THE 19TH EDITION OF THE INTERNATIONAL CONFERENCE
EUROPEAN INTEGRATION
REALITIES AND PERSPECTIVES

The Application of Time-Driven Activity-Based Costing Method: A Case Study in an Albanian Restaurant

Edison Zaçaj[1], Diana Lamani[2]

Abstract: **Objectives**: This study is focused on identifying activities and resources for a restaurant and then allocating resources into activities for achieving a better performance. Also, through this study are identified activities that are value added and which not. **Prior Work**: TDABC was introduced to simplify ABC, by making time the main factor in the cost calculations so that it provided a more flexible method. The method remains the same, but TDABC employs time as a driver, which makes a difference. **Approach**: For this paper a case study methodology is used to achieve the goal of the paper. This methodology helps to observe in detail the case and analyze activities for improving operational efficiency. **Results**: Through this study we were able to identify all activities and resources involved in the process and identifying activities that add value and the ones that do not, which need improvements in the future in order to help with operational efficiencies improvements, menu pricing, customer demand and balancing cost-quality through managing costs. **Implications:** This study is a work in progress regarding papers for TDABC and helps managers in cost management issues. **Value:** The conducted study is to value for identifying activities and resources in a restaurant and deciding which are an added value and which not that shows areas for improvements and cost reducing for the restaurant manager.
Keywords: Time-driven ABC; Costing methods in restaurants; TDABC in restaurants; Management Accounting

JEL Classification: M40; M49

1. Introduction

Given the recent surge in tourism, it is imperative that restaurant operators comprehend and effectively manage expenditures to maintain a highly profitable business. The economic boom in Albania, energized by tourism, has just begun. The infrastructure that supports tourism is expected to precede and not follow this boom.

[1] PhD in progress, Faculty of Economics, University of Tirana, Albania, Address: Sheshi Nënë Tereza 4, Tiranë 1010, Albania, Corresponding author: Edison.zacaj@unitir.edu.al.
[2] PhD, Faculty of Economics, University of Tirana, Albania, Address: Sheshi Nënë Tereza 4, Tiranë 1010, Albania, E-mail: Diana_lamani@yahoo.com.

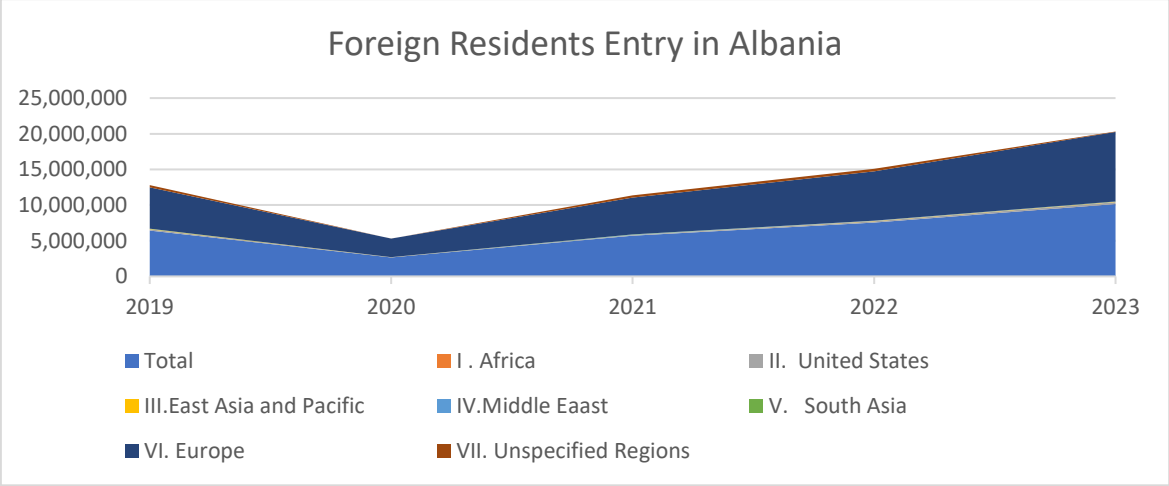

Figure 1. Foreign Residents Entry in Albania

Source: Albanian General Directorate of State's Police, INSTAT calculations 2024

It is no longer possible to think in a general way about the growth or the improvement, due to the fact that tourism develops on its own and that it does not need a lot of focus, specializations, detailed follow-up of problems, etc. All issues cannot be solved with a routine or unprofessional work practice, focus, use of expertise and specific measures are needed. Conventional costing techniques sometimes fail to include all the data required for management (Kaplan & Anderson, 2004) such as costs associated with various tasks ranging from meal preparation to providing high-quality services. Because of this drawback of conventional approaches, activity-based costing was developed as a technique that, by tracking resource use in direct proportion to the service, offered a more accurate cost allocation for actual activities (Cooper & Kaplan, 1988). By giving restaurant managers more control over their budgeting, menu pricing, and other decision-making processes, ABC aimed to better accurately allocate expenses for various operations (Raab, Shoemaker & Mayer, 2007). Even though ABC provided useful insight into the restaurant sector, its implementation exposed serious problems with tracking each activity resource since it was expensive, time-consuming, and impractical given how frequently restaurants modify their operations (Kunst, 1995).

Kaplan and Anderson (2004) introduced Time-driven Activity-based costing technique to simplify cost accounting ABC based on the above cited issues. By making time the main factor in the cost calculations, TDABC provided a more flexible and controllable method. This means being able to swiftly adjust cost estimates in the restaurant business in response to shifts in client demand, menu revisions, and service effectiveness.

In addition to requiring less administrative labor to track activities, it should be noted that TDABC in the restaurant business offers a dynamic framework that can readily change the workflow of operations (Elshaer, 2020).

In the restaurant industry, introducing TDABC and switching from ABC to TDABC represents a change in cost management from a labor-intensive, static system to a dynamic one. The method remains the same, but TDABC employs time as a driver, which makes a difference (Kaplan & Anderson, 2013). In this analysis, we aim to explore methods for boosting operational efficiency and responding to the unique challenges of the restaurant industry. Our approach includes a thorough review of relevant literature alongside a detailed examination of the resources and activities crucial to restaurant operations. By clearly defining these elements, we intend to highlight the value-added activities that directly contribute to enhancing efficiency, optimizing menu pricing, and more. This investigation will not only

pinpoint which activities are critical for improving performance but also facilitate informed decision-making within the restaurant sector.

As mentioned above, the restaurant industry is dynamic and faces many challenges on a day-to-day basis. Based on these challenges as customer demands, seasonal influence, menu pricing, variable costs, services, (Parsa, et. al, 2005; Elshaer & Marzouk, 2019), restaurants demand a cost management system that is precise and adaptable (Kuchta & Troska, 2007).

For example, **customer demand** can vary by the time of the day or by the season and this is challenging in maintaining the staff and inventory level, meaning sometimes we can have high costs of staff and inventory and the opposite.

Pricing the menu at optimal levels is difficult to balance between including overheads, covering costs, or remaining competitive in the market which with traditional methods is becoming more and more difficult to achieve profits.

Variable costs are another big issue for restaurants as ingredients prices or labor costs can vary on seasons or market trends and this without having the right information can make restaurants subject to not being competitive or being overpriced.

Service is also very important and has a range of activities from cooking up to customer service and traditional methods simplify a lot leading to inaccurate cost calculations that can distort dish prices.

The dynamic nature of the restaurant industry, with changing menus, seasonal variations, and fluctuating customer preferences, necessitates **continuous updating** of the TDABC model to ensure accuracy. Research emphasizes the importance of regular reviews and updates to the costing model for sustained effectiveness. **The risk of cost-cutting** measures potentially impacting product or service quality. In the restaurant industry, this balance is critical.

The primary objective of this study is to pinpoint key activities and improve the allocation of resources to these activities. Furthermore, it aims to identify which activities add significant value and require further analysis to enhance operational improvements and pricing decisions.

2. Literature Review

Time-Driven Activity-Based Costing (TDABC) is a method of cost accounting designed to model business costs based on actual activities and the time required to perform them (Dejnega, 2011; Drury, 2013). Kaplan, R. (2014) has named TDABC as a recent innovative costing methods that help managers with more accurate costing details about their products or services based on their activities and time consumed. This method was introduced by Kaplan and Anderson as a need to improve the traditional ABC method from its complexity and time-consuming surveys and interviews to update the system. This approach enables organizations to more accurately assign costs to products, services, and customers by considering the specific resources consumed during each activity (Keel, et. al, 2017) because TDABC uses the cost per time unit of supplying resources to activities and the time to perform these activities (Kaplan & Anderson, 2004). TDABC was developed by Robert S. Kaplan and Steven R. Anderson in the early 2000s as an evolution of Activity-Based Costing (ABC). ABC was a method introduced in the 1980s to provide more accurate cost information by allocating overhead costs based on activities that drive costs, rather than on traditional volume measures like machine hours or labor costs. However, ABC was criticized for being too complex and costly to implement (Kaplan, 2014; Kont & Jantson, 2011). Kaplan and Anderson introduced TDABC to overcome the complexities and high implementation

costs associated with traditional ABC (Everaert, et. al, 2008). TDABC simplified the costing process by using the time equations to estimate resource demands for activities, thus requiring less data collection and being easier to update.

Authors say that TDABC is simple to understand by using time equations to allocate costs and so reducing complex allocations that ABC uses (Senan & Ali, 2021). Accuracy is another positive consideration because when calculating the costs it focuses on time spent performing an activity. TDABC is a method that is flexible because it can be adaptable quickly to changes when a process changes or when an activity is added, making it suitable for dynamic environments such as restaurants (Ganorkar & Lakhe, 2018).

The application of time-driven activity-based costing (TDABC) in the context of the restaurant industry presents a valuable and relevant perspective for enhancing cost estimation and decision-making processes. Studies focusing on the implementation of TDABC in major dining establishments highlight its efficiency in accurately calculating labor costs, which is a critical aspect in maximizing profitability in service-oriented enterprises (Kemal, et. al, 2024).

By applying the concept of tiered TDABC to consider different skill levels among staff, restaurants can achieve more accurate cost allocation and reasonable resource deployment. Additionally, knowledge derived from TDABC can help identify operational inefficiencies, such as underutilized resources and operational bottlenecks, thereby driving improvements in service quality and cost effectiveness (Ramdeen, et. al, 2007).

Given the dynamic nature of the foodservice domain, embracing and applying novel costing methods like TDABC is critical for restaurant prosperity. TDABC has been adopted to address unique costing challenges such as fluctuating customer demand, variable meal preparation times, and diverse service processes as cited by some authors as (Everaert, Cleuren & Hoozee, 2012; Elshaer, 2020; Enes & Kosan, 2024).

Despite the challenges inherent in this enterprise, TDABC integration plays a key role in illuminating the complex structure of cost configurations within restaurant enterprises, ultimately providing a trajectory toward sustainable financial performance and increased customer satisfaction. This methodical approach to cost management reveals great potential in reshaping conventional accounting methodologies within the hospitality field, highlighting the imperative nature of tailored cost control mechanisms aimed at enhancing operational excellence and competitive advantage.

3. Methodology

In this research, a case study methodology is utilized to delve deeply into the application and outcomes of Time-Driven Activity-Based Costing (TDABC) within the restaurant industry. The methodology was chosen for its strength in providing detailed, contextual analyses of complex phenomena, allowing for an in-depth exploration of TDABC practices in real-world settings. The decision to use a case study framework allows for an in-depth exploration of how TDABC is implemented in different restaurant settings and its resultant effects on operational efficiency and cost management. The study specifically focuses on a restaurant selected as case. We have chosen this restaurant for its need for a costing methodology since it operates in different locations one located in an urban setting, Tirana and another operating in Livadhi beach, a coastal area in South Albania in different seasons of the year. So, it is one restaurant but it operates for 9 months in Tirana and 3 months in Livadhi. The restaurant offers a particular service style such as a fine dining restaurant style that operates from 10:00 AM to 10:00 PM.

This restaurant specializes in Italian cuisine offering different species of fish and Italian pasta. It is important to mention that the staff is full time employed and only while the seasonal location opens the staff is increased with 2-4 new staff that are employed only for this time of period. We have chosen this restaurant since their manner of operation changes, since the customer demands varies, costs of raw materials changes, labor cost changes and pricing the menu also changes. Based on the seasonal variation in location leads to fluctuating costs, the restaurant it is necessitating a flexible costing system. Implementing Time-Driven Activity-Based Costing (TDABC) could provide for the manager and owners with the tools to quickly adapt and accurately calculate costs under these conditions since actually the restaurant doesn't have a clear costing system, but it prices the menu only by adding a profit margin to direct costs of the menu articles. For a better analysis data about activities and resources of the restaurant were gathered through a combination of semi-structured interviews with the Owner, restaurant manager and the staff of 10 people that carry activities in daily basis. Data collection was held during a period of two months (December 2023-January 2024). During this period interviews were held on different days, as in the middle of the week, during the week and on weekends. This period was taken in consideration since frequentation changes, raw materials cost changes and this can be useful for the method in our case study. This process can help on identifying activities during peaks and quite times and what needs to be improved further in order to add value to the service provided by the restaurant. Also, these methods provide a rich source of insights into the real-world application and benefits of TDABC.

In selecting articles for this study, we concentrated on the recent publications from the past 20 years to ensure the inclusion of latest perspectives on costing methodologies, specifically Time-Driven Activity-Based Costing (TDABC) in the restaurant sector. This timeframe was chosen to reflect the evolving complexities in customer behavior and the operational challenges within the industry. Moreover, we prioritized articles from internationally recognized and recent journals focused on hospitality, particularly those that concentrate on restaurant management. This was done to ensure the relevance and applicability of the insights derived to our case study. Such a selection criteria not only supports the rigor of our case study methodology but also enhances the practical implications of our findings for the restaurant industry.

Through meticulous analysis, this case study methodology not only highlights the practical implications of adopting TDABC but also contributes to a broader understanding of strategic cost management in hospitality, focus on restaurants in Albania. The findings from this research are anticipated to offer robust insight and actionable recommendations, aiding restaurant manager and owners in optimizing their cost systems and improving overall business performance. Through this analysis we want to offer a costing system for the restaurant since already there isn't one and would like to answer the question:

How to apply Time-Driven ABC in Albanian restaurants and which are added values and not-value added activities that should be analyzed to secure data for further cost analysis.

In order to answer to this question, we should identify all activities and resources to have a better view of everything that happens in a restaurant.

4. The Application of Time-Driven ABC in Restaurants

This section of the paper introduces the steps of the application of Time-Driven Activity-Based Costing in Restaurants. Kaplan and Anderson (2007) in their study followed the implementation steps as below:

a) Defining Activities, Activity Cost Pools, Resources, Cost Drivers

Defining activities is the first step and for this step the semi-structured interview held with the Owner, Manager and staff, we could be able to conclude in activities that take place in a restaurant.

Table 1. Activities Identified During Semi-Structured Interview

Activity Pools	**Activities identified**
Preparation Activities	1. Prepping ingredients (chopping, marinating); 2. Making stocks and sauces; 3. Baking breads and pastries.
Cooking Activities	1. Cooking Starters, main courses and desserts; 2. Special request handling (dietary restrictions).
Serving Activities	1. Setting tables; 2. Greeting and seating guests; 3. Taking orders; 4. Serving food and beverages. 5. Clearing tables
Beverage and Raw Materials related Activities	1. Mixing Cocktails; 2. Wine selection and serving; 3. Managing Beverage and Raw Materials Inventory.
Purchasing Activity	1. Vendor Selection and Management; 2. Placing Orders; 3. Receiving Deliveries.
Customer Service and Engagement	1. Answering guest queries; 2. Handling reservations; 3. Managing customer feedback and complaints.
Cleaning and Maintenance	1. Daily cleaning of the dining area and kitchen; 2. Regular maintenance of kitchen equipment; 3. Dish washing and utensil cleaning.
Administrative activities	1. Scheduling staff; 2. Managing payroll and finances; 3. Ordering and receiving inventory; 4. Compliance with health and safety regulations.
Marketing and sales activities	1. Managing the restaurant's online presence; 2. Promotional Activities and Events; 3. Relationship management with vendors and partners.
Guest Experience Enhancements	1. Live music or entertainment planning or coordination; 2. Special event hosting.
Technology integration	1. Managing reservations and orders online; 2. Implementing and maintaining POS systems.
Quality Control	1. Regularly reviewing dish presentations; 2. Conducting regular training; 3. Monitoring and maintaining hygiene standards.

Source: Authors

Table 2. Resources Identified During Semi-Structured Interview

Resource Pool	**Resources Identified**
Human Resources	1. Chefs and Cooks salaries, benefits; 2. Waitstaff like servers, bartenders; 3. Management like Managers, HR personnel; 4. Support staff like cleaners, maintenance workers, security.
Physical Resources	1. Kitchen Equipment like Ovens, refrigerators, special culinary devices; 2. Dining Area Furnishings like Tables, chairs, decors; 3. Bar Setup like Alcohol, glasses, bar equipment; 4. Cleaning and Maintenance supplies like detergents, sanitizers etc.
Technological Resources	1. POS Systems like software and hardware for orders managements and transactions; 2. Reservations software like online booking platforms; 3. Inventory managements systems to track inventory usage;

	4. Surveillance systems like cameras and security technology.
Intangible Resources	1. Licenses and Permit's such as health or music; 2. Recipes and Culinary expertise for unique dishes.
Utilities	1. Energy like gas, electricity, water used; 2. Telecommunications like internet or telephone.
Consumables	1. Food Ingredients like raw materials used for dish preparation; 2. Tableware consumables like napkins, straws and other.
Financial Resources	Insurances like properties, employee related; Loans like costs associated with financing for operations.
Marketing and Advertising	Digital Marketing like social media, online advertising; Traditional Marketing like print ads, flyers, billboards.
Logistics	Transportation of goods and other.
Employee development	Training programs; Employee benefits.
Event Hosting	Event equipment; Event staff.
Legal and Professional Services	Legal services; Consulting services; Accounting services.

Source: Authors

b) Determine the Cost of Capacity Supplied

To determine the cost of capacity supplied we should refer to cost of all resources taken into consideration and identified above. This will help to calculate more precisely this cost for each resource and will aid in a better decision-making. These costs can be taken from data related to each resource, starting from invoices of the equipment's, the wages of the staff, the computer costs etc. this can be a start to calculate the supplied cost capacity. For example, a kitchen equipment at the restaurant is bought for 5,000 Euros and based on its remaining usable life, it is expected to depreciate for 5 years then the cost for one year to be taken into consideration for the calculations will be 5,000 Euros divided by 5 years equals 1,000 Euro per year. This will be the cost supplied for one year for this kitchen equipment.

c) Determine the Practical Cost Capacity

As (Kaplan & Anderson, 2007) say in their work, to measure the practical capacity is used a percentage, i.e. 80% or 85% of the theoretical capacity. He cites that if an employee normally can work 40 hours per week, practical capacity could be assumed to be 32 hours per week. This estimate allows for 15%-20% of personnel time for breaks, arrival and departure, and communication and reading unrelated to actual work performance. For example, this kitchen equipment is expected to do around 15,000 job hours for 5 years, then we can calculate that the Practical Capacity following the logic would have been 12,000 job hours (15,000x0.8) for 5 years or 2,400 job hours per year if we agree that the kitchen equipment will be depreciated through the Linear Depreciating Method.

d) Determine the Cost Capacity Rate (CCR)/ Unit Cost

For a restaurant the Cost Capacity Rate (CCR) according to (Kaplan & Anderson, 2007) can be calculated for all resources listed above.

* Cost Capacity Rate (CCR)= Cost of Capacity Supplied

Practical Capacity of Resources Supplied

Regarding the table below for CCR we have written that it is variable because there are different resources and the CCR is different for each one of them. For example, Prepping Ingredients that needs the time from Chefs and Cooks, uses kitchen equipment's and other food ingredients, these means that the CCR should be calculated for each one of them.

Table 3. Calculating Activity Costs by allocating resources into activities

Activity Description	**Resources used**	**Cost Calc Rate CCR**	**Activity Time(min)**	**Total Cost**
Prepping Ingredients	Chefs and Cooks, Kitchen equipment, Food ingredients	Variable for resources given		
Making stocks and sauces	Chefs and Cooks, Kitchen equipment, Food ingredients	Variable for resources given		
Baking Breads and pastries	Chefs and Cooks, Kitchen equipment, Food ingredients	Variable for resources given		
Cooking Starters, main dishes and desserts	Chefs and Cooks, Kitchen equipment, Food ingredients	Variable for resources given		
Special request handling	Chefs and Cooks, Waitstaff, Kitchen equipment	Variable for resources given		
Setting tables	Support staff, Dining Area Furnishing	Variable for resources given		
Greeting and seating guests	Waitstaff	Variable for resources given		
Taking Orders	Waitstaff, POS systems	Variable for resources given		
Serving Food and Beverages	Waitstaff, Dining Area Furnishing	Variable for resources given		
Clearing Tables	Support staff, Dining Area Furnishing, Clearing Supplies	Variable for resources given		
Mixing Cocktails	Bartenders, Bar Setup	Variable for resources given		
Wine selection and serving	Bartenders, Bar Setup	Variable for resources given		
Managing Beverage inventory	Management, Inventory Management Systems	Variable for resources given		
Vendor Selection and Management	Management, Telecommunications, Consulting Services	Variable for resources given		
Placing Orders	Management, Telecommunications, Inventory Management Systems	Variable for resources given		
Receiving Deliveries	Support Staff, Kitchen Equipment, Inventory Management Systems	Variable for resources given		
Answering Guests Queries	Waitstaff, Telecommunications	Variable for resources given		
Handling Reservations	Management, Reservations Software	Variable for resources given		
Managing Customer Feedback and Complaints	Management, Telecommunications	Variable for resources given		
Daily Cleaning of the Dining area and kitchen	Support staff, Cleaning and Maintenance supplies	Variable for resources given		
Regular Maintenance of kitchen equipment	Support staff, Cleaning, Maintenance supplies	Variable for resources given		
Dishwashing and utensil cleaning	Support staff, Kitchen equipment, Cleaning and Maintenance supplies	Variable for resources given		

Scheduling staff	Management, Telecommunications	Variable for resources given		
Managing payroll and finances	Managing, Accounting Services	Variable for resources given		
Ordering and Receiving Inventory	Management, Inventory Management systems	Variable for resources given		
Compliance with health and safety regulations	Management, Legal Services	Variable for resources given		
Managing the restaurant's online presence	Management, Digital Marketing	Variable for resources given		
Promotional activities and Events	Management, Traditional Marketing, event equipment, Event Staff	Variable for resources given		
Relationship management with vendors and partners	Management, Telecommunications	Variable for resources given		
Live music or Entertaining planning	Management, Licensing and Permits	Variable for resources given		
Special Event Hosting	Management, Event equipment, Event staff	Variable for resources given		
Managing reservations and Orders online	Managing Reservations software, POS systems	Variable for resources given		
Implementing and maintaining POS systems	Management, POS Systems	Variable for resources given		
Regularly reviewing dish presentations	Chefs and Cooks, Kitchen equipment	Variable for resources given		
Conducting regular training	Management, Training programs	Variable for resources given		
Monitoring and maintaining hygiene standards	Support staff, Cleaning and Maintenance supplies, Licenses and Permits	Variable for resources given		

Source: Authors

e) Develop Time Equation

After calculating the CCR (3 CCRs for each Resource) we should calculate the time that the chef and cooks are spending, the time the kitchen equipment is used and there should be calculated a cost for each one that will total in a total cost for the Prepping Ingredients activity.

Time for each activity can be measured by:

1. Direct observation – by observing the staff as they perform their tasks and record the time for each activity;

2. Time studies – by conducting structured time studies where employees are timed in normal work conditions while performing their tasks;

3. Employee self-reporting – by letting the employees record the time they spend on each activity using timesheets or time-tracking apps;

4. Interviews and surveys – by interviewing employees or conduct surveys to gather estimates of time spent on various activities.

According to (Kaplan & Anderson, 2007) the cost for each activity based on their time will be as below:

Cost of Each Activity= CCR * STi,

Where, *CCR – Cost Capacity Rate, and*

*STi = Estimated Unit time for Each Activity * Actual Quantity of Each Activity*

Following this logic at the end we can calculate the total cost regarding the allocation cost for each activity and the cost for the cost object wanted.

In the competitive restaurant industry, identifying and streamlining processes is essential to profitability and customer satisfaction. A key aspect of this is the differentiation between value-added and non-value-added activities. Value-added activities directly contribute to the customer's dining experience, such as food preparation, service attention, and ambiance. These elements affect the customer's perception and willingness to pay. In contrast, non-value-added activities consume resources without increasing experience. For examples, order fulfillment errors, excessive wait times, or inefficient inventory management. Analyzing these activities through value stream mapping (Womack & Jones, 2003) allows restaurants to identify areas for improvement. By minimizing non-value-added activities, restaurants can optimize resource allocation, reduce costs and increase customer satisfaction, ultimately gaining a competitive advantage.

Based on their contribution to the overall satisfaction, overall product or service quality, below we are categorizing activities into activities that add value [1]and activities that do not add value[2].

Table 4. Activities that Add Value and activities that DO NOT Add Value

Nr	Added Value Activities	No Added Value Activities
1	Prepping Ingredients	Setting tables (arguable as value added, but is often considered routine and not a direct satisfaction factor unless specific setting is required).
2	Making stocks and Sauces	Clearing tables
3	Baking breads and pastries	Managing beverage inventory
4	Cooking starters, main courses and desserts	Managing customer feedback and complaints (essential for internal feedback)
5	Special request handling	Daily cleaning of the dining area and kitchen
6	Greeting and seating guests	Regular maintenance of the kitchen equipment
7	Taking orders	Dishwashing and utensil cleaning
8	Serving food and beverages	Scheduling staff
9	Mixing cocktails	Managing payroll and finances
10	Wine selection and serving	Vendor Selection and Management
11	Answering guest queries	Placing Orders
12	Handling reservations	Receiving Deliveries
13	Live music and entertainment planning coordination	Compliances with health and safety regulations
14	Special event hosting	Managing the restaurant's online presence
15	Regularly reviewing dish presentations	Promotional activities and events
16	Conducting regular trainings	Relationship management with vendors and partners
17	Monitoring and maintaining hygiene standards	Managing reservations and orders online
18		Implementing and maintaining POS systems.

Source: Authors

[1] According to Cambridge Dictionary "added value" means *"involving an improvement or addition to something that makes it worth more".*

[2] According to Gartner Dictionary, Non-value-adding refers to *activities within a company or supply chain that do not directly contribute to satisfying end consumers' requirements.*

4.1. Analysis of Results

In this case study, we identified a total of 36 distinct activities within the restaurant, covering various aspects of its operation. The analysis revealed a clear division between value-added activities and non-value-added activities. Value-added activities, such as ingredient preparation, food preparation, and customer service, contribute directly to improving the dining experience and increasing customer satisfaction. These activities are essential to the provision of the restaurant's basic service and are supported by key resources such as chefs, kitchen equipment and waiting staff. Conversely, non-value-added activities, such as selecting and managing vendors, placing orders, and receiving shipments, are essential to maintaining operations but do not directly improve the customer experience. These activities, while necessary, consume resources and time that can be optimized for better efficiency. This aligns with what (Everaert, et. al, 2008) has declared on categorizing activities which help optimizing kitchen workflows, reducing meal preparation times and minimizing food waste leading to operational efficiency.

By allocating resource costs to these activities, we identified opportunities to improve non-value-added activities, thereby reducing inefficiencies and operational costs. This strategic approach enables the restaurant to focus more on value-added activities, ultimately improving service quality, operational efficiency and profitability. Differentiating between these types of activities provides a path for targeted improvements and resource optimization, ensuring that the restaurant can provide superior value to its customers while maintaining cost-effective operations (Dalci, Tanis & Kosan, 2010; Jassem, 2019).

Furthermore, as supported by studies by Santana & Afonso (2015) and Areena, Zaini & Abu (2019), TDABC provides more accurate and comprehensive cost information compared to traditional costing methods or businesses that do not use cost methods. Our study also found that identifying all activities helps to understand the true costs of menu items, thereby facilitating improved pricing strategies.

Also, a suggestion that can help on resource allocation would be that the restaurant should not be opened for the public during all hours but should be for a couple of hours open (for example 12:30 pm – 15:30 pm) then up to 19:00 should be closed and be opened (from 19:00 – 22:00 pm). During the closed hours in the restaurants the staff can sweep the place, eliminate the wastes and prepare for the next opening hours or other activities necessary. Like this, the staff schedules can be optimized, kitchen resources can be allocated more efficiently etc.

5. Conclusion

This study investigates the practical application of time-driven activity-based costing (TDABC) within the hospitality industry, focusing specifically on restaurants in Albania. The literature reviewed, including studies by Santana & Afonso (2015) and Areena, Zaini & Abu (2019), mainly discusses the theoretical applications of TDABC, showing its potential benefits. However, our research provides empirical insights that underline the practicability of the method. Although TDABC has not yet been widely implemented in Albanian restaurants, our findings suggest that its adoption would bring significant benefits in operational efficiency, menu pricing and resource allocation by identifying value-added and non-value-added activities. The findings below address key challenges such as fluctuating customer demand, variable raw material costs, and maintaining quality while managing costs.

Dynamic costing system: TDABC provides a dynamic solution by enabling cost calculations based on actual time spent on various activities. Its flexibility allows it to be effectively implemented both in urban restaurants in Tirana and in southern regions such as Livadhi.

Data-Driven Menu Pricing: TDABC enhances the ability to make data-driven decisions about menu pricing by providing detailed insights into each activity, thereby increasing operational efficiency. This enables managers to make informed pricing decisions regardless of the restaurant's location.

Handling Variable Costs: The focus on time equations in TDABC allows for quick adjustments to changes in variable costs of ingredients and labor, making it equally applicable from a restaurant in Tirana to one in Livadhi.

Balancing costs and quality: Balancing cost management with quality maintenance is essential. TDABC can identify potential cost savings without compromising food or service quality, which are vital to customer satisfaction and repeat business. Categorizing activities helps increase customer value and satisfaction in different locations.

These insights assert that the practical implementation of TDABC in the restaurant industry can provide a strong framework for better cost management and operational decision-making, if implemented.

6. Limitations

The study of time-driven activity-based costing (TDABC) in the restaurant industry, focusing specifically on a restaurant of fine dining style with Italian cuisine such as serving fish, pasta and pizzas, encounters several limitations that may affect the comprehensiveness, applicability, and generalizability of the findings. Some of these restrictions include:

- Limited Existing Research: The application of TDABC in the restaurant sector, particularly in this dining style establishments, has not been as extensively researched as in other sectors such as manufacturing and healthcare. This leads to gaps in understanding the specific challenges unique to this type of restaurant.

- Industry Specificity: The hospitality industry is diverse, ranging from fast food to fine dining. While the literature may generalize findings across the industry, it may not capture the specific nuances and operational details of restaurants that focus on this style, such as seasonal variations in ingredient availability and specialized cooking techniques.

- Geographical limitation: This study was conducted in a specific geographical location in Albania, which may limit the applicability of the findings to other regions. Changes in labor laws, cultural preferences, cost structures, and market dynamics may affect the generalizability of the results.

To address these limitations, future research could include conducting more empirical studies in different types of restaurants and geographic locations, including those with a similar focus on Italian cuisine. Updating literature reviews to reflect the latest industry trends and focusing on the practical challenges of implementing TDABC in such specific restaurant settings will be crucial. Additionally, exploring the function of TDABC as a quality and service improvement tool may provide deeper insights into its benefits and limitations in enhancing operational efficiency and customer satisfaction.

References

Areena, S. N.; Zaini, B. M. & Abu, M. Y. (2019). A review on time-driven activity-based costing system in various sectors. *Journal of Modern Manufacturing Systems and Technology*, pp. 15-22.

Cambridge Dictionary (n.d.). *Cambridge Dictionary*. Retrieved from Cambridge Dictionary: https://dictionary.cambridge.org/dictionary/english/added-value.

Cooper, R. & Kaplan, R. S. (1988). How Cost Accounting Distorts Product Costs. *Management Accounting*, Vol. 20.

Dalci, I.; Tanis, V. & Kosan, L. (2010). Customer profitability analysis with time-driven activity-based costing: a case study in a hotel. *International Journal of Contemporary Hospitality Management*, pp. 609-637.

Dejnega, O. (2011). Method time driven activity based costing–literature review. *REsearch Papers in economix*.

Drury, C. M. (2013). *Management and Cost Accounting.* Cengage Learning.

Elshaer, A. M. (2020). Analysis of Restaurants' Operations Using Time-Driven Activity-based Costing (TDABC): Case Study. *Journal Of Quality Assurance In Hospitality & Tourism*.

Enes, K. & Kosan, L. (2024). Using time-driven activity-based costing in restaurant business: Levelled application of a case study. *Heliyon*.

Everaert, et. al. (2008). Sanac Inc.: From ABC to time-driven ABC (TDABC)–An instructional case. *Journal of Accounting Education*.

Everaert, P.; Cleuren, G. & Hoozee, S. (2012). Using Time-Driven ABC to identify operational improvements: A case study in a university restaurant. *Journal of Cost Management*.

Keel, G. et. al. (2017). *Time-driven activity-based costing in health care: a systematic review of the literature.* Elsevier.

Ganorkar, A. & Lakhe, R. R. et. al. (2018). Implementation of TDABC in SME: a case study. *Wiley Online Library*.

Jassem, S. (2019). Using Time-Driven Activity-Based Costing And Customer Profitability Analysis For Strategic Planningin Hotel Management. *International Journal of Business, Accounting and Management*.

Kaplan R. S. & Anderson, S. R. (2013). *Time driven activity-based costing: A simpler and more powerful path to higher profits.* Massachusetts: Harvard Business Publishing.

Kaplan, R. (2014). Improving value with TDABC. *Healthcare Financial Management Association*.

Kaplan, R. S. & Anderson, S. R. (2004). Time-Driven Activity-Based Costing. *Harvard Business REview*, Vol. 82(11).

Kaplan, R. S. & Anderson, S. R. (2007). Time-driven activity-based costing. *Harvard Business School Press*.

Kont, K. & Jantson, S. (2011). Activity-based costing (ABC) and time-driven activity-based costing (TDABC): applicable methods for university libraries? *Evidence Based Library and Information Practice*, pp. 107-119.

Kunst, P. A. (1995). *Managing Service Quality.* London: Paul Chapman.

Michel Gervais; Yves Levant & Charles Ducrocq (2010). Time-driven activity-based costing (TDABC): An initial appraisal through a longitudinal case study. *Jamar (The Journal Of Applied Management Accounting Research)*, Vol. 8(2), pp. 1-20.

Raab, C.; Shoemaker, S. & Mayer, K. (2007). Activity-based costing: A more accurate way to estimate the costs for a Restaurant Menu. *International Journal of Hospitality & Tourism Administration*.

Santana, A. & Afonso, P. (2015). Analysis of studies on time-driven activity based costing (TDABC). *The International Journal of Management Science and Information Technology*, pp. 133-157.

Senan, N. & Ali, I. (2021). The Implications Of Time-Driven Activity-Based Costing. *Vidyabharati International Interdisciplinary Research Journal*.