic’s Cost Margin Analysis Model, the menu performance in two restaurants (a restaurant within a hotel and a street restaurant) both located in Portugal. It is this joint analysis of the three matrices that, as an innovative approach, fills a gap found in the literature review. The detailed analysis of these matrices will offer valuable information to restaurant managers, giving them strategic tools to optimize profitability, operational efficiency, and customer satisfaction. By emphasizing the importance of these matrix approaches to menu management, this study aims to improve the understanding of the practices that lead to success in the dynamic restaurant environment. Finally, to the authors’ knowledge, no other research has practically applied three different approaches in restaurants.

These analysis models were chosen for their ease of application, bearing in mind that one of the aims of this work is to disseminate knowledge throughout the business community and that a substantial part of this community does not have specified management training; the tools applied must be simple and quick for restaurant managers to use initially.

To conclude, this paper is structured as follows: the Introduction, where the background of restaurant menu performance is discussed and the issues are detected. In this way, the research question and objectives are formulated; the Methodology is introduced next, where a qualitative approach is described through a dual case study; the Results section is then presented, where the three approaches are applied to the restaurants and the items of menus are analyzed; the Discussion is next, where restaurant results are compared and aligned with the literature and finally, in the Conclusions section, the contributions and implications are presented.

2. Literature Review

These selected approaches have been developed over the years to assess the performance and efficiency of restaurant menus, including (Lima Santos et al., 2016) the Miller matrix (Miller, 1980), Kasavana and Smith's menu engineering method (Kasavana & Smith, 1982), and the Pavesic matrix (Pavesic, 1996).

The Miller Menu Analysis Model matrix was developed in 1980 to classify menu items according to their popularity and food cost percentage. Items with the highest popularity and lowest food cost percentage are considered winners; fewer desirable items with a high food cost percentage are considered losers; there are also items with high popularity and high food cost and items with low popularity and low food cost known as marginals (Miller, 1980). When applying this matrix, the numbers one and two are often used to distinguish between marginals.

The Miller matrix should be used for profitable restaurants, as it does not reflect the effectiveness of the menu (H. Lai et al., 2020). However, the information provided on food costs contributes greatly to management decisions.

Kasavana and Smith's menu engineering method was developed in 1982 to classify menu items based on their popularity and unit contribution margin. This analysis is grouped into four categories, which are plowhorse, star, dog, and puzzle (Kasavana & Smith, 1982). As a result, it is possible to understand which items sell better and which do not. Menu items with a high-unit contribution margin and high popularity are called stars; items with a high-unit contribution margin but low popularity are called puzzles; items with a low-unit contribution margin but high popularity are called plowhorses; items with a low-unit contribution margin and low popularity are called dogs.

Kasavana and Smith's menu engineering method is one of the most common and popular techniques readily adopted by restaurant operators (Noone & Cachia, 2020). Based on a more informed decision-making process, this tool allows for a more critical analysis (Raab & Mayer, 2007). The study of Antun and Gustafson (2005) argues that the critical factor of menu engineering is essential because if a menu item is profitable but not positioned correctly on the menu, it might not be ordered. Espinosa et al. (2016) and Kwong (2005) agree with the above authors, who state that menu engineering was developed to understand customer preferences regarding the menu and to determine which products should or should not be positioned more effectively on the menu.

Kasavana and Smith's menu engineering method provides information that allows decisions to be made on setting prices, increasing sales, eliminating items from the menu, or introducing new ones (Noone & Cachia, 2020, p. 2). Nowadays, this technique is developed through software and linked to other techniques, such as activity-based costing (Linassi et al., 2016). Kasarani and Smith's menu engineering method presents some issues, such as the lack of consideration for labor costs; its use of a continuous and dynamic process; the fact that it does not consider potential interdependence among menu items; and the references (plowhorse, dog, puzzle, and star) are drawn up using an average, meaning that there are items below this average (Lima Santos et al., 2016; Morrison, 1996; Noone &

Cachia, 2020). Nevertheless, the aforementioned advantages of menu engineering outweigh its weaknesses. Furthermore, this restaurant menu performance tool is the most commonly used in practical terms and the most studied in the scientific literature.

The Pavesic matrix was developed in 1983 with the main aim of expanding the profit of restaurant companies (H. Lai et al., 2020) by examining food costs with the total contribution margin of each menu item. Pavesic considered three different variables in a simple matrix—food cost, contribution margin, and volume sold (H. Lai et al., 2020). Menu items are categorized into four categories, problems, standards, sleepers, and primes, to assess those with a lower food cost and a higher contribution margin than the average of the dishes under comparison. Items with a low total contribution margin and a high food cost are designated as problems; items with a high total contribution margin and a high food cost percentage are designated as standards; items with a low food cost percentage and a low total contribution margin are designated as sleepers; and items integrating a low food cost percentage and a high total contribution margin are designated as primes (Pavesic, 1996).

All of these restaurant menu performance tools mentioned above are often linked to management accounting practices and revenue management practices, all of which increase the restaurant's performance and profit. Generally, these analyses are shown in changes and re-analyses of the menu (Taylor & Brown, 2007). Thus, managers must have the capacity to assess the information collected through various matrices and tools to improve their menu performance (H. Lai et al., 2020). Therefore, it was essential to consider different approaches in the present study.

Applying the three matrices allows for a broader analysis than using just one. However, it is desirable to choose a matrix as a starting point. This choice will depend on the type of restaurant and the manager's information needs. For example, a fast-food restaurant will be more interested in applying the Pavesic matrix, given that its objective is high sales volume at a low cost. Therefore, in this work, the Kasavana and Smith matrix was chosen for use, which is more concise and widely used and has already been mentioned. The other two matrices helped to adjust and define the most pertinent corrective measures for each item on the menu.

Table 1 summarizes the corrective measures for each category of Kasavana and Smith's matrix. To illustrate the use of the three matrices, if an item is classified as plowhorse and also classified as a prime and winner, it will not represent a priority for the manager, given that although the unit contribution margin is low, it is sold so much that its total contribution margin is higher than average and it has a food cost below average. If it is classified as a standard and marginal one, it means that the problem lies in the item's cost.

Table 1. Corrective measures for repositioning menu items using Kasavana and Smith's matrix.

	Low-Unit Contribution Margin	High-Unit Contribution Margin
High popularity	Plowhorse	Star
	<ul style="list-style-type: none"> Promote these items so that they become stars. Test initiatives to increase the unit contribution margin of these items without reducing sales, either by reducing the unit cost of the item AND/OR increasing the selling price. Possibility of incorporating these items into a menu with other highly profitable elements (bundles or packaging). 	<ul style="list-style-type: none"> Ensuring that there are no changes in sales and profitability. Maintaining purchasing procedures, the quality of products and ingredients, the preparation and presentation of the item, and the sales price.

Table 1. Cont.

	Low-Unit Contribution Margin	High-Unit Contribution Margin
Low popularity	Dog	Puzzle
	<ul style="list-style-type: none"> • The item can be highlighted on a special occasion with a higher selling price. • Consider whether it is possible to change the item, its name, some aspects of its preparation or presentation, or even increase the selling price so that it is positioned in the matrix like a jigsaw puzzle. • Deleting the item from the menu, especially if keeping the item would represent a high inventory effort (a more drastic measure). 	<ul style="list-style-type: none"> • Promote the item by giving it greater prominence on the menu or a special status (dish of the day) or by the dynamics of promotion given by the waiter. • Consider changing the presentation or name of the item if these elements are the reason for its low popularity. • Reducing the price of the item ensures that the unit contribution margin is not affected too much. • Possibility of incorporating these items into a menu with other highly popular elements (bundles or packaging). • Deleting the item from the menu, especially if keeping the item would represent a high inventory effort (a more drastic measure).

Source: adapted from [Davis et al. \(1998\)](#) and [Alcott et al. \(2018\)](#).

3. Materials and Methods

The use of qualitative research in restaurant management has been applied in several studies ([Gagnon, 2010](#); [Goh & Sari, 2023](#); [Reinders et al., 2017](#)). According to [Boodhoo and Purmessor \(2009\)](#), this approach is particularly suited for studying human behavior that cannot be quantified. However, qualitative research focuses on rich explanations, clarifies and analyzes complexities, and facilitates a deeper understanding. Over the years, various authors ([Ghauri et al., 1995](#); [Tsang et al., 2016](#)) have contributed to refining this methodology. It offers significant advantages, such as employing multiple research methods to interrelate and enhance the information gathered ([Vieira et al., 2009](#)). A qualitative methodology has been applied in different restaurant research about menu performance, such as [Goh and Sari \(2023\)](#), [Reinders et al. \(2017\)](#), and [Wulandari and Asnur \(2023\)](#). Restaurant systems are complex and an in-depth understanding is needed that only a qualitative method can provide ([Gagnon, 2010](#)).

A qualitative methodology, a dual case study, was adopted because, sometimes, using one case study leads to problems when validating the results, not allowing a strong basis for the theory. A comparison and a verification method exist to make the study more robust ([Massis & Kotlar, 2014](#)). In this way, it is possible to compare two different types of restaurants, selected from two extremes, including a restaurant within a hotel, with a capacity of up to 80 seats, and a street restaurant with a capacity of up to 40 seats, to obtain representativeness of the data. The restaurants were selected using the non-probability sampling method, which involves selecting cases in easily accessible locations to study very specific phenomena (convenience sampling), opting for those that were available considering the two types under study ([Reinders et al., 2017](#)). Two restaurants with different characteristics were selected so that the study could consider two different realities. Hotel restaurants usually have a more formal organizational structure in which management responsibilities are more segmented. In these businesses, the restaurant may not be the only point of sale for food and beverages. Street restaurants are mostly small family-run restaurants where the owner fulfills all the management functions and does not

always have specific management training. In this scenario, there is a single point of sale for food and beverages. This study, therefore, covers this dual reality.

The information collected can be qualitative or quantitative. Given the aim of this study, quantitative information was the option (Massis & Kotlar, 2014); then, a description research method was chosen. Historical records were obtained from both restaurants using document information (Adnan, 2023), and these data were considered secondary data because they were taken from used, existing data. Data were collected in June and July of 2024. The necessary information was gathered to elaborate on the matrices described in the literature review. Data collection was carried out, in which 72 items were analyzed in detail: sales reports extracted from the POS system with total revenue per item, quantities sold, and price per dish; a list of raw materials with respective unit costs; standard recipes of each item; and the restaurant menu.

Data were handled using Kasavana and Smith's menu engineering method (Wulandari & Asnur, 2023), the Miller Menu Analysis approach matrix, and the cost margin analysis Pavesic matrix. Microsoft EXCEL software supported data processing. The goal was to conduct menu performance analysis through matrix analysis. Once the analysis was carried out, corrective measures were proposed to maximize the restaurant's profitability.

The street restaurant's concept is based on Italian specialties. The menu consists mainly of pasta and pizzas but also offers salads, starters, and desserts. The performance analysis followed this sketch and was carried out on the 5 families of items, including a joint analysis of all the main dishes (pizzas, pasta, and salads). It should be highlighted that in an analysis with a large number of items, it is difficult to read the results and compare different items. The study was carried out over three months.

The hotel restaurant's concept, due to its target audience, is more comprehensive in terms of what it offers, as its menu consists of fish dishes, meat dishes, pasta, vegetarian dishes, as well as starters and desserts. The offer for children was also evaluated. The main dishes were considered by type (meat, fish, pasta, and vegetarian) and globally (the matrix of main dishes) to obtain an overall view. This process is an option for the manager, considering the reality of the business. It should also be noted that a matrix with only a few items studied can make a robust analysis impossible (this is the case with pasta, for example). The study of this restaurant was carried out over 6 months.

For the street restaurant, the following dishes, categorized by family, were evaluated (Table 2):

Table 2. Street restaurant dishes categorized by family.

Starters	Salads	Pizzas	Pasta	Desserts
Soup	Cantina Salad	Pizza Burrata	Vongole Pasta	Tiramisu
Couvert	Chef Salad	Diabo	Prawns and Spicy Tomato	Biscuit and caramel ice cream
Mozzarella croutons	Pomodoro Salad	Truffel	Prawns and Rocket	Cottage cheese and lemon curd ice cream
Mushroom crostini	Caprese Salad	Anchovies	Pecorino	Red fruit panna cotta
Tomato crostini		Diavola	Meat Lasagna	Affogato
Padrón		Salami	Classic Carbonara	
Brushetta burrata and ham		Ham	Bolognese	

Table 2. Cont.

Starters	Salads	Pizzas	Pasta	Desserts
Bruschetta burrata and anchovies		Aubergine	Amatriciana	
Tomato and burrata coulis		4 Cheeses	Pomodoro	
		Santana		
		Romana		
		Cantina		
		Parmesan cheese		
		Gorgonzola		
		4 Seasons		
		Calzone		
		Spicy Calzone		
		Capricciosa		
		Rustic		
		Mushrooms		
		Ham		
		Margarita		

For the hotel restaurant, the following dishes, categorized by family and type, were evaluated (Table 3):

Table 3. Hotel restaurant dishes categorized by family.

Starters	Meat	Fish	Pasta	Vegetarian	Desserts
Couvert (Bread, Herb Butter, Olives and Dried Cheese)	T-Bone for 2 People	Tuna Tataki	Seafood linguine	Mushroom and Asparagus Penne	Caramel and Peanut pie
Vegetable Soup	2-Person Tomahawk	Octopus à Lagareiro	Bolognese Pasta	Stuffed Aubergine	Crunchy Chocolate Mousse
Fish Soup	Mixed Meat Board for 2 People	Breaded Cod and Potato Chips	Carbonara pasta	Vegetarian Crumble	Red Fruit Cheesecake
Stuffed Mushrooms	Slow Braised Pork Cheek	Braised Sea Bass			Chocolate Fondant with a Scoop of Ice Cream
Eggs with Farinheira	Lamb Chops	Bivalve Rice with Octopus Tentacle			
Prawn and Avocado					
Tuna Tartare					
Rice Pudding					

Based on the information provided by the restaurant, the various indicators needed to carry out the study were calculated. In each matrix, the following two indicators were considered:

1. The menu engineering method by Kasavana and Smith, which considers quantities sold (popularity) and unit contribution margin (uCM) (profitability);
2. Miller's Menu Analysis approach, which considers the quantities sold (popularity) and the food cost percentage (food cost);
3. Pavesic's Cost-Margin Analysis, considering the food cost percentage and the total contribution margin (tCM).

For the menu engineering method by Kasavana and Smith, the popularity index was calculated with the following formula:

$$\text{popularity index} = \frac{1}{\text{number of items}} \times 70\% \times 100$$

And the profitability index was calculated with the following formula:

$$\text{profitability index} = \frac{\sum \text{total contribution margins}}{\text{total sales in quantities}}$$

According to menu engineering, the items can be classified as star, plowhorse, puzzle, and dog. The characteristics of each category of menu item are as follows:

- Items classified as stars are considered the best dishes, presenting results above the popularity and profitability indices.
- Items classified as plowhorses are those with a popularity that is above the index but not their profitability.
- Items classified as puzzles are those that achieve a level of profitability above the index but have little popularity, i.e., they are not sold very often.
- Items classified as dogs achieve results below the popularity and profitability index.

It should be noted that, according to [Kasavana and Smith \(1982\)](#), when the item's individual sales percentage meets or exceeds the average menu sales percentage, the dish is classified as a popular menu item, and a menu item that does not do so is labeled as unpopular.

For Miller's Menu Analysis approach, popularity index and food costs were calculated. Food cost was calculated with the following formula:

$$\text{food cost} = \frac{\text{unit cost}}{\text{net sales price}}$$

The Miller matrix makes it possible to position the items on the menu according to their popularity and food cost:

- Items classified as winners are those with popularity above the index and food cost below the average.
- Items classified as marginal 1 are those with popularity above the index and a high food cost.
- Items classified as marginal 2 have a low food cost and low popularity.
- Items classified as losers have high popularity and food costs.

For Pavesic's Cost-Margin Analysis, food cost and the total contribution margin were calculated.

$$\text{total of contribution margin} = \text{total sales in quantities} \times \text{unit contribution margin}$$

The Pavesic matrix takes into account the food cost and total contribution margin of each item on the menu:

- Items classified as primes have a high tCM and a low food cost.
- Items classified as standards have a high tCM and a high food cost.
- Items classified as sleepers have a low tCM and a low food cost.
- Items classified as problems have a low tCM and a high food cost.

4. Results

4.1. Street Restaurant

According to the analysis of the various dishes, none of the matrices had a food cost above the percentage recommended in the literature, which is less than 30%, and is a very positive aspect. Although not a negative aspect, desserts stand out, with a food cost of around 21%.

The average price on offer was also compared with the average price on demand, the former being higher, indicating that the customer is not prepared to pay a higher price, given the restaurant's current offer. Desserts and pasta have a price on demand slightly higher than the price on offer (EUR 0.07 and EUR 0.01, respectively). Price analysis cannot be limited to this comparison, as it must be complemented by studying other variables, such as the prices charged by the competition and the restaurant's positioning in the market, among other aspects. The overall good performance of the average food cost in all families should be highlighted, and pasta items contribute most to the overall profitability of the menu.

4.2. Hotel Restaurant

The items sold for two people, the T-Bone, Tomahawk, and Mixed Meat Board, were broken down for comparison with the other items. For these items, the quantities sold were multiplied by two, and the unit selling price and unit cost were divided by two.

As with the street restaurant, none of the matrices showed an average food cost above the percentage recommended in the literature (30%). Only in the Starters matrix was the food cost (74%) of Couvert well above the recommended value. This type of situation should be evaluated for the other items.

Meat dishes had the highest average food cost (28.22%), which is due to the high cost of raw materials and can be considered a normal situation, depending on the company's objectives. In general, the pasta dishes were the ones that contributed most to the overall profitability of the menu. Table 4 presents the overall analysis.

Table 4. General comparison between the street restaurant and hotel restaurant.

Variables	Street Restaurant	Hotel Restaurant
Number of families	6	8
Number of items	84	48
Period of analysis	3 months	6 months
Main analysis approach	Kasavana and Smith	Kasavana and Smith
Complementary approaches	Miller e Pavesic	Miller e Pavesic
Average food cost	Below the theoretically acceptable 30% threshold	Below the theoretically acceptable 30% threshold, with pasta (9.37%) and vegetarian items (6.88%) standing out
Items that contribute most to profitability	Pasta	Pasta and vegeterians

4.3. Performance by Category

The menu performance analysis had never been carried out in both restaurants, but both restaurants had the technical data sheets drawn up. The results presented below are the results of the current menus. The performance analysis made it possible to study the current results and propose a set of corrective measures to increase the profitability of the menus.

The main analysis matrix was Kasavana and Smith, while the other two approaches, Miller and Pavesic, were useful for refining the analysis and defining the corrective measures best suited to each situation. In order to organize the results, it was decided to use the classifications from the Kasavan and Smith approach, although the indicators from the other approaches were analyzed whenever relevant (food cost and total contribution margin).

Starters are presented in Table 5. For the street restaurant, only one item was classified as a star (Padrón). Plowhorses and puzzles predominated. No items were classified as dogs. Suggestions include cost adjustments for plowhorse items and sales promotion and puzzle items.

Table 5. Street restaurant starters.

Item	Kasavana and Smith	Miller	Pavesic
Soup	PLOWHORSE	WINNER	SLEEPERS
Couvert	PLOWHORSE	WINNER	PRIME
Mozzarella croutons	PLOWHORSE	MARGINAL 1	STANDARD
Mushroom crostini	PLOWHORSE	WINNER	SLEEPERS
Tomato crostini	PLOWHORSE	WINNER	SLEEPERS
Padrón	STAR	WINNER	PRIME
Brushetta burrata and ham	PUZZLE	LOSER	STANDARD
Brushetta burrata and anchovies	PUZZLE	LOSER	STANDARD
Tomato and burrata coulis	PUZZLE	LOSER	PROBLEM

The hotel restaurant has two star items (fish soup and stuffed mushrooms). Couvert presents challenges due to its high food cost (74%). In this case, no item was classified as dog either (Table 6).

Table 6. Hotel restaurant starters.

Item	Kasavana and Smith	Miller	Pavesic
Couvert (Bread, Herb Butter, Olives and Dried Cheese)	PLOWHORSE	MARGINAL 1	PROBLEM
Vegetable Soup	PLOWHORSE	WINNER	PRIME
Fish Soup	STAR	WINNER	PRIME
Stuffed Mushrooms	STAR	WINNER	PRIME
Eggs with Farinheira	PUZZLE	MARGINAL 2	SLEEPERS
Prawn and Avocado	PUZZLE	MARGINAL 2	SLEEPERS
Tuna Tartare	PUZZLE	MARGINAL 2	PRIME
Rice Pudding	PUZZLE	MARGINAL 2	SLEEPERS

The main dishes were evaluated separately by family and as a whole. Separation by family helped provide a better overview (through graphical analysis) of the results

obtained for each item. However, the overall view can also be important given that, from the customer's point of view, it represents all the alternatives within the same family. In street restaurants, it is important to highlight diversity (35 items). The focus is clearly on pizzas and pasta, which is the restaurant's concept. The Diavola and Capricciosa pizzas stand out as stars. The hotel restaurant has less diversity (16 items) but more individual items, such as Octopus à lagareiro and Seafood Linguine.

As far as analyzing each type of main course in both restaurants is concerned, the following groups were considered for the street restaurant: pasta, pizzas, and salads; for the hotel restaurant, fish, meat, pasta, vegetarian dishes, and children's offers were considered according to the categories on the menu of each restaurant.

To highlight the potential of using the three matrices, the pasta family at the street restaurant will serve as an example for exhaustive analysis and will be used to demonstrate corrective measures. In the street restaurant, the group that made the biggest contribution to the menu's profitability was pasta (Table 7).

Table 7. Street restaurant pasta.

Item	Kasavana and Smith	Miller	Pavesic
Vongole Pasta	PUZZLE	LOSER	PROBLEM
Prawns and Spicy Tomato	STAR	MARGINAL 1	STANDARD
Prawns and Rocket	STAR	MARGINAL 1	STANDARD
Pecorino	PLOWHORSE	MARGINAL 1	STANDARD
Meat Lasagna	STAR	WINNER	PRIME
Classic Carbonara	PLOWHORSE	WINNER	PRIME
Bolognese	PLOWHORSE	WINNER	SLEEPERS
Amatriciana	DOG	LOSER	PROBLEM
Pomodoro	DOG	MARGINAL 2	SLEEPERS

In this category, three items were found in the category of stars. Meat lasagna is the best star of the pasta items; in Figure 1, it is very close to the profitability axis (average unit contribution). Despite this situation, this item receives the best categories in the Miller and Pavesic approaches, which justifies no intervention in this item.

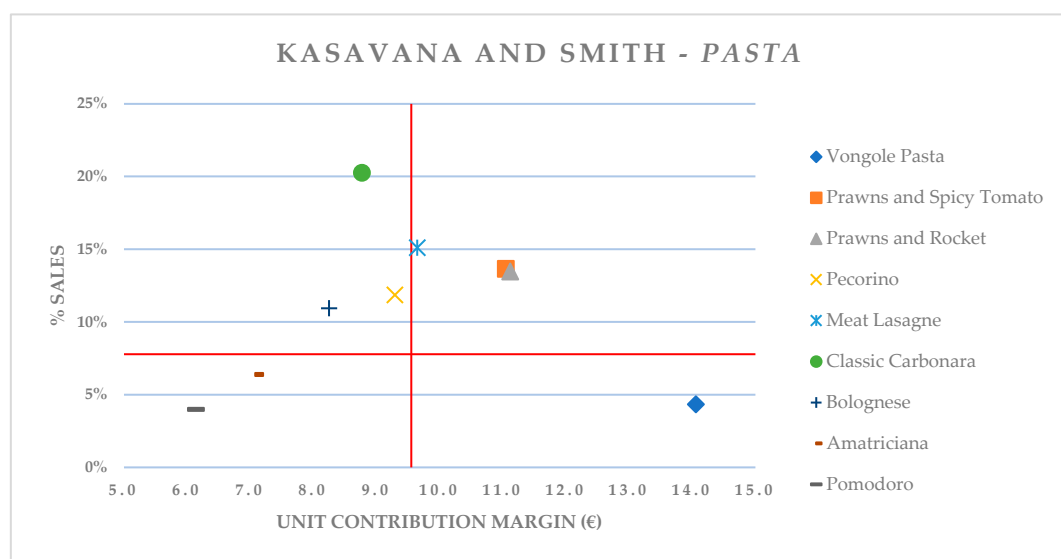


Figure 1. Kasavana and Smith matrix for pasta.

Pasta with prawns (rocket and spicy tomato) is a star that contributes significantly to the tCM. This item does not achieve the best rating in the other two matrices because the food cost is above average for the typology. However, the average food cost is low.

Plowhorse items through the Miller and Pavesic approaches have different performances. Carbonara stands out as the best-selling pasta item. It is an item that does not need any corrective action, given that it receives top marks in the other two matrices. Bolognese achieves the best category in the Miller matrix; however, it has a below-average total contribution margin. Pecorino, although its uCM is low, has an above-average tCM. It just does not achieve the best categories in the Miller and Pavesic approaches because its food cost is above the average, which is low, and it does not represent a priority. Pasta Vongole has a high uCM, but its sales are low, and its food costs are high. Figure 1 shows that this is the item with the highest uCM; however, it requires special attention from the manager, bearing in mind that it includes high-cost raw materials (clams) and possible wastage due to the fact that it is not widely sold.

As dog items, Amatriciana and Pomodoro pasta have low popularity and low tCM and uCM. These items are possible candidates for removal, given that Amatriciana pasta obtained the worst rating in the three matrices, which was not the case with Pomodoro pasta simply because of its low food cost. In the pasta family, the items that require priority corrective measures, given the results obtained in the three matrices, are the dog items. The corrective measures proposed to the manager for these items will be presented as an example to demonstrate the potential of these analyses to improve the menu's performance.

The pizza group is highly diverse with 22 items analyzed in Table 8.

Table 8. Street restaurant pizzas.

Item	Kasavana and Smith	Miller	Pavesic
Pizza Burrata	STAR	MARGINAL 1	STANDARD
Diabo	STAR	MARGINAL 1	STANDARD
Truffel	STAR	MARGINAL 1	STANDARD
Anchovies	PUZZLE	LOSER	PROBLEM
Diavola	STAR	WINNER	PRIME
Salami	STAR	WINNER	SLEEPERS
Ham	STAR	WINNER	SLEEPERS
Aubergine	STAR	MARGINAL 1	PROBLEM
4 Cheeses	STAR	WINNER	PRIME
Cantina	PUZZLE	MARGINAL 2	SLEEPERS
Parmesan Cheese	PUZZLE	MARGINAL 2	SLEEPERS
Gorgonzola	DOG	LOSER	PROBLEM
4 Stations	PLOWHORSE	MARGINAL 1	STANDARD
Calzone	STAR	WINNER	SLEEPERS
Spicy Calzone	STAR	WINNER	SLEEPERS
Capricciosa	STAR	MARGINAL 1	STANDARD
Rustic	PLOWHORSE	MARGINAL 1	PROBLEM
Mushrooms	DOG	LOSER	PROBLEM
Santana	PLOWHORSE	MARGINAL 1	PROBLEM
Romana	DOG	MARGINAL 2	SLEEPERS
Ham	PLOWHORSE	WINNER	SLEEPERS
Margarita	PLOWHORSE	WINNER	PRIME

The salads group shows little diversity with satisfactory results, with no dog items in Table 9.

Table 9. Street restaurant salads.

Item	Kasavana and Smith	Miller	Pavesic
Cantina Salad	PLOWHORSE	WINNER	PRIME
Chef Salad	PLOWHORSE	MARGINAL 1	PROBLEM
Pomodoro Salad	PUZZLE	MARGINAL 2	SLEEPERS
Caprese Salad	STAR	MARGINAL 1	STANDARD

The fish category of the hotel restaurant has a reduced diversity (5 items) and varied contributions to tCM (Table 10).

Table 10. Hotel restaurant fish.

Item	Kasavana and Smith	Miller	Pavesic
Tuna Tataki	STAR	WINNER	PRIME
Octopus à Lagareiro	STAR	WINNER	PRIME
Breaded Cod and Potato Chips	PLOWHORSE	MARGINAL 1	STANDARD
Braised Sea Bass	PLOWHORSE	MARGINAL 1	PROBLEM
Bivalve Rice with Octopus Tentacle	PUZZLE	MARGINAL 2	SLEEPERS

The meat category includes premium cuts with high costs, as shown in Table 11.

Table 11. Hotel restaurant meat.

Item	Kasavana and Smith	Miller	Pavesic
T-Bone for 2 People	PUZZLE	LOSER	PROBLEM
2-Person Tomahawk	STAR	MARGINAL 1	STANDARD
Mixed Meat Board for 2 People	PUZZLE	MARGINAL 2	PRIME
Slow Braised Pork Cheek	PLOWHORSE	WINNER	SLEEPERS
Lamb Chops	PLOWHORSE	WINNER	PRIME

The pasta category has balanced results and a consistent tCM (Table 12).

Table 12. Hotel restaurant pasta.

Item	Kasavana and Smith	Miller	Pavesic
Seafood Linguine	STAR	MARGINAL 1	STANDARD
Bolognese Pasta	PLOWHORSE	MARGINAL 1	STANDARD
Carbonara pasta	PLOWHORSE	WINNER	SLEEPERS

The vegetarian category focuses on very specific preferences in an establishment that is not geared towards vegetarian food. It is noteworthy that the vegetarian crumble had zero sales (Table 13).

Table 13. Hotel restaurant vegetarian.

Item	Kasavana and Smith	Miller	Pavesic
Mushroom and Asparagus Penne	STAR	WINNER	PRIME
Stuffed Aubergine	DOG	LOSER	PROBLEM
Vegetarian Crumble	DOG	MARGINAL 2	SLEEPERS

The category for children is not intended to be the most profitable family, given that it is a very simple offer, albeit relatively diversified for a specific target audience (Table 14).

Table 14. Hotel restaurant children.

Item	Kasavana and Smith	Miller	Pavesic
Mini Carbonara	DOG	MARGINAL 2	SLEEPERS
Mini Bolonhesa	PLOWHORSE	WINNER	SLEEPERS
Douradinhos	DOG	MARGINAL 2	SLEEPERS
Cheeseburger	STAR	MARGINAL 1	STANDARD

The dessert category in the street restaurant has two star items: biscuit and caramel ice cream and tiramisu. Corrective measures include reviewing the food cost for plowhorse and dog items. No dessert received a puzzle rating. Desserts had the lowest unit contribution margin of all the families (Table 15).

Table 15. Street restaurant dessert.

Item	Kasavana and Smith	Miller	Pavesic
Tiramisu	STAR	MARGINAL 1	STANDARD
Biscuit and caramel ice cream	STAR	WINNER	PRIME
Cottage cheese and lemon curd ice cream	DOG	MARGINAL 2	SLEEPERS
Red fruit panna cotta	PLOWHORSE	WINNER	PRIME
Affogato	PLOWHORSE	MARGINAL 1	PROBLEM

The dessert category in the hotel restaurant has two star items: crunchy chocolate mousse and chocolate fondant with an ice cream ball. The desserts had low food costs and consistent sales. As in the street restaurant, no dessert was classified as a puzzle. This could mean that desserts do not produce the highest profitability in both scenarios (Table 16).

Table 16. Hotel restaurant dessert.

Item	Kasavana and Smith	Miller	Pavesic
Caramel and Peanut Pie	DOG	LOSER	PROBLEM
Crunchy Chocolate Mousse	STAR	WINNER	PRIME
Red Fruit Cheesecake	PLOWHORSE	MARGINAL 1	PROBLEM
Chocolate Fondant with a Scoop of Ice Cream	STAR	WINNER	PRIME

4.4. Comparative Tables of Key Indicators

In Table 17 (below), it is possible to compare the results obtained in the main indicators that the three approaches use (Kasavana and Smith, Miller and Pavesic) as well as the revenue in order to have a term of comparison with regard to the weight of the margin in relation to revenue, given that the period of analysis was different in the two restaurants.

Table 17. Results of the main indicators used in the three approaches and revenue of the restaurants under study by family of items.

Family	Street Restaurant				Hotel Restaurant			
	Revenue	Food cost	uCM	tCM	Revenue	Food cost	uCM	tCM
Starters	EUR 14,363.89	18.62%	EUR 4.92	EUR 1298.84	EUR 3317.70	28.45%	EUR 3.65	EUR 296.74
Main Dish	EUR 93,304.87	18.73%	EUR 9.09	EUR 2166.49	EUR 18,825.04	17.40%	EUR 13.21	EUR 971.86
Pasta	EUR 33,478.76	19.16%	EUR 9.55	EUR 3007.07	EUR 5834.51	9.37%	EUR 12.36	EUR 1762.96
Dessert	EUR 8030.97	21.38%	EUR 3.12	EUR 1262.86	EUR 1418.58	21.89%	EUR 4.21	EUR 277.03
Total	EUR 115,699.73	18.90%	-	EUR 93,831.02	EUR 28,906.90	17.62%	-	EUR 2811.95

In fact, given that the periods considered for both restaurants were different (three months for the street restaurant and six months for the hotel restaurant), the results obtained cannot be compared in terms of absolute values. However, based on the results shown in Table 3, it can be seen that the hotel restaurant's revenue represents around 25% of Restaurant 1's revenue. It should be remembered that a hotel restaurant is a restaurant within a hotel, the core business of which may not be catering. On the other hand, this restaurant does not have a door directly to the outside and is not located in a passageway, which could compromise the influx of customers.

As far as the total contribution margin is concerned, the hotel restaurant is also around 25% that of street restaurant.

As for the unit contribution margin, it is higher in the hotel restaurant, except for the entrées. This could lead us to assume that, if sales increase, this restaurant could have a better result than the street restaurant.

Although the food cost is relatively controlled in both realities, we found a lower food cost for main courses and pasta in the hotel restaurant and a lower food cost for starters and desserts in the street restaurant, and, overall, the average food cost of the hotel restaurant is lower.

Table 18 shows the number of items in each classification of the Kasavana and Smith approach. We can see that there are more star items in the street restaurant, but it is also the one with the most items on the menu. However, it should be noted that the star rating is the one that receives the most items in both restaurants. In the opposite direction, we can see that the dog classification has the fewest items, which can be considered a positive result for both restaurants.

Table 18. Distribution of items by classification in the Kasavana and Smith matrix.

Family	Stars		Plowhorses		Puzzles		Dogs	
	Street Restaurant	Hotel Restaurant	Street Restaurant	Hotel Restaurant	Street Restaurant	Hotel Restaurant	Street Restaurant	Hotel Restaurant
Starters	1	2	5	2	3	4	0	0
Main dishes	11	5	5	4	3	2	3	3
Dessert	2	2	2	1	0	0	1	1
Totals	14	9	12	7	6	8	4	4

5. Discussion

The contribution of the exhaustive analysis of each item on the menus was clear to the managers of both restaurants, who confirmed some of the results they had expected but were surprised by others. Applying the three approaches may be confusing but it allows the identification of the most relevant corrective measures and those to be prioritized

(H. Lai et al., 2020). To clarify the analysis, it is suggested that only the classifications from the Kasavana and Smith matrix be used, which, according to the literature, is the most widely accepted method (H. Lai et al., 2020; Noone & Cachia, 2020; Horváth et al., 2022). The indicators of the other approaches were used for the analysis and to adjust the corrective measure.

5.1. Overall Corrective Measures

The proposed corrective measures are presented by theme or area of action.

Concerning supply management in the street restaurant, the number of items on the menu for some families should be reduced, particularly pasta, pizzas, and starters, to concentrate efforts on the most profitable items (Horváth et al., 2022; Kwong, 2005). In the hotel restaurant, marketing investment is recommended to promote less popular items but with a high tCM, such as the T-Bone (Kwong, 2005). Some items should be eliminated or replaced, particularly those with zero sales. The trend in catering tends to be to have a reduced number of items on the menu and to be flexible, allowing seasonal and available products to be used and a smaller amount of stock, reducing the probability of wastage. However, this strategy is unsuitable for all restaurant concepts, such as these two case studies.

For the two restaurants, regarding sales promotion, it is suggested that bundles be created that allow puzzle items to be incorporated with plowhorse items (Davis et al., 1998). In this way, the popularity of plowhorse items could boost sales of puzzles, improve overall profitability and reduce waste. These menus can be varied to create greater dynamism on the cards and allow all the items to improve their results (Espinosa et al., 2016; Kwong, 2005; Horváth et al., 2022).

Considering price adjustments and cost control (Kwong, 2005), corrective measures were suggested to lower the costs of some items by analyzing the technical data sheets, especially for plowhorse items, and examining waste in the case of puzzle items, especially in the hotel restaurant. Regarding prices, given that this is a very complex variable that must take into account not only costs but also competition and the company's positioning, amendments were only suggested when the average price of demand was higher than the average price of supply.

Regarding the menu layout, to promote certain items, it was suggested that they be more prominent on the menu or have a special status (dish of the day), especially for puzzle items (Espinosa et al., 2016; Kwong, 2005; Horváth et al., 2022). It was also suggested that the presentation or designation of some items be changed if these elements are the reason for their low popularity.

Finally, involving the team and restaurant service staff is the key to promoting sales and collecting customer feedback (Kwong, 2005). Training in this area has therefore been suggested.

5.2. Impact of Corrective Measures on Menu Performance—Example

The use of the three approaches makes it possible not only to obtain a more exhaustive analysis but also to define more assertive corrective measures.

Using the specific case of the pasta family in the street restaurant, the exhaustive analysis of which was presented in the previous section, it is possible to demonstrate that it is possible to improve the menu's performance.

The measures proposed were to eliminate dog items, which also have negative results in the other matrices. The quantities sold of these items were distributed among other less popular or more profitable items. Given that this was the family with the highest contribution margin, it was considered a priority to improve the performance of this family.

Table 19 shows the impact of the corrective measures implemented. Despite a slight increase in the average food cost, the unit and total contribution margins increased significantly, bringing greater profitability to the pasta family in the street restaurant and a strong impact on the restaurant’s overall result.

Table 19. Comparison of the mass indices of the street restaurant before and after corrective measures.

	Before	After	Finding
No. of items	9	7	Decrease (positive)
Popularity index	7.78%	10%	Increase (positive)
uCM average	EUR 9.55	EUR 10.31	Increase (positive)
tCM average	EUR 3007.07	EUR 4174.41	Increase (positive)
Food cost average	19.16%	20.03%	Increase (negative)

In Table 20, after the corrective measures were applied, the dog items were eliminated, and the Vongole pasta item was changed from a puzzle to a star item. Figure 2 also shows the new positioning of the items after the corrective measures.

Table 20. Item classifications after applying corrective measures.

Item	Kasavana and Smith	Miller	Pavesic
Pasta Vongole	STAR	MARGINAL 1	STANDARD
Gambas e Tomate Picante	STAR	MARGINAL 1	STANDARD
Gambas e Rúcula	STAR	MARGINAL 1	STANDARD
Pecorino	PLOWHORSE	WINNER	SLEEPERS
Lasanha de Carne	PLOWHORSE	WINNER	SLEEPERS
Carbonara Clássica	PLOWHORSE	WINNER	PRIME
Bolonhesa	PLOWHORSE	WINNER	SLEEPERS

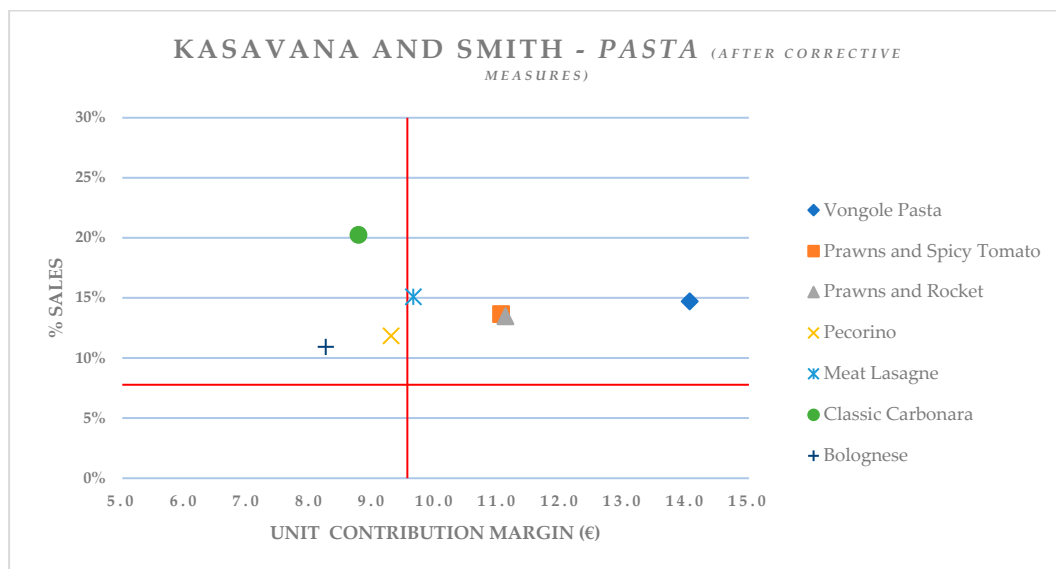


Figure 2. Kasavana and Smith matrix for pasta after corrective measures.

6. Conclusions

These tools can increase menu profitability by improving the performance of various indicators: unit contribution margin, food cost, and total contribution margin. This study confirmed that the combined application of the three matrices is feasible and that they complement each other, allowing the identification of corrective measures that are more appropriate to the situation of each item.

One of the criticisms in the literature review is that these matrices do not consider the interdependence of the items. This work made it feasible to verify that by creating bundles, the use of this interdependence was possible since by combining two or three items from different families (starter, main course, and dessert, for example) with distinct ratings, the improvement of the item's performance and the entire menu was feasible. These results were obtained due to the combined analysis of the three matrices.

During data collection and contact with the restaurants, it was verified that technical data sheets had been already drawn up. However, the technical data sheets for the hotel restaurant had some errors that have been corrected by the restaurant manager. The technical data sheets of the street restaurant were very well structured and correct. This observation cannot be widespread, but it highlights that the restaurant business is not the core business of hotels. It is sometimes not considered a priority for management and optimization of results but rather a necessity to provide that service. It was also found that in both cases, no tool was used to analyze the menu performance. In both cases, the managers found the results very interesting, consolidating some certainties and providing additional information that made it possible to immediately correct some problems, such as the excessively high cost of the *couvert* item in the street restaurant.

Some limitations remain, namely the use of averages to define the performance of menu items and the fact that it requires periodic analyses since the performance of items is not constant. Using software or spreadsheets, however, it is possible to automate these analyses and use the information obtained to define specific actions to improve the performance of the various items regularly.

The development of technology and artificial intelligence can enhance these tools, providing real-time information to managers and waiters, who can then direct their promotional actions towards customers more directly and strategically. This could happen with the connection to POS systems. In this scenario, specific training for waiters is recommended, both to improve their promotional strategy and to receive and record customer feedback.

Another fundamental aspect intrinsically linked to this type of analysis is the restaurant menu layout, which in both cases is presented in list form, not allowing for the construction of a strategic layout.

Finally, it is important to take into account the management context and some factors that can limit corrective action in this context, for example, by considering the following:

- Impositions by the management or the brand with which the hotel or restaurant is associated regarding keeping items on the menu.
- Some items, despite not being very popular, fulfill the specific needs of some of the establishments' market segments.
- The lack of labor or qualified labor and the physical structure of the establishments themselves may prevent some improvements in the offer.

These approaches used are great value-added options for restaurants, resulting in practical implications. In this research carried out in two restaurants, we identified the items that contribute to improved menu performance. We also identified those that need to be changed, such as items being removed or belonging to a bundle. This identification contributes to the restaurant's greater profitability through cost control and more assertive

sales price management, implying higher financial sustainability. Other practical implications include the potential to use this approach with other revenue management indicators (e.g., RevPASH—Revenue Per Available Seat Hour and ProPASH—Profit Per Available Seat Hour) to maximize the result, using the outcomes of this approach to create a more strategic menu layout, the improvement of waiters' performance in promoting and selling the most profitable items, and a greater ability to define an assertive sales promotion strategy. For theoretical implications, this study is innovative in the academic field and improves the lack of knowledge of existing studies on menu performance analysis, creating a starting point for the dissemination of knowledge in society. Using all three approaches at the same time is also an evolution in theory, possibly ending in a fourth approach.

For future research, it is suggested that another tool be used in the menu performance analysis that does not use averages and that can be compared with the results obtained here. Comparative analyses in different places (such as shopping centers) and different geographical locations could also be valuable for the topic under study.

Author Contributions: Conceptualization, C.G., C.M. and L.L.S.; methodology, C.G., C.M. and L.L.S.; validation, C.G., C.M., L.L.S. and F.C.; formal analysis, C.G., C.M., L.L.S. and F.C.; investigation, C.G., C.M., L.L.S. and F.C.; resources, C.M. and F.C.; writing—original draft preparation, C.G., C.M. and F.C.; writing—review and editing, C.G., C.M. and L.L.S.; visualization, C.G., C.M., L.L.S. and F.C.; supervision, C.G., C.M. and L.L.S.; project administration, C.G., C.M. and L.L.S. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The original contributions presented in this study are included in the article. Further inquiries can be directed to the corresponding author.

Conflicts of Interest: The authors declare no conflicts of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

References

- Adnan, M. (2023). The power of sharing the case of Sederhana (SA) restaurants in Indonesia. *Jurnal Akuntansi dan Auditing Indonesia*, 27(1), 11–20. [CrossRef]
- Alcott, P., Davis, B., Lockwood, A., & Pantelidis, I. S. (2018). *Food and beverage management* (6th ed.). Routledge.
- Antun, J. M., & Gustafson, C. M. (2005). Menu analysis: Design, merchandising, and pricing strategies used by successful restaurants and private clubs. *Journal of Nutrition in Recipe & Menu Development*, 3(3–4), 81–102. [CrossRef]
- Boodhoo, R., & Purmessur, R. D. (2009). *Justifications for qualitative research in organisations: A step forward, the journal of online education*. Available online: <http://papers.ssrn.com/abstract=1325607> (accessed on 23 September 2024).
- Davis, B., Lockwood, A., & Stone, S. (1998). *Food and beverage management* (3rd ed.). Elsevier.
- Espinosa, T. B., Manfugás, J. M. E., & Bending, B. R. (2016). El menú de un restaurante, su evaluación e incidencia en la satisfacción del cliente externo. *Revista Científica Ecociencia*, 3(1), 1–25.
- Gagnon, Y. (2010). *The case study as a research method*. Presses de L'université du Québec.
- Ghuri, P., Grønhaug, K., & Kristianslund, I. (1995). *Research methods in business studies: A practical guide* (1st ed.). Cambridge University Press.
- Gnonlonfoun, R. (2017). *Restaurants owner strategies for financial sustainability beyond 5 years*. Walden Dissertations and Doctoral Studies. Available online: <https://scholarworks.waldenu.edu/dissertations/4725> (accessed on 1 October 2024).
- Goh, S., & Sari, W. (2023). Menu engineering on food to increase revenue at Laku café, Gadin Serpon. *Jurnal Syntax Transformation*, 4(12), 114–121. [CrossRef]
- Gomes, C., Campos, F., Malheiros, C., & Lima Santos, L. (2023). Restaurants' solvency in Portugal during COVID-19. *International Journal of Financial Studies*, 11, 63. [CrossRef]

- Hembaraska, N., Danylkiv, K., & Kvasnii, L. (2021). Management of financial sustainability of the enterprise and its features in the field of small restaurant business. *Journal of Lviv Polytechnic National University Series of Economics and Management Issues*, 5(1), 1–14. [CrossRef]
- Horváth, Z. I., Kőmíves, C., Nagy-Keglovich, J., & Happ, É. (2022). Examining a menu on the basis of the Kasavana-Smith model in a Hungarian restaurant. *Deturope*, 14(1), 111–127. Available online: <https://net.jogtar.hu/jogszabaly?docid=99700155.tv> (accessed on 24 October 2024). [CrossRef]
- Kasavana, M., & Smith, D. (1982). *Menu engineering: A practical guide to menu analysis* (1st ed.). Hospitality Publications.
- Kwong, L. Y. L. (2005). The application of menu engineering and design in Asian restaurants. *International Journal of Hospitality Management*, 24(1), 91–106. [CrossRef]
- Lai, H., Karim, S., Krauss, S. E., & Ishak, F. A. C. (2020). A review of approaches to manage menu profitability. *International Journal of Revenue Management*, 11(3), 151–171. [CrossRef]
- Lai, H. B. J., & Karim, S. (2023). Do-it-yourself menu management and pricing. *Journal of Revenue and Pricing Management*, 22(6), 431–445. [CrossRef]
- Lima Santos, L., Gomes, C., Faria, A., Lunkes, R., Malheiros, C., Silva da Rosa, F., & Nunes, C. (2016). *Contabilidade de gestão hoteleira* (1st ed.). ATF Edições Técnicas.
- Linassi, R., Alberton, A., & Marinho, S. V. (2016). Menu engineering and activity-based costing: An improved method of menu planning. *International Journal of Contemporary Hospitality Management*, 28(7), 1417–1440. [CrossRef]
- Massis, A., & Kotlar, J. (2014). The case study method in family business research: Guidelines for qualitative scholarship. *Journal of Family Business Strategy*, 5, 15–29. [CrossRef]
- Miller, J. (1980). *Menu pricing and strategy*. CBI.
- Morrison, P. (1996). Menu engineering in upscale restaurants. *International Journal of Contemporary Hospitality Management*, 8(4), 17–24. [CrossRef]
- Noone, B. M., & Cachia, G. (2020). Menu engineering re-engineered: Accounting for menu item substitutes in pricing and menu placement decisions. *International Journal of Hospitality Management*, 87, 102504. [CrossRef]
- Pavesic, D. (1996). *Menu: Pricing and strategy* (1st ed.). Wiley.
- Raab, C., & Mayer, K. (2007). Menu engineering and activity-based costing—Can they work together in a restaurant? *International Journal of Contemporary Hospitality Management*, 19(1), 43–52. [CrossRef]
- Reinders, M., Huitink, M., Dijkstra, S., Maaskant, A., & Heijnen, J. (2017). Menu-engineering in restaurants—Adapting portion sizes on plates to enhance vegetable consumption: A real-life experiment. *International Journal of Behavioral Nutrition and Physical Activity*, 14, 41. [CrossRef] [PubMed]
- Taylor, J., & Brown, D. M. (2007). Menu analysis: A review of techniques and approaches. *Hospitality Review*, 25(2), 74–82. Available online: <https://digitalcommons.fiu.edu/hospitalityreview/vol25/iss2/6> (accessed on 19 December 2024).
- Tsang, N. K. F., Prideaux, B., & Lee, L. (2016). Attribution of inappropriate visitor behavior in a theme park setting—A conceptual model. *Journal of Travel & Tourism Marketing*, 33(8), 1088–1105. Available online: <https://search.ebscohost.com/login.aspx?direct=true&db=edb&AN=118192802&> (accessed on 12 September 2024).
- Vieira, R., Major, M., & Robalo, R. (2009). Qualitative research in accounting. In M. Major, & R. Vieira (Eds.), *Management accounting and control—Theory, methodology and practice* (pp. 129–163). Escolar Publishing House.
- Wulandari, R., & Asnur, L. (2023). Income Increase strategy in D'sruput using engineering menu. *Riwayat: Educational Journal of History and Humanities*, 6(3), 1325–1333. [CrossRef]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.