LUISS Guido Carli
LIBERA UNIVERSITÀ INTERNAZIONALE DEGLI STUDI SOCIALI

Department of *Business and Management*
Master's Degrees in *Management* and *Supply Chain Management*
LUISS Guido Carli – Tilburg University
Chair of *Research Project Design*

Waiting in the Queue: a Moderated Mediation Analysis of Group Size and Customer Satisfaction on Waiting Times and Restaurant Performance

Prof. Fabian Kurt Falk Homberg
SUPERVISOR

Prof. Marco Francesco Mazzù
CO-SUPERVISOR

Andrea Proietti
CANDIDATE

ID 759211
Academic Year 2023/2024

Abstract

This thesis has the objective to investigate the complex relationships between waiting times, customer satisfaction, group size, and restaurant performance within the restaurant industry. Specifically, the study explores whether customer satisfaction mediates the relationship between waiting times and restaurant performance, and if this mediation effect is moderated by group size. By addressing these relationships, the research aims to provide both theoretical insights and practical strategies for improving restaurant performance through effective management of waiting times and customer satisfaction.

The research utilizes a comprehensive dataset consisting of transactional data and customer feedback from a prominent restaurant chain in India. The dataset includes variables such as waiting time, overall rating (as a measure of customer satisfaction), group size, and spending (as a measure of restaurant performance). The study employs moderated mediation, moderation, and mediation models using the PROCESS macro in SPSS to test the hypothesized relationships. The mediation model assesses whether customer satisfaction mediates the relationship between waiting times and restaurant performance, while the moderation model examines if group size moderates the relationship between waiting times and customer satisfaction. A moderated mediation analysis is conducted to explore if the mediation effect of customer satisfaction on the relationship between waiting times and restaurant performance is moderated by group size.

The findings reveal that waiting time has a significant direct positive effect on restaurant performance, suggesting that longer waits can lead to higher performance. This counterintuitive result aligns with previous studies indicating that longer waiting times can enhance perceived value and quality, leading to increased spending. However, the study also finds that waiting times negatively impact customer satisfaction, confirming that longer waits generally reduce overall ratings. This finding emphasizes the importance of managing waiting times to improve customer experiences.

Despite the direct effects, the mediation analysis does not support the hypothesis that customer satisfaction mediates the relationship between waiting times and performance. The overall rating does not significantly explain the pathway from waiting times to spending, suggesting that other factors might better account for this relationship. This result highlights the multifaceted nature of customer satisfaction and restaurant performance, indicating the need for further research to identify additional mediators or alternative models that could better capture these dynamics.

The moderation analysis reveals that group size does not significantly influence the relationship between waiting time and customer satisfaction. This finding contrasts with previous research suggesting that social interactions in larger groups might mitigate negative perceptions of waiting time.

The moderated mediation analysis indicates that the indirect effect of waiting time on restaurant performance through customer satisfaction is not significantly moderated by group size. This lack of significant moderated mediation effect implies that individual customer experiences remain crucial regardless of group size, and restaurant managers should address these experiences uniformly to enhance overall satisfaction.

This research contributes to the theoretical understanding of service dynamics in the restaurant industry by focusing on the moderated mediation effects involving waiting times, customer satisfaction, and group size. It fills a gap in the existing literature by examining these relationships in a restaurant context, providing insights that can be generalized to similar service industries. The study offers practical implications for restaurant managers, with suggestions to optimize waiting times and improve customer satisfaction. By recognizing the direct impact of waiting times on performance and satisfaction, managers can implement measures such as enhancing reservation systems, leveraging technology for better communication, and offering complementary services during waits. These strategies can help balance the negative aspects of longer waits while capitalizing on their potential to increase spending.

Despite its contributions, the study acknowledges limitations, including the specific context and relatively small sample size, which may affect the generalizability of the findings. Future research should include larger, more diverse samples and consider additional factors influencing the relationships studied. Qualitative research methods and longitudinal studies could also provide deeper insights into the evolving nature of customer satisfaction and spending behaviours over time. Overall, this research underscores the complexity of moderated mediation in the context of customer satisfaction and restaurant performance, providing a foundation for future studies and practical strategies to improve customer experiences and business outcomes in the restaurant industry.

List of abbreviations

SPD = Spend Data

WTM = Waiting Time

OVR = Overall Rating

GRP = Group Size

PSQ = Position in Queue

WKD = Weekend Day

ZSPD = Standardized Spend Data

ZWTM = Standardized Waiting Time

ZOVR = Standardized Overall Rating

ZGRP = Standardized Group Size

ZPSQ = Standardized Position in Queue

ZWKD = Standardized Weekend Day

ZWTM_PR = Predicted Standardized Waiting Time

ZOVR_PR = Predicted Standardized Overall Rating

List of figures and tables

Table of Contents

CHAPTER ONE: INTRODUCTION

1.1 Background

Hospitality industry's market size was estimated to be 4.7 trillion U.S. dollars in 2023, and it is forecasted to grow up to 11.7 trillion U.S dollars in 2029 (Statista, 2024): in this context, the restaurant industry plays a pivotal role. With the increasing presence of social media in everyday life, and with the advent of online reviews, enabling customers to make more informed purchase decisions (Kim et al., 2022), the landscape of the restaurant industry is becoming more and more competitive, and is developing at a pace never seen before. As a consequence, restaurants need to adapt and innovate, ensuring that they can provide valuable offerings to their customers. This couples their need to gain competitive advantage over competitors and enjoy superior economic return, by enhancing customer satisfaction (Anderson et al, 1994), in order to improve customer retention, and ultimately profit (Anderson & Mittal, 2000).

The literature identifies many drivers of customer satisfaction, such as service quality, price, food quality (Andaleeb & Conway, 2006), environment, promotion, expectations (Khan et al., 2013), and waiting time (Davies & Vollmann, 1990; Hensley and Sulek, 2007; De Vries et al., 2018): among them, the latter seems to be underexplored by the literature when considering its potential for performance improvement (De Vries et al., 2018), and hence requires some closer inspection. When taking into consideration waiting time, it is worth noting that prior literature distinguishes between perceived and actual waiting time (Gail & Scott, 1997): moreover, scholars found perceived spatial crowding to be influencing perceived waiting time (Noon & Song, 2017), proposing a moderation effect of it on the link between waiting time and satisfaction (Noon & Song, 2017).

Solo waits were found to often be perceived as longer than waiting with friends or in groups (Maister, 1985; Wu et al., 2013): prior studies, however, do not highlight how this can evolve to influence business dynamics, and if there is an influence on how waiting time and customer satisfaction are related, as the literature does not take into account the size of queueing groups in previous works.

The opportunity to study the relationships mentioned so far comes from a restaurant based in Bhopal, Madhya Pradesh, India. The restaurant at hand belongs to a restaurant chain counting 29 restaurants (as of 2024) spread across India, mostly in densely populated cities. The growth strategy of the company is based on a franchising model, creating a distinctive brand image through an adaptive strategy embracing a wide variety of cultures: its restaurants are advertised to be assorted places, offering a broad variety of food and drinks according to characteristics of the place of residence of the restaurant, that is, demographics, cultural, local, and economic characteristics.

1.2 Problem indication

The literature has converged towards a definition of business performance as the processes leading managers to perform significant actions in the present, which will create an efficient and effective business in the future (Neely, 2002; Lebas & Euske, 2006): shades of this definition can be applied to different areas of business management.

Customer satisfaction has been the core of many scholars' works, because of its supposed involvement in a chain of factors ultimately leading to business performance (Anderson & Sullivan, 1993). To date, the literature shows wide availability of studies analyzing the relationship between customer satisfaction and business performance. Many of them attribute a positive effect of customer satisfaction on business performance (Anderson & Mittal, 2000; Otto et al., 2019; Sun & Kim, 2013; Hult et al., 2022; Simon et al., 2009; Gómez et al., 2004): however, only a small number of previous studies provides empirical evidence from the restaurant industry, while the majority focuses on other service industries.

A similar problem applies to the relationship between waiting times and customer satisfaction. Waiting time has been found by different studies in the literature to be an antecedent of customer satisfaction, having a negative impact on it (Davis & Vollmann, 1990; Hensley & Sulek, 2007; Caruelle et al., 2023; Lee et al., 2020): however, many of them relate to the healthcare industry, which is known to be very time-sensitive, or other service industries which have nothing to do with restaurant settings. Some studies did find a relationship between waiting times and customer satisfaction in the restaurant industry as well (Lahap et al., 2018; Pleerux & Nardkulpat, 2023), however, the scope of such works is limited, requiring further inspection of the subject.

Despite the wide availability of studies on the previously mentioned constructs, the literature lacks a holistic perspective on how they relate with each other: as a matter of fact, there is an absence of studies analyzing the three constructs taken in conjunction, especially in the restaurant industry, since previous works do not explain the influence of waiting time on restaurant performance through the mediating role of customer satisfaction. Moreover, even if the effect of group size on waiting time has been studied in the past (Maister, 1985), it still is not clear whether group size can moderate the relationship of waiting time and customer satisfaction. Furthermore, this study intends to understand if the above-mentioned effects can stand together simultaneously, that is, if there exists a moderated mediation effect involving the constructs at hand. Therefore, it is important to shed light on the implications that such moderated mediation, mediation and moderation effects ultimately have on restaurant performance, since doing so would allow readers to have a holistic perspective of the dynamics at play in the restaurant industry, and to not overlook interdependencies and interconnectedness between these constructs.

1.3 Research questions

In order to give an appropriate explanation to the problem, the following research questions need to be answered.

- THEORETICAL QUESTIONS

What are the determinants of customer satisfaction?

What are the determinants of restaurant performance?

How does waiting times affect restaurant performance?

How does customer satisfaction affect restaurant performance?

- EMPIRICAL QUESTIONS

Is the relationship between waiting times and customer satisfaction moderated by group size?

Is the relationship between waiting times and restaurant performance mediated by customer satisfaction?

Is there a moderated mediation effect in the relationship between waiting time and restaurant performance, where customer satisfaction mediates the relationship, and group size moderates the mediation effect of customer satisfaction?

1.4 Theoretical contribution

This study intends to contribute to the literature by deepening the understanding of the constructs waiting times, group size, customer satisfaction, and restaurant performance, how do they relate, and how do they affect the context of the restaurant industry.

In particular, the aim of this study is to contribute to the literature by filling the gaps in the research on restaurant performance, with a focus on waiting time and restaurant performance. This will be done according to different perspectives: taking inspiration from existing studies, such as Davis & Vollmann (1990), Hensley & Sulek (2007), Caruelle et al. (2023), and Lee et al. (2020), it will further refine them to unveil more specific details on the intricacies of waiting times and customer satisfaction, and whether and how they apply to the restaurant industry; then, still with respect to the restaurant industry, the study will assess whether existing literature on the relationship between customer satisfaction and business performance, such as Anderson & Mittal (2000), Otto et al. (2019), Sun & Kim (2013), Hult et al. (2022), Simon et al. (2009), and Gómez et al. (2004), can also apply in such an industry or if it results to be weak there. Further gaps will be filled in the literature, as this study will turn to a possible moderation effect of group size on the relationship between waiting time and customer satisfaction: as a matter of fact, at the time of the study, previous works tend to highlight causal relationships between group size and perceived waiting time (Maister, 1985; Wu et al., 2013), but none of them shows the impact that the size of a group can have on the relationship between actual waiting time and the satisfaction of the customer in line. Then, by delving into the literature, this study intends to develop a more comprehensive analysis of the dynamics of the restaurant industry, by focusing the effort on the identification of the complex interplay between the four constructs waiting times, group size, customer satisfaction, and restaurant performance.

The last avenue of research will receive a deeper and constant attention throughout the development of the study, because, to date, the literature does not show any availability of studies delving on the subject: existing frameworks do not fully account for the potential causal links, mediating factors, and moderating effects within the above-mentioned relationship between the four constructs, hence providing a partial view on the topic. It is instead essential to integrate them to have a deeper and complete understanding of the restaurant industry.

Therefore, the theoretical contribution of this study relates to the levers it will modify with respect to the existing literature (Makadok et al., 2018), and to the novelty it adds to the literature itself: following Makadok et al.'s framework to identify meaningful theoretical contribution, the levers that will be interested by this work are the area of domain of the phenomenon (a deeper focus on the restaurant industry), and the constructs involved in the phenomenon (introducing different constructs with respect to prior scholarly works), as the aim of this study is to understand if the interplay between waiting time, customer satisfaction, and restaurant performance has some relevant implications also in the context of the restaurant industry, and if the adding of group size to the scope of research has some implication on it.

1.5 Problem statement

What is the effect of customer satisfaction on the relationship between waiting time and restaurant performance, and to what extent can group size moderate this effect?

CHAPTER TWO: LITERATURE REVIEW

This chapter begins with an introduction on the topic of research. It then details the constructs around which the study will revolve, and unravels the different positions of scholars on the constructs and on how they link. The chapter is concluded with the description of research hypotheses and why they are appropriate for the development of the literature on the links between waiting time, customer satisfaction, group size, and restaurant performance.

2.1 Introduction

The landscape of the restaurant industry is continuously evolving, driven by dynamic consumer preferences, economic factors, and technological advancements (Lee & Ha, 2012; Cavusoglu, 2019). In this chapter, the research delves into the existing body of literature surrounding the key constructs of waiting times, customer satisfaction, group size, and restaurant performance. By examining the scholarly works and empirical studies in these domains, the aim is to establish a comprehensive understanding of the interplay between these constructs and their implications for the restaurant industry.

The restaurant industry holds a significant position within the broader hospitality industry, contributing substantially to economic and cultural landscapes (Dhora & Dionizi, 2014; Lee et al., 2016). With the advent of social media and online platforms enabling consumers to voice their opinions and preferences, the competitive nature of the industry has intensified (Zhang et al., 2010; Singh et al., 2024). Thus, restaurants' primary interest is to gain a competitive edge on competitors, and ensure sustainable business performance, by meeting and exceeding customer expectations.

Central to this analysis is the phenomenon of waiting times, a crucial aspect of the dining experience, often linked to customer satisfaction (e.g., Davis & Vollmann, 1990; Hensley & Sulek, 2007; Lee et al., 2020; Caruelle et al., 2023) and business performance (e.g., Anderson & Mittal, 2000; Gómez et al., 2004; Simon et al., 2009; Sun & Kim, 2013; Otto et al., 2019;

Hult et al., 2022). Although prior research hinged on the intricacies of these relationships in different service industries, including healthcare and retail, their domain in the restaurant context remains underexplored. Moreover, emerging evidence increasingly suggests a role of group size and customer satisfaction in this picture, which the author of this works believes to be a moderated mediation effect of group size and customer satisfaction on the relationship between waiting time and restaurant performance, thereby adding complexity to our understanding. Customer satisfaction, a cornerstone of service quality literature, serves as a pivotal determinant of restaurant success. Studies have consistently highlighted its positive association with various business outcomes, including customer loyalty, positive word-of-mouth, and financial performance (e.g.; Anderson & Sullivan, 1993; Chevalier & Mayzlin, 2006; Simon et al., 2009; Eklos et al., 2020). However, the mechanism through which waiting time influences customer satisfaction, and subsequently, restaurant performance, warrants deeper investigation, particularly within the unique context of the restaurant industry. Furthermore, seminal scholarly works examined the psychological and sociological dimensions of group dynamics in service contexts, especially in the restaurant industry: this is testified by the numerous works emerging in the literature about links between group size and consumption habits (e.g., Lumeng & Hillman, 2007; Cavazza et al., 2011; Clauzel et al., 2019). Moreover, streams of scholarly works relate to the impact that group size can have on perceptions when waiting (e.g., Maister, 1985; Wu et al., 2013).

By reviewing the literature, this chapter has the goal to unravel the scholarly debate on the complex interplay between waiting times, group size, customer satisfaction, and restaurant performance, so that by synthesizing prior research findings, the groundwork for an empirical investigation into the moderated mediation effect of waiting time on restaurant performance can be laid.

2.2 Waiting time

Waiting time typically represents the first contact that clients encounter during most service provision activities (Davis & Heineke, 1998; De Vries et al., 2018), meaning that the appropriate handling of waiting time in service operations is significantly central and important to those activities (Davis & Heineke, 1998). Waits are structural to the experiences in service industries where clients must be there physically (Van Riel et al., 2012). Waiting might be unpleasant for clients (Tom & Lucey, 1997), since one's time is often limited and constrained

by work (Jones & Peppiat, 1996), other duties, or would simply prefer to spend it in a different manner: however, customers must partake in it in order to get their service rendered. Waits can occur in different service contexts, such as airports, amusement parks banks, hospitals, shops, and restaurants (De Vries et al., 2018): as a consequence, several streams of research arose to understand the dynamics of waiting time and its repercussions in such sectors.

The significance of waits in service settings is firstly highlighted by the focus that the literature has dedicated to this topic from different angles (De Vries et al., 2018).

Hornik (1984) made a first distinction between perceived and actual waiting time in a field study, empirically finding that most customers' perceptions led them to underestimate or overestimate waiting time. A similar stream of research was pursued by Maister (1985), who developed eight propositions describing the factors modifying perceptions related to waiting time: proposition eight, according to which "solo waits feel longer than group waits" is of great interest for this study. Maister's work was seminal in shaping a crucial role for perceptions in the queuing domain, which was subsequently investigated by Tom and Lucey (1997) recognizing differences in estimation of waiting time by customers when facing differences in in-store crowds and checkers' speed, and other works recognizing an over- or under-estimation of waiting time by customers (e.g., Feinberg & Smith, 1989; Larson et al., 1991). Hensley & Sulek (2007) distinguished three categories of waits occurring in service settings characterized by more than one stage: service-entry waits, preceding service delivery; in-service waits, occurring during service delivery; and service-exit waits, occurring at the end of service delivery.

2.3 Restaurant Performance

Practicing managers and academic researchers are recurrently interested in the theme of performance (Venkatraman & Ramanujam, 1986). The centrality of business performance in the academic and managerial debate emerges clearly from the many studies developing insights into performance improvement (Venkatraman & Ramanujam, 1986). The concept of business performance has evolved over time, coping with the evolution of societal needs and expectations (Taouab & Issor, 2019): the literature has converged towards a definition of business performance being the processes leading managers to perform significant actions in the present, which will create an efficient and effective business in the future (Neely, 2002; Lebas & Euske, 2006). In the context of restaurant industry, business performance has been

associated to several antecedents (Elkhwesky et al., 2023), such as corporate social sustainability implementation (Rhou et al., 2016; Alonso-Almeida et al., 2018; Cantele & Cassia, 2020), employee compensation (Kim & Jang, 2020), advertising expenditure (Kim et al., 2018), quality management activities (Alonso-Almeida et al., 2018), innovation activities (Lee et al., 2016), and value proposition innovativeness (Clauss et al., 2019).

2.4 Adding Customer Satisfaction to the picture

Since Cardozo's (1965) seminal work laying the groundwork for extensive research on customer satisfaction, different definitions have been advanced by scholars on the construct of customer satisfaction. Despite the wide availability of studies delving on the subject, however, it is difficult to find a definition commonly agreed upon by the scholars. According to Yi (1990) and Parker and Mathews (2001), there are two types of definitions that differ in terms of emphasis put on consumer satisfaction either as a process or as an outcome, that is, as an activity of evaluation between the product or service received and the one that was expected, or as a response to such an evaluation process (Giese & Cote, 2000). However, the interpretations are not alternative, but rather complementary, as one often relies on the other (Parker & Mathews, 2001). Tse and Wilton (1988) synthesized the outcome approach (also supported by Westbrook and Reilly (1983) and Halstead et al. (1994)), by defining customer satisfaction as the response of customers to the assessment of the difference between the product's actual performance as perceived after consumption, and their previous expectations or any other performance standard. According to Oliver (1981), customer satisfaction can be seen as "the summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with the consumer's prior feelings about the consumption experience". This definition reflects the increasing attention posed by the process approach on the nature (rather than cause) of satisfaction (Parker & Mathew, 2001), highlighting an emotional side of the construct, later strengthened by Westbrook and Reilly (1983) and again by Oliver (1992), who concluded that satisfaction can "coexist with other consumption emotions", and thus is a summary attribute phenomenon (Giese & Cote, 2000).

The disconfirmation paradigm, which has its foundations in the Discrepancy Theory (Porter, 1961) and the Assimilation-Contrast Theory (Sherif & Hovland, 1961; Anderson, 1973), and was firstly theorized by Oliver (1977), specifies that satisfaction judgements from customers arise as a result of the difference between what the consumers perceive to be the performance, and what they expected from the performance: positive disconfirmation improves satisfaction,

while negative disconfirmation reduces it (Parker & Mathews, 2001). The disconfirmation paradigm was later used to build the Expectation Confirmation Theory (Oliver, 1980), highlighting how expectations prior to purchase and post-purchase experiences shape consumer satisfaction.

According to Hult et al. (2022), as research on customer satisfaction proliferated over time, the literature evolved through three distinct streams (or ‘‘generations’’): despite the distinction, the streams can overlap with respect to time. The first stream of studies concentrated on customer satisfaction as an attitude derived from the consumption, which was thought to be influencing future clients’ behaviours likely to be beneficial for businesses (e.g., Cardozo, 1965; Oliver, 1977, 1980; Churchill & Surprenant, 1982). The second stream was centred on business strategy, and sought to prove many of the arguments of the first stream, particularly validating those concerning a presumed positive impact of satisfaction on business outcomes (e.g., Rust & Zahorik, 1993; Anderson et al., 1994; Anderson et al., 1997). In a more recent period, a third stream of research has emerged: the works from this generation exhibit a multipolar approach, often mixing elements belonging to other streams of studies. The scope of research is broader, as these works are concerned with factors related to international business as determinants of customer satisfaction or as variables moderating and mediating satisfaction’s relationships with its antecedents and consequences (e.g., Fang & Zou, 2009; Kirca et al., 2011; Hult et al., 2014). The stimulus for this stream of research is to be found in the economic “hyper-globalization” (Subramanian & Kessler, 2013) of 1990s and early 2000s. The application of the construct of satisfaction to an internationalized business environment is what distinguishes the third generation of studies from the first and second, which mostly concentrated on single-market scenarios (Hult et al., 2022): nonetheless, even if the constructs acting as mediators or moderators are often derived from cross-national business environments, they are also investigated on the effects and impacts they have on cultural and national variables predicted to influence customer satisfaction (Hult et al., 2022).

2.4.1 Customer Satisfaction and Restaurant Performance

The pre-eminence of customer satisfaction in academic works is justified by the centrality that scholars attribute to this construct in the domain of business performance: customer satisfaction is commonly seen as a strategic business performance enhancer (Otto et al., 2020). The increasing competitiveness in the business landscape has captured firms’ interest in existing

ways of improving their competitive position, in an effort to increase performance, making the allegedly positive link between satisfaction and performance a great avenue for scholarly research: this has led scholars to increasingly focus on the understanding of customer satisfaction, and in particular of its antecedents and consequences.

The literature interprets customer satisfaction as a valuable asset, important for adequate management of business resources and performance (Beckers et al. 2017; Rubera & Kirca 2017): a satisfied customer is therefore seen as an asset yielding high economic returns, while returning low risk (Fornell et al., 2006; Fornell et al., 2016). The importance attributed to customer satisfaction by academia's research stems from the presumed positive outcomes that this construct can lead to in a business context, both from customer-level and firm-level perspectives (Mittal et al., 2023).

A seminal study from Fornell (1992) enlists many essential benefits of enhanced customer satisfaction for the business: increased customer loyalty, decreased price elasticities, shielding of current clients from rivals' competitive actions, reduced costs of future negotiations, lower costs of failing, reduced costs of engaging new customers, and an improved business reputation. In particular, loyalty of actual clients causes them to repurchase more in the future (as a consequence of customer retainment) in the future. If a business is able to trigger such a loyalty, this will show in its economic returns, as it would benefit from consistent streams of future cash flow (Reichheld & Sasser, 1990). These paradigms were later synthesized by pre-eminent studies in the literature (Rust et al., 1995; Heskett et al., 1994) in the "Service-Profit Chain", which was ultimately developed and strengthened by Anderson and Mittal (2000), providing an integrative depiction of the so-called "Satisfaction-Profit Chain": the chain, represented in figure 2, linked contributions gathered from previous studies. Although the scope of the service-profit chain is similar, it mostly concentrates on the service delivery process, tracing its effects on the financial performance of the business (Frennea et al., 2014). In contrast, the satisfaction-profit chain has a broader focus, concentrating on all customer experiences and outcomes that have an impact on the business, independently of whether they originate in service delivery or product consumption (Frennea et al., 2014). Thus, the satisfaction-profit chain is to be viewed as a general framework, with the service-profit chain as a particular case (Frennea et al., 2014).

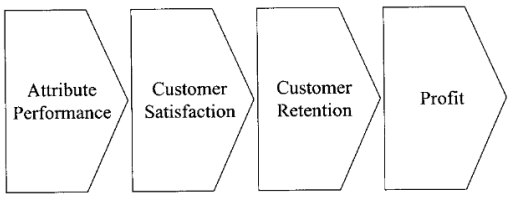

Figure 1: *The Satisfaction-Profit Chain*

Note. From Anderson, E. W., & Mittal, V. (2000). Strengthening the Satisfaction-Profit Chain. *Journal of Service Research*, 3(2), 107–120.

According to Anderson and Mittal (2000), this chain of links was the result of previous findings by scholarly works, which suggested the following path: the improvement of product and service attributes is followed by an increase in customer satisfaction, as customer satisfaction is a function of attribute performance (Hanson, 1992; Wittink & Bayer, 1994; Mittal et al., 1998); the increase in customer satisfaction is in turn backed by an increase in customer retention, improving repurchase intentions and behaviours (Anderson, 1994; Ralston, 1996; Zeithaml et al., 1996; Bolton, 1998), which ultimately lead to greater profitability (Anderson et al., 1994).

According to Frennea et al. (2014), the satisfaction-profit chain is so relevant in the literature because it provides strategic and operational guidance to businesses, and an integrative framework to address questions related to operational factors affecting customer perceptions of quality or performance. Moreover, it provides an important depiction of how customers' evaluation of service or product performance relate to overall customer satisfaction, and the consequences on behavioural outcomes such as customer loyalty, cross-buying, and share of wallet, and financial outcomes such as sales, profitability, and firm performance. Mittal et al. (2023) strengthened this approach, recognizing that the importance of customer satisfaction in the literature is not related exclusively to the profitability, but rather encompasses several outcomes that are characterized by a focus on both the customer- and firm-level. In particular, Mittal et al. (2023) conducted a meta-analysis involving 245 scholarly articles, which showed significant associations between customer satisfaction and some of its proposed customer- and firm-level consequences. Among the customer-level consequences, customer satisfaction was found to be positively correlated with customer retention, word-of-mouth, and price outcomes (such as willingness to pay). Among the firm-level outcomes, customer satisfaction was found to be positively correlated with sales (product market's measure), profit and ROA (accounting measures), Tobin's Q and stock returns (financial market's measure), and negatively correlated with cash flow variability (accounting measure), stock risk and cost of debt financing (financial

market's measure). As a bottom line, Mittal et al. (2023) state that customer satisfaction should be used as a dependent variable in scholarly works, because of its clear link with clients' behaviour and firm-level outcomes.

The strategic benefits of improved customer satisfaction are highlighted by Anderson et al. (1994), emphasizing, for example, the beneficial impact of associating customer gratification, word-of-mouth, and client retention on reducing price elasticities (that is, improving retention and cash flow when prices increase), costs of transacting (that is, the costs of having loyal clients and retain them is lower than the cost of obtaining new customers, also leading to decreased marketing costs as a consequence of positive word-of-mouth), and expanding the portion of consumers' buying capacity devoted to that business (that is, satisfied clients buy a higher percentage of their total needs from the business). Furthermore, Anderson et al. (1994) highlight the importance of satisfaction to reduce cross elasticities (meaning an insultation of the business from rivals' competitive actions aimed at impacting the business' financial margins or market position) and/or increasing reputational effects. Finally, Anderson et al. (1994) claim that the positive outcomes mentioned so far, are expected to positively impact businesses' financial and marketing performance outcomes.

The relevant implications of positive customer satisfaction sparked the interest of scholars from different fields of research to delve into the argument, mainly by focusing on the contextualization in different industries of the link between customer satisfaction and business performance, although most of them focused on retail settings: among the most studied contexts it is possible to find the grocery industry (Simon et al., 2009; Suchánek et al., 2014), the tourism and hospitality industry (Chi & Gursoy, 2009; Kim & Sun, 2013; Lee & How, 2019; Nazari et al., 2020; Gupta et al., 2007; Hwang & Lambert, 2009; De Vries et al., 2018; Kim et al., 2020), the airline industry (Steven et al., 2012), the retail banking industry (Jham & Khan, 2009; Grigoroudis et al., 2013), the water utility industry (Donkor, 2013). Despite the wide availability of studies delving on customer satisfaction in the tourism and hospitality industry, only few of them address the relationship in the restaurant industry.

2.4.2 Waiting Time and Customer Satisfaction

Because of the vast benefits potentially arising from customer satisfaction, the interest for its consequences grew hand in hand with the interest for the antecedents of customer satisfaction, as scholars, managers, and business owners, showed particular attention to the means by which

customer satisfaction could have been improved, in order to trigger a chain of positive customer behaviours ultimately leading to improved business performance.

Fornell et al. (1996) identify overall quality and customer expectations to be antecedents of perceived value, which is in turn identified as the driver of customer satisfaction. Overall quality is defined to be a judgement of the recently experienced consumption, especially with respect to how deeply customers' personal exigences were met, how reliable the product or service was perceived to be: overall quality is generally anticipated to influence the satisfaction of the customer in a positive manner (Fornell et al. 1996). Customers' expectations are instead meant to capture what the customer anticipates about the quality of a company's products or services (Fornell et al. 1996), stemming from: customers' prior experiences with the retailer, the retailer's reputation, and what customers believe retailer's future offerings will be. Perceived value is defined to be customers' judgement on the quality featured by the product or service, compared to the price paid for it (Fornell et al., 1996)

Spreng et al. (1996) introduced the notion of information satisfaction to the field, that is, the satisfaction of the customer with the information for the different characteristics of the product or service, and found it to have a positive influence over satisfaction with a product or service experience.

Szymanski and Henard (2001) modelled the antecedents of customer satisfaction drawing upon previous academic works related to the aforementioned disconfirmation paradigm and on the discrepancy between expectations and performance in general (e.g., Oliver, 1980; Churchill & Surprenant, 1982; Westbrook & Reilly, 1983; LaBarbera & Mazursky, 1983; Tse & Wilton, 1988; Yi, 1990; Anderson & Sullivan, 1993; Halstead et al., 1994; Fornell et al., 1996). Even if the analysis proposed by Szymanski and Henard (2001) relates also to the consequences of satisfaction, an interesting contribution stems from the analysis of its determinants. In this sense, the study refines previous works: it recognizes expectations and performance to directly affect customer satisfaction; the two constructs, however, are also determinants of the disconfirmation of expectations, which in turn affects satisfaction as well. Performance is also modelled to impact equity and fairness judgements that consumers develop with respect to what other customers obtain (Oliver 1997), which is a determinant of satisfaction as well. A final determinant of customer satisfaction is affect towards the product or service provider.

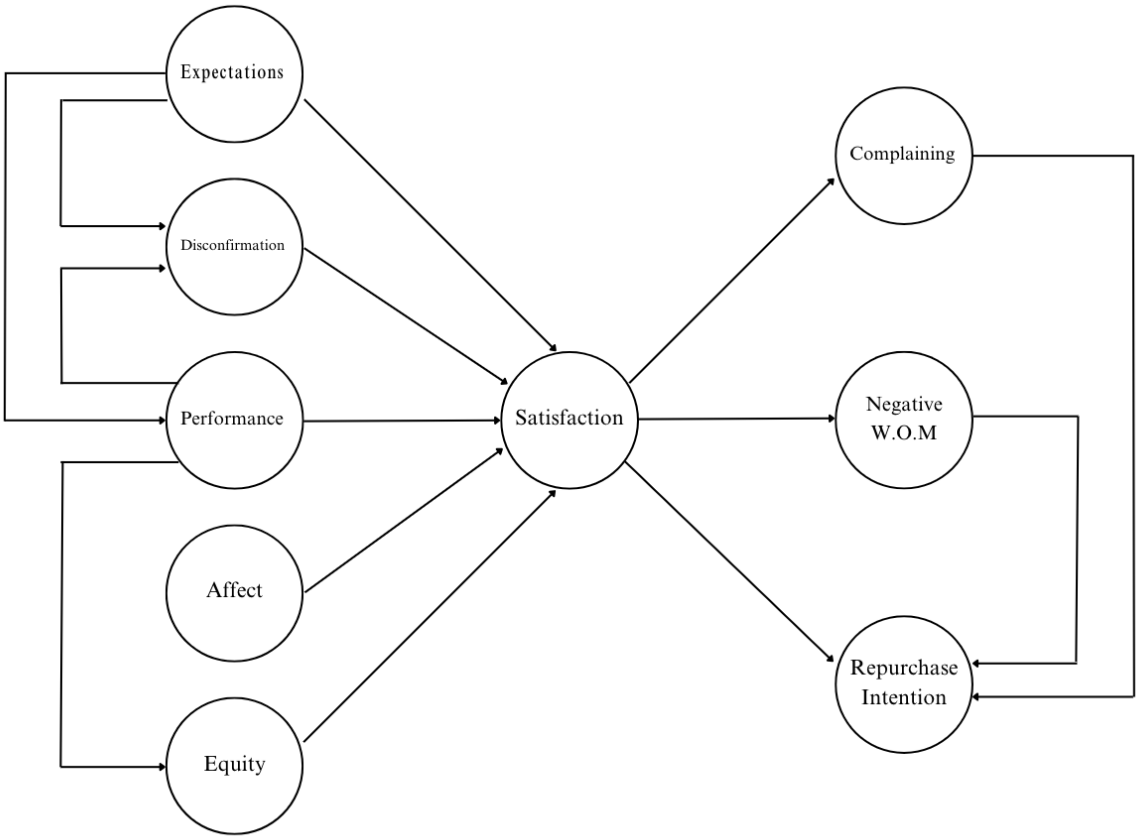

Figure 2: *Model of Antecedents and Consequences of Customer Satisfaction*

Note. From Szymanski, D.M. and Henard, D.H. (2001) Customer Satisfaction: A Meta-Analysis of the Empirical Evidence. *Journal of the Academy of Marketing Science*, 29, 16-35.

Through a meta-analysis of 96 academic articles, Otto et al. (2020) found customer satisfaction to be positively correlated with three factors related to the business' marketing strategy, namely advertising expenditures, R&D expenditures, and scope of the served market (i.e., market types and segments, and geographic scope of the market served). On the other hand, the study records a negative correlation between the size of the firm (measured by number of employees, sales, and assets) and satisfaction.

Morgeson et al. (2011) conducted an analysis of determinants of customer satisfaction across different types of societies, by studying three sets of factors: societal, socio-economic, and political-economic. With respect to cultural factors, the findings reveal that satisfactions levels are higher in traditional societies (characterized by respect for national authority, protectionist behaviour, social conformity) than in secular-rational societies (characterized by opposite values with respect to traditional societies). Moreover, satisfaction levels are lower in societies with survival values (characterized by low levels of individual well-being, low trust in others, high emphasis on materialist values) than societies exhibiting self-expression values

(characterized by opposite values with respect to the survival ones). They also claim level of literacy, freedom of commerce, and business freedom to positively influence consumer satisfaction, whereas per capita gross domestic product negatively influences customer satisfaction.

As already explained, waiting time has been at the core of several studies aiming to understand how perceptions can shape customers' queueing experience (e.g., Maister, 1985; Davis & Heineke, 1998; De Vries et al., 2018; Van Riel et al., 2012; Tom & Lucey, 1997; Hensley & Sulek, 2007; Hornik, 1984). As a matter of fact, the literature recognizes waiting time as a determinant of customer satisfaction, and attributes great importance to its role in shaping customers' overall experience with the business or service provider. The studies are often conducted in different contexts, such as retail stores (e.g., Tom & Lucey, 1997; Van riel et al., 2012; Caruelle et al., 2023), healthcare facilities (e.g., Holbrook et al., 2016; Chan et al., 2018; Lee et al., 2020), airports (e.g., Ayodeji et al., 2023; Gkritza et al., 2006; Fodness & Murray, 2007), commercial banks (e.g., Ramachandran & Chidambaram, 2012; Demoulin & Djelassi, 2013), and restaurants (e.g., Sulek & Hensley, 2004; Hwang & Lambert, 2009; De Vries et al., 2018), highlighting the transversal nature of the importance of waiting time as an antecedent of customer satisfaction with a product or service.

The literature converges towards a negative influence of waiting time on customer satisfaction: this is particularly relevant in the restaurant industry, where longer waits are associated to abandoning behaviour (the customer abandons the queue), a longer time elapsed between visits of the client, and a reduced length of the dining experience (De Vries et al., 2018), factors that could potentially pose a threat to a restaurant's performance. As for any other antecedent of customer satisfaction, it is possible to draw upon previous studies (e.g., Oliver, 1980; Churchill & Surprenant, 1982; Westbrook & Reilly, 1983; LaBarbera & Mazursky, 1983; Tse & Wilton, 1988; Yi, 1990; Anderson & Sullivan, 1993; Halstead et al., 1994) to assume that the relationship between waiting time and customer satisfaction is once again dictated by the disconfirmation paradigm, meaning that customer's satisfaction with the service will be affected by the difference between the waiting time the customer expected before the product or service consumption, and the actual waiting time. Jones and Peppiatt (1996) remark this by claiming that customers are less satisfied if they wait longer than expected.

Hornik (1984) made a first distinction between perceived and actual waiting time in a field study, empirically finding that most customers' perceptions led them to underestimate or overestimate waiting time. Following this work, scholars subsequently developed the role of perceived waiting time, especially in relation to satisfaction: according to Whiting and Donthu

(2006), “actual wait time is the time that a customer spends waiting. Perceived waiting time is the amount of time customers think they waited. The gap between actual and perceived wait time can be exaggerated by customers, as they could perceive that they waited for a longer time than they actually did”. According to Feinberg and Smith (1989) 77% of observed clients over-amplified the wait during their experiment. Larson et al. (1991) found that observed customers’ perceived waiting time was 25% higher than actual wait time.

Despite the importance of perceived waiting time, Wu et al. (2009) found that the main driver behind perceived waiting time is still actual waiting time, as the first is defined as a function of the latter: in particular, Wu et al. (2009) modelled the relationship between perceived and actual wait as a quadratic one. Similar findings are exhibited by Van der Bijl et al. (2011).

2.5 Group Size

The effect of the size of dining groups has long been studied by the academia, because of the potential and the important implications it can have on the performance of restaurants. Seminal works have examined the psychological and sociological dimensions of group dynamics in service contexts, especially in the restaurant industry: this is testified by the several works emerging from the literature about links between group size and consumption habits (Lumeng & Hillman, 2007; Cavazza et al., 2011; Clauzel et al., 2019). For example, Ruddock et al. (2019) summarized the findings of scholarly works on the social facilitation of eating, establishing that people eat higher quantities of food when with other people, with respect to eating alone. As a matter of fact, groups have long been established to be dynamic and powerful beings which have power to influence individuals and communities (Lewin, 1948).

The role of groups is crucial in this research as well: as mentioned earlier, Maister (1985) established in his eighth proposition that “solo waits feel longer than group waits”. His work is seminal in linking the presence of other individuals in line with the customer to an effect on waiting time, in particular to the perception the customer has of the time spent waiting. The importance of the “distracting” feature of groups when waiting, and the ability of high density of people flow to smooth the sense of boredom felt by customers in line, is highlighted by Wu et al. (2013).

Group size is therefore a relevant construct in understanding the dynamics through which customer satisfaction mediates the relationship between waiting time and restaurant performance.

2.6 Research hypotheses

Following such an extensive analysis of the scholarly debate on the intricacies of customer satisfaction and its ties with waiting times and restaurant performance, it is possible to establish that the literature recognizes links between the said constructs. However, despite their relevance in the debate, there still exist gaps in the literature that need to be addressed.

The existing literature extensively documents the crucial role of customer satisfaction in driving business performance, including customer loyalty, positive word-of-mouth, and financial outcomes (Anderson & Sullivan, 1993; Chevalier & Mayzlin, 2006; Simon et al., 2009; Eklos et al., 2020). Despite this, there is a noticeable gap in the literature specifically addressing how waiting times impact restaurant performance through customer satisfaction: given the negative impact of long waits on customer satisfaction (Davis & Vollmann, 1990; Hensley & Sulek, 2007; Lee et al., 2020; Caruelle et al., 2023), it is hypothesized that customer satisfaction will serve as a mediator in this relationship, thereby influencing restaurant performance, leading to the formulation of H1:

H1: Customer Satisfaction mediates the relationship between Waiting Time and Restaurant Performance.

Moreover, research highlights the significant effect of group dynamics on individual perceptions of waiting time (Maister, 1985; Wu et al., 2013). Larger groups tend to mitigate the negative perception of waiting due to the distraction provided by social interaction (Lewin, 1948; Ruddock et al., 2019). However, empirical investigations into this moderating role in the context of restaurant settings remain limited. This study hypothesizes that group size will moderate the relationship between waiting times and customer satisfaction, leading to the formulation of H2:

H2: Group Size moderates the relationship between Waiting Time and Customer Satisfaction.

While the direct and mediated impacts of waiting time on customer satisfaction and restaurant performance have been explored to some extent, the moderating role of group size in this mediation pathway is under-researched. Group size could influence not only the direct relationship between waiting times and satisfaction, but also the extent to which satisfaction mediates the impact of waiting times on performance. This hypothesis posits that the indirect

effect of waiting times on restaurant performance through customer satisfaction is contingent on the size of the dining group, aligning with previous findings that group dynamics significantly alter consumer behaviour and perceptions (Lumeng & Hillman, 2007; Cavazza et al., 2011; Clauzel et al., 2019). This leads to the formulation of H3:

H3: Group Size moderates the mediation effect of Customer Satisfaction on the relationship between Waiting Time and Restaurant Performance.

These hypotheses aim to fill the gaps in existing research by exploring the complex interactions between these key constructs in the restaurant industry. The findings are expected to provide actionable insights for restaurant managers to enhance performance by strategically managing waiting times and understanding the role of group size in shaping customer satisfaction and overall business outcomes.

2.7 Conceptual model

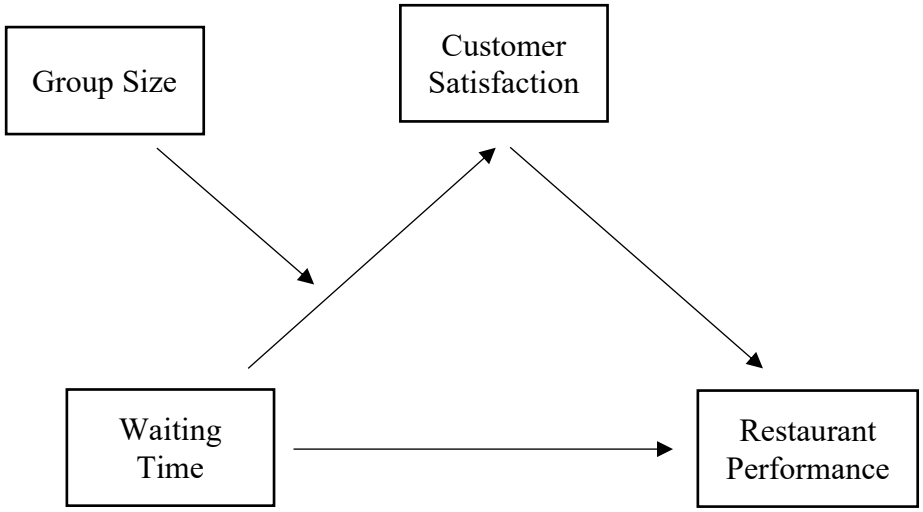

Figure 3: *Conceptual Model*

CHAPTER THREE: METHODOLOGY

This chapter begins by outlining the nature of the study and the strategy implemented to address the research. It then details the characteristics of the sample and the process through which data collection occurred. Subsequently, all relevant variables, (i.e., independent, dependent, mediator, and moderator) are described. Following this, the research design and empirical models are explained. The chapter concludes with a discussion on the approach used to ensure reliability, validity, and robustness of the findings.

3.1 Research nature and strategy

The goal of this study is to understand how the constructs waiting time, customer satisfaction, group size, and restaurant performance are related in the restaurant industry, and whether moderating and mediating effects can influence the relationships. To unravel and examine the said ties, this study will use transactional data, recording details of transactions from a specific restaurant.

To answer the empirical questions (the core of this research, aiming to fill the gap in the literature), this study started from the general theory, and in the following chapters will implement an empirical analysis that will lead to conclusions aiming to expand the current state of the literature. This study employs a deductive research approach, aiming to test specific hypotheses derived from existing theories. The deductive approach allows for a structured investigation based on theoretical foundations, ensuring the findings contribute to existing knowledge in the field. As a matter of fact, this study aims to identify from the data collected at a single restaurant, generalizable patterns and relationships (Carlile & Christensen, 2004 Borgstede & Scholz, 2021), in order to highlight insight with practical relevance: the analysis starts from the specific case, and then moves to a broader setting, aiming to find patterns that can be generalized to the whole restaurant industry.

The attempt to identify patterns is supported by the cross-sectional time horizon of the research, which analyzes data collected over a six-month period (from January 30th, 2019, to June 30th, 2019). This design allows for the examination of the relationships between the selected variables at a specific point in time, providing a detailed picture of the interactions within that time span. A cross-sectional study is suitable to identify patterns and correlations, making it an appropriate choice for this research.

The unit of analysis in this study is individual customer transaction following the visit. Each data point represents a single visit to the restaurant, picturing variables such as waiting time, customer satisfaction ratings, spending data, and group size. Analyzing individual transactions allows for a detailed understanding of the factors influencing customer behaviour and satisfaction within the restaurant context.

Given the maturity of the current state of the literature on the subject (despite the identified gap), as analyzed in chapter two, the quantitative nature of the study is appropriate (Edmondson & McManus, 2007).

Transactional data from the restaurant are collected and employed to provide an in-depth understanding of the specific restaurant's service dynamics, as this allows for a detailed examination of the contextual factors influencing the proposed relationships. Along with the transactional data, a survey is used to collect data on customer satisfaction, as it is effective in gathering subjective data directly from customers, which is crucial for analyzing the satisfaction component.

3.2 Data collection

For the purpose of this study, a dataset containing detailed restaurant transaction data and customer feedback will be used. The use of quantitative transactional data allows the researcher to handle the theoretical problem with the most meaningful approach, since it allows to quickly test different versions of hypotheses (Calantone & Vickery, 2010).

The data were collected from a restaurant, based in Bhopal, Madhya Pradesh, India. The restaurant belongs to a restaurant chain counting 29 restaurants (as of 2024) spread across India, mostly in densely populated cities. The data have been collected between January 30th, 2019 and June 30th 2019. The dataset contains missing observations for some variables: the entries presenting missing observations will be omitted from this study (Curley et al., 2017; Kang, 2013).

The characteristics of the dataset allow the researcher to have granular insight on the dynamics at play, which can then be used to find patterns useful to the aim of the research.

The dataset consists of 48,622 observations recording transactional data, including some data of interest for this study, such as waiting time, spend data, and group size; moreover, 29,693 observations record data relative to customers feedback on their experience. The dataset was filtered by matching the common observations reporting both transactional data and customer

feedback. Moreover, observations exhibiting missing values for any of the variables of interest were handled by means of deletion. In addition, deletion was used to handle observations exhibiting recording errors and in case of non-meaningful outliers. Such a filtering and deletion process reduced the initial observations to a final amount of 660 observations.

The study features three empirical questions that are to be addressed. The four constructs that are taken into account by the study are waiting time, customer satisfaction, group size, and restaurant performance. The model is based on four variables built on those constructs. Moreover, two instrumental variables, position in queue and weekend day, are used to ensure robustness of the findings.

3.3 Dependent variable: Spend Data

The literature has converged towards a definition of business performance being the processes leading managers to perform significant actions in the present, which will create an efficient and effective business in the future (Neely, 2002; Lebas & Euske, 2006). In the context of hospitality industry, and in particular of the restaurant industry, restaurant performance has been widely measured according to two dimensions, non-financial and financial performance, where non-financial performance relates to measures such as (but not limited to) service quality, food quality, and environment quality (Lin et al., 2014), employee and customer satisfaction, customer retention (Jang, 2022), employee turnover (Davis et al., 2000), staff knowledge, skills, creativity (Salehzadeh et al., 2017), and productivity (Rawley & Seamans, 2020). With respect to financial performance, the literature shows a wide variety of measures, such as (but not limited to) sales (e.g., Davis et al., 2000; Barnes et al., 2013; Lee et al., 2016), profits (e.g., Davis et al., 2000; Park & Jang, 2013), cost saving (e.g., Rao et al., 2009), and sales growth (e.g., Shirokova et al., 2013; Lee et al., 2016).

As explained in chapter two, numerous scholarly works recognize the Satisfaction-Profit Chain as a driver for restaurant performance: this study draws inspiration from them, and seeks, therefore, to measure restaurant performance under the scope of financial performance measurements. As a consequence, this study intends to measure restaurant performance by means of the variable Spend Data (SPD), which describes the spending outcome of the transactions registered by the restaurant. The variable reports the amount of money (Indian Rupees) associated to each transaction registered.

3.4 Independent variable: Waiting Time

Following Hensley and Sulek's (2007) distinction of waits in multi-stage services, this study examines waiting time occurring in service-entry.

In particular, the variable Waiting Time (WTM), used by this study, is a continuous variable measuring the amount of time waited by customers before being seated, as the difference between the time at which customers were seated minus the time at which customers registered at the entrance of the restaurant. Such a difference is expressed in minutes.

3.5 Mediating variable: Overall Rating

Previous scholarly works measured customer satisfaction by means of metrics hinging on questionnaires presented to customers after their consumption of the product or service. In particular, scholars addressing research on customer satisfaction, often created measures of customer satisfaction by interviewing customers on the basis of multiple statements, each of which could be graded on the basis of a n-points Likert Scale: then, averages of the values scored by the statements were computed and ultimately combined in a variable measuring the overall score of customer satisfaction (e.g., Gilbert et al., 2004; Andaleeb & Conway, 2006).

This study follows the same approach. Customers were asked to leave a judgement on the restaurant relative to three categories: food, service, and dining experience. In particular, customer ratings for food, service, and dining experience were recorded on 5-points Likert Scales for each transaction. These three variables were then combined in Overall Rating (OVR), which was calculated for each transaction as Overall Rating = (Food + Service + Dining Experience) / 3.

3.6 Moderating variable: Group Size

Data on the size of the group associated to each transaction are recorded at the time of registration. Group Size (GRP) is a continuous variable measuring the number of people present in the group associated to each transaction.

3.7 Instrumental variables: Weekend Day and Position in Queue

Weekend Day (WKD): Using the weekend as an instrumental variable for customer satisfaction is justified by the differences in consumer behaviour and dining patterns between weekends and weekdays. On weekends, customers generally have more leisure time, allowing them to engage in dining experiences as social activities rather than routine meals. This shift in context often results in higher levels of customer satisfaction due to the relaxed environment and the social nature of weekend dining; vice versa, during weekdays, dining is typically more hurried and functional, influenced by work schedules and time constraints, which can lead to different satisfaction levels. These behavioural differences create a natural variation in customer satisfaction that is exogenous and unrelated to the restaurant's service quality, making the weekend a robust IV. Consequently, employing the weekend as an IV can address potential endogeneity issues in the analysis, providing a clearer understanding of how waiting time influences restaurant performance via customer satisfaction (and through the moderation of group size), independent of other confounding factors. Weekend Day is a dummy variable that measures whether the transaction occurred during a day in the weekend (i.e., Saturday or Sunday), or not. If the transaction occurred in the weekend, the variable shows a value equal to 1, otherwise a value equal to 0.

Position in Queue (PSQ): Using the position in queue as an instrumental variable for waiting time in the context of a moderated mediation study is sound due to its exogenous nature: position in queue is randomly determined based on arrival and not influenced by individual attributes or service quality, making it an ideal instrument. The variability in waiting time, driven by position, allows to isolate the effect of waiting time on the proposed model from confounding factors. Position in queue is a continuous variable capturing the position in the queue of the customer at the moment of arrival.

3.8 Research design and empirical model

The collected data will be analyzed by means of IBM SPSS 29.

The research starts with descriptive statistics and correlation tables to have deeper insight on the variables used in the study. At this stage, the variables used for the analysis are standardized to help in comparing variables with different units and scales: this means that the variables ZWTM, ZOVR, ZGRP, and ZSPD will be employed in the model. Then, an empirical model is created to address the hypotheses developed so far.

This study aims to analyze the empirical questions by means of moderation, mediation, and moderated mediation models: interaction, indirect, and conditional indirect effects as the ones at hand, are often tested by means of ordinary least square (OLS) regression (Edwards & Konold, 2020). Such an analysis in a regression-based approach, then, relies on the same assumptions of normal distribution, independence, and homoscedasticity of residuals which are typical of OLS linear models (Williams et al., 2013).

The PROCESS Macro (V4.2; Hayes, 2018) for SPSS is designed to conduct regression-based moderated mediation analyses, estimating model coefficients, standard errors, test statistics, and bootstrapping confidence intervals also for the index of moderated mediation (Edwards & Konold, 2020). By following Edwards and Konold's approach to moderated mediation analysis, this study tests the empirical model using the PROCESS Macro (V4.2) for SPSS, specifically through its models 4 (for mediation) and 7 (for moderation and moderated mediation), designed for moderated mediations where the moderator W influences the indirect path from the independent variable X to the mediator M. Moreover, as suggested by Edwards and Konold (2020), ZWTM and ZGRP were mean-centred prior to the creation of product terms, and the index of the moderated mediation analysis (as any other coefficient in the analyses) was tested with a 95% bootstrap confidence interval built on 10,000 replications to correct for biases. Moderated mediation was also tested through the estimation of conditional direct and indirect effects of ZWTM at values of ZGRP taken at the 16th, 50th, and 84th percentile points.

In order to study the mediation effect presented earlier in H1, this study will employ the following equations:

$$\text{ZOVR} = i_{ZOVR} + a_1 \cdot \text{ZWTM} + e_{ZOVR.}$$

$$\text{ZSPD} = i_{ZSPD} + b_1 \cdot \text{ZWTM} + b_2 \cdot \text{ZOVR} + e_{SPD}$$

and then conduct a test of mediation on the indirect effect.

In order to study the moderation effect presented earlier in H2, this study will employ the following equation:

$$\text{ZOVR} = i_{ZOVR} + c_1 \cdot \text{ZWTM} + c_2 \cdot \text{ZGRP} + c_3 \cdot (\text{ZWTM} \times \text{ZGRP}) + e_{ZOVR}$$

This study follows Hayes (2015) in the analysis of conditional indirect (or moderated mediation) effects presented earlier in H3, according to the following equations:

$$ZOVR = i_{ZOVR} + c_1 \cdot ZWTM + c_2 \cdot ZGRP + c_3 \cdot (ZWTM \times ZGRP) + e_{ZOVR.}$$

$$ZSPD = i_{ZSPD} + d' \cdot ZWTM + g \cdot ZOVR + e_{ZSPD}$$

which can be combined as:

$$SPD = i_{SPD} + d' \cdot WTM + g \cdot (i_{OVR} + c_1 \cdot WTM + c_2 \cdot GRP + c_3 \cdot (WTM \times GRP) + e_{OVR}) + e_{SPD}$$

The insights gathered from the testing of these models will be used to answer H1, H2, and H3.

3.9 Reliability and validity

In order to ensure reliability and validity, this study performs data quality checks to ensure that observations are complete, free from missing values, and corrected for outliers and inconsistencies.

The scale reliability of the variable OVR will be assessed by means of Cronbach's Alpha (Boateng et al., 2018). Moreover, correlation matrix and VIF measures are used to assess if regression results could be affected by multicollinearity (Shrestha, 2020). Independence of residuals will be tested through the Durbin-Watson test. Then, to further address OLS homoscedasticity assumption's concerns, this study will use PROCESS' heteroscedasticity-consistent inference (HC0, Huber-White's test) built-in feature (Hayes & Montoya, 2017). Moreover, PROCESS' bootstrapping method to create confidence intervals for indirect effects does not rely on the normality of the sampling distribution (Edwards & Konold, 2020), thus providing robust estimates even in case of non-normality of residuals, hence, no assumptions need to be made about the shape of the sampling distribution (Preacher & Hayes, 2004; Edwards & Konold, 2020) when handling moderated mediation analysis through the PROCESS Macro and bootstrapping confidence intervals.

Finally, to address possible endogeneity issues, the study will implement a two-stage least square (2SLS) analysis: Wooldridge (2016) posits that in order to perform such an analysis, the number of instrumental variables must be at least equal to the number of endogenous variables. In the context of this study, both the direct effect of ZWTM on ZSPD and the indirect

effect of ZWTM on ZSPD through ZOVR can be biased if endogeneity is present in either the explanatory variable or the mediator. Therefore, addressing endogeneity is crucial for obtaining unbiased and consistent estimates of the effects. Because of this, this study will employ two instrumental variables, Weekend Day (in its standardized version, ZWKD) and Position in Queue (in its standardized version, ZPSQ), to perform a 2SLS regression analysis and address potential endogeneity issues.

In particular, the robustness analysis through 2SLS regressions will be performed following all the steps performed for OLS regression analysis, so that any potential difference in the outcome will be attributed to a more robust analysis. With respect to the robustness analysis performed to take into account potential endogeneity, the potentially endogenous variables, ZWTM and ZOVR were regressed against the instrumental variables assigned to them, ZPSQ and ZWKD, respectively. The standardized predicted values arising from such regressions were saved to create ZWTM_PR and ZOVR_PR: this represents the first stage of the 2SLS analysis. Then, ZWTM_PR and ZOVR_PR were once again used in the PROCESS Macro for SPSS to run the analyses.

CHAPTER 4: FINDINGS

This chapter discusses the main findings of this research. It starts with an analysis of descriptive statistics and a correlation matrix. This is followed by the results of the moderated mediation analysis that will provide answers to H1, H2, and H3. Then, the analysis used to ensure reliability and validity will be explained, and finally the results from 2SLS analysis will be integrated to address possible endogeneity concerns.

4.1 Descriptive statistics and correlation matrix

The summary of the descriptive statistics (table 1) for the variables used in the study depicts an insightful overview of customer experiences and behaviours in the context of this research.

The filtered dataset that was used for the analysis presents 660 observations, retrieved between January 30th, 2019, and June 30st, 2019. The waiting time (WTM) variable has a mean of 12.47 minutes, with a median of 7 minutes and a standard deviation of 15.028 minutes. This high standard deviation indicates considerable variability in waiting times experienced by customers, with some waiting as little as 0 minutes and others up to 105 minutes. Such variation could suggest the presence of factors affecting waiting times, such as the day of the week. Spend data (SPD) shows a mean of 902.79 units of currency, with a median of 793 units and a large standard deviation of 612.917 units. This substantial standard deviation suggests a wide range of spending behaviours among customers, from as low as 1 unit to a maximum of 4011 units. The significant difference between the mean and median, alongside the large standard deviation, highlights that while most customers spend relatively modest amounts, there are notable instances of very high spending. Group size (GRP) has a mean of 2.91 people and a median of 2.00, with a standard deviation of 1.373. This indicates that most groups are small, typically around two to three people, though there are larger groups present, with a maximum recorded group size of 11. The moderate variability in group size can influence both waiting time and spending patterns, as larger groups might spend more and possibly wait longer. The overall rating (OVR) given by customers has a mean of 4.602 and a median of 5.00, with a relatively low standard deviation of .55047. This suggests high overall customer satisfaction, as the ratings are clustered around the higher end of the scale. The minimum and maximum ratings are 1 and 5, respectively, showing that while most ratings are high, some customers

were not fully satisfied. The position in queue (PSQ) has a mean of 4.27 and a median of 3.00, with a standard deviation of 3.914. The variation here implies that customers experience a wide range of queue positions, which could impact their waiting times. The standardized variables (ZWTM, ZSPD, ZGRP, ZOVR, ZPSQ) all have means close to zero and standard deviations of one, as expected for standardized scores. This standardization helps in comparing variables with different units and scales: the standardized variables will also be used in later stages of the study, in the primary analysis as well as in the reliability and validity analysis that will later be conducted. This is done because standardized variables have same units and scales, and thus it will be easier to compare them when it comes to the analysis of the effects at hand. The weekend indicator (WKD) variable has a mean of 0.54, suggesting that slightly more than half of the observations were recorded on weekends. The binary nature of this variable, with a standard deviation of .498, indicates a near-even split between weekend and weekday observations.

In summary, the dataset reveals significant variability in customer waiting times and spending, generally high satisfaction levels, and a variety of group sizes and queue positions.

Table 1: *Descriptive Statistics*

		WTM	SPD	GRP	OVR	PSQ	ZWTM	ZSPD	ZGRP	ZOVR	ZPSQ	WKD
N	Valid	660	660	660	660	660	660	660	660	660	660	660
	Missing	0	0	0	0	0	0	0	0	0	0	0
Mean		12.470	902.790	2.910	4.602	4.270	0.000	0.000	0.000	0.000	0.000	0.540
Median		7.000	793.000	2.000	5.000	3.000	-0.364	-0.179	-0.662	0.723	-0.336	1.000
Std. Dev.		15.028	612.917	1.373	0.550	3.914	1.000	1.000	1.000	1.000	1.000	0.498
Minimum		0.000	1.000	1.000	1.000	1.000	-0.829	-1.471	-1.390	-6.544	-0.837	0.000
Maximum		105.000	4011.000	11.000	5.000	27.000	6.158	5.071	5.892	0.723	5.806	1.000

The Pearson Correlation Matrix (table 2) provides detailed insight into the relationships of interest for this study, by showing pairwise correlation coefficients between the key variables. The correlation matrix is presented in Table 2. Understanding the relationships highlighted by the matrix is crucial for interpreting the interactions in the study, especially when it comes to the relationships that will be analyzed later on in the chapter.

The table shows a correlation coefficient of 0.087 for the variables ZWTM and ZSPD, significant at the 0.05 level ($p = 0.025$), which indicates a weak positive relationship. This suggests that as waiting time increases, spending slightly increases, hinting at a potential customer behaviour where longer waits might be associated with higher spending. With respect to ZWTM and ZPSQ, the correlation coefficient of 0.585, significant at the 0.01 level ($p <$

0.001), indicates a strong positive relationship. This means that as the position in the queue increases, waiting time also increases significantly, which is expected as higher positions in the queue usually correspond to longer waits. With respect to ZOVR and ZWKD, the correlation coefficient of -0.111 is significant at the 0.01 level (p = 0.004), showing a weak negative relationship. Overall ratings tend to be slightly lower on weekends, which might reflect increased service pressure and customer dissatisfaction due to higher footfall. For ZWTM and ZOVR the correlation coefficient of -0.070, significant at the 0.1 level (p = 0.071), indicates a weak negative relationship between the two variables, suggesting a trend where longer waits might slightly decrease overall customer satisfaction.

These findings provide valuable insights into customer behaviour patterns, especially regarding how waiting times influence spending and overall satisfaction. However, the lack of significant correlations between some variables suggests that not all aspects of customer behaviour are interconnected, emphasizing the need for a nuanced understanding of the dataset.

Table 2: *Pearson Correlation Matrix*

		ZWTM	ZSPD	ZGRP	ZOVR	ZWKD	ZPSQ
ZWTM	Pearson Correlation	--					
	Sig. (2-tailed)						
	N	660					
ZSPD	Pearson Correlation	0.087**	--				
	Sig. (2-tailed)	0.025					
	N	660	660				
ZGRP	Pearson Correlation	0.048	0.275***	--			
	Sig. (2-tailed)	0.214	<0.001				
	N	660	660	660			
ZOVR	Pearson Correlation	-0.070*	-0.063	-0.022	--		
	Sig. (2-tailed)	0.071	0.104	0.575			
	N	660	660	660	660		
ZWKD	Pearson Correlation	0.279***	0.043	0.019	-0.111***	--	
	Sig. (2-tailed)	<0.001	0.265	0.623	0.004		
	N	660	660	660	660	660	
ZPSQ	Pearson Correlation	0.585***	0.092**	0.073*	-0.100***	0.393***	--
	Sig. (2-tailed)	<0.001	0.018	0.062	0.010	<0.001	
	N	660	660	660	660	660	660

*. Correlation is significant at the 0.1 level (2-tailed).

**. Correlation is significant at the 0.05 level (2-tailed).

***. Correlation is significant at the 0.01 level (2-tailed).

4.2 Scale reliability and multicollinearity analysis

Cronbach's Alpha is a measure of scale reliability. In this case it is employed to assess the reliability of ZOVR. The value of Cronbach's Alpha for ZOVR is 0.88 (see appendix A), implying a satisfactory level of reliability for the scale, exceeding the threshold of 0.7:
The regressions used to address the hypotheses described in this research were checked for independence of residuals through Durbin-Watson tests, and for multicollinearity through collinearity tolerance and VIF (see appendix B). All the regressions showed satisfactory Durbin-Watson tests (with the satisfactory threshold requested to range between 1.5 and 2.5), with values ranging around 2. Collinearity tolerance and VIFs were also in line with the satisfactory thresholds (collinearity tolerance > 0.2; VIF < 5) for all the regressions.

4.3 Ordinary Least Squares analysis

The following sections will navigate through the results of mediation, moderation, and moderated mediation analysis. The full results of the analyses can be found in appendix C (for mediation) and appendix D (for moderation and moderated mediation).

4.3.1 OLS Mediation analysis

The mediation analysis' output (tables 3-7) provides insight into the relationship between waiting time (ZWTM), overall rating (ZOVR), and spending (ZSPD).
Firstly, the model summary for the mediator (ZOVR) shows that waiting time explains only 0.5% of the variance in the overall rating, as indicated by the R-squared value of 0.0050. The F-statistic (3.1378) with a p-value of 0.0770 suggests that this relationship is marginally significant. The coefficient for ZWTM (-0.0704) indicates that increased waiting time tends to slightly decrease the overall rating, but this effect is not statistically significant at the 5% level, as the confidence interval includes zero.
Moving to the dependent variable (ZSPD), the model summary reveals that waiting time and overall rating together explain 1.09% of the variance in spending, as reflected by the R-squared value of 0.0109. The F-statistic (2.7756) with a p-value of 0.0630 indicates a marginally significant model. The direct effect of waiting time on spending is significant, with a coefficient

of 0.0829 (p = 0.0383), indicating that each unit increase in waiting time leads to an increase of 0.0829 units in spending. This effect is further supported by the confidence interval (0.0045, 0.1613), which does not include zero.

The mediator, overall rating, has a coefficient of -0.0575 on spending, suggesting a negative relationship, but this effect is not significant (p = 0.2575), and its confidence interval includes zero. The direct and indirect effects section reveals that the indirect effect of waiting time on spending through overall rating is 0.0040, with a bootstrapped standard error of 0.0052. The bootstrapped confidence interval (-0.0029, 0.0175) includes zero, indicating that this indirect effect is not statistically significant.

The analysis shows that waiting time has a significant direct positive effect on spending, but overall rating does not significantly mediate this relationship. The direct impact of waiting time on spending underscores the importance of managing waiting times to influence spending behaviour. However, the mediation pathway through overall rating is not significant, suggesting that other factors might better explain how waiting time influences spending.

OLS Mediation Analysis

Table 3: *Model Summary (1)*

Model	*R*	*R-Squared*	*MSE*	*F(HC0)*	*df1*	*df2*	*p*
1	0.0704	0.0050	0.9966	3.1378	1.0000	658.0000	0.0770

a. Outcome variable: ZOVR

b. Predictors: Constant, ZWTM

Table 4: *Estimated Coefficients (1)*

					95% CI	
	B	*SE (HC0)*	*t*	*p*	*LL*	*UL*
Constant	0.0000	0.0388	0.0000	1.0000	-0.0762	0.0762
ZWTM	-0.0704*	0.0397	-1.7714	0.0770	-0.1485	0.0076

a. Outcome variable: ZOVR

Note. ***p<0.001; **p<0.01; *p<0.1

Table 5: *Model Summary (2)*

Model	*R*	*R-Squared*	*MSE*	*F(HC0)*	*df1*	*df2*	*p*
2	0.1042	0.0109	0.9922	2.7756	2.0000	657.0000	0.0630

a. Outcome variable: ZSPD

b. Predictors: Constant, ZWTM, ZOVR

Table 6: *Estimated Coefficients (2)*

					95% CI	
	B	*SE (HC0)*	*t*	*p*	*LL*	*UL*
Constant	0.0000	0.0387	0.0000	1.0000	-0.0760	0.0760
ZWTM	0.0829*	0.0399	2.0763	0.0383	0.0045	0.1613
ZOVR	-0.0575	0.0507	-1.1334	0.2575	-0.1571	0.0421

a. Outcome variable: ZSPD

Note. ***p<0.001; **p<0.01; *p<0.1

Table 7: *Direct and indirect effects of ZWTM on ZSPD*

Direct effect of ZWTM on ZSPD

					95% CI	
	B	*SE (HC0)*	*t*	*p*	*LL*	*UL*
ZWTM	0.0829*	0.0399	2.0763	0.0383	0.0045	0.1613

a. Outcome variable: ZSPD

Note. ***p<0.001; **p<0.01; *p<0.1

Indirect effect through ZOVR

			Bootstrapped 95% CI	
	B	*BootSE*	*LL*	*UL*
ZOVR	0.0040	0.0052	-0.0029	0.0175

4.3.2 OLS Moderation analysis

The moderation analysis (tables 8-10) examines the relationship between waiting time (ZWTM), group size (ZGRP), and overall rating (ZOVR). The model summary shows a multiple R of 0.0757, indicating a weak positive correlation between the observed and predicted values of the mediator, ZOVR. The R-squared value of 0.0057 suggests that only 0.57% of the variance in ZOVR is explained by the predictors, indicating that other factors likely influence ZOVR. The mean squared error (MSE) is 0.9988, reflecting the average squared difference between observed and predicted values. The F-statistic of 1.3062, with degrees of freedom (df1 = 3 and df2 = 656), has a p-value of 0.2714, indicating that the overall model is not statistically significant.

In the regression coefficients section, the coefficient for ZWTM is -0.0701 with a p-value of 0.0748, suggesting a marginally significant negative effect of waiting time on overall rating. The coefficient for ZGRP is -0.0226 with a p-value of 0.6644, indicating that group size does not significantly affect the overall rating. The interaction term (Int_1: ZWTM * ZGRP) has a coefficient of 0.0212 and a p-value of 0.6067, showing that the interaction between ZWTM and ZGRP is not significant. The test of highest order unconditional interactions further confirms this with an R-squared change of 0.0004 and an F-statistic of 0.2652, resulting in a p-value of 0.6067, indicating that the interaction term does not significantly improve the model. This moderation analysis reveals that while waiting time has a marginally significant negative effect on overall rating, group size and the interaction between waiting time and group size do not significantly influence the overall rating: this suggests that other variables not included in the model may better explain variations in overall rating.

OLS Moderation Analysis

Table 8: *Model Summary (3)*

Model	*R*	*R-Squared*	*MSE*	*F(HC0)*	*df1*	*df2*	*p*
3	0.0757	0.0057	0.9988	1.3062	3.0000	656.0000	0.2714

a. Outcome variable: ZOVR

b. Predictors: Constant, ZWTM, ZGRP, Int_1

Table 9: *Estimated Coefficients (3)*

					95% CI	
	B	*SE (HC0)*	*t*	*p*	*LL*	*UL*
Constant	-0.0010	0.0389	-0.0263	0.9790	-0.0774	0.0754
ZWTM	-0.0701*	0.0393	-1.7843	0.0748	-0.1472	0.0070
ZGRP	-0.0226	0.0522	-0.4340	0.6644	-0.1251	0.0798
Int_1	0.0212	0.0412	0.5150	0.6067	-0.0597	0.1021

a. Outcome variable: ZOVR

Note. ***p<0.001; **p<0.01; *p<0.1

Table 10: *Test of higher order unconditional interaction*

	R-Squared change	*F(HC0)*	*df1*	*df2*	*p*
ZWTM*ZGRP	0.0004	0.2652	1.0000	656.0000	0.6067

4.3.3 OLS Moderated Mediation analysis

Since results of the analysis over the moderation effect of ZGRP on the relationship between ZWTM and ZOVR have already been extensively described, the analysis from this paragraph will not replicate them. As previously seen, the direct effect of ZWTM on ZSPD was 0.0829, with a p-value of 0.0383, indicating a significant direct positive effect. Now the analysis revolves around conditional indirect effects of ZWTM on ZSPD through ZOVR at different levels of ZGRP (tables 11-13). At ZGRP = -0.6621, the effect was 0.0048 with a bootstrap 95% confidence interval (CI) of -0.0039 to 0.0174, and at ZGRP = 0.7945, the effect was 0.0031 with a bootstrap 95% CI of -0.0034 to 0.0205. The effect is close to zero, and since the confidence intervals include zero, this suggests that the indirect effects are not statistically significant.

A further analysis was conducted on the index of moderated mediation, which examines the extent to which the mediation effect of ZOVR is moderated by ZGRP. The index was -0.0012 with a bootstrap standard error of 0.0036 and a bootstrap 95% CI of -0.0074 to 0.0077. Once again, since this interval includes zero, the moderated mediation effect is not significant.

In conclusion, the analysis reveals that ZGRP does not significantly moderate the mediation effect (which is also not significant) of ZOVR on the relationship between ZWTM and ZSPD.

These findings suggest that the direct relationship between waiting time and spending is robust, but the mediating and moderating roles of satisfaction and group size are not significant.

OLS Moderated Mediation Analysis

Table 11: *Model Summary (4)*

Model	*R*	*R-Squared*	*MSE*	*F(HC0)*	*df1*	*df2*	*p*
4	0.1042	0.0109	0.9922	2.7756	2.0000	657.0000	0.0630

a. Outcome variable: ZSPD

b. Predictors: Constant, ZWTM, ZOVR

Table 12: *Estimated Coefficients (4)*

					95% CI	
	B	*SE (HC0)*	*t*	*p*	*LL*	*UL*
Constant	0.0000	0.0387	0.0000	1.0000	-0.0760	0.0760
ZWTM	0.0829*	0.0399	2.0763	0.0383	0.0045	0.1613
ZOVR	-0.0575	0.0507	-1.1334	0.2575	-0.1571	0.0421

a. Outcome variable: ZSPD

Note. ***p<0.001; **p<0.01; *p<0.1

Table 13: *Direct and conditional indirect effects of ZWTM on ZSPD*

Direct effect

					95% CI	
	B	*SE (HC0)*	*t*	*p*	*LL*	*UL*
ZWTM	0.0829*	0.0399	2.0763	0.0383	0.0045	0.1613

a. Outcome variable: ZSPD

b. Note. ***p<0.001; **p<0.01; *p<0.1

Table 13 (continued):

Conditional indirect effects of ZWTM on ZSPD

ZWTM → ZOVR → ZSPD

			Bootstrap 95% CI	
ZGRP	*B*	*BootSE*	*LL*	*UL*
-0.6621	0.0048	0.0054	-0.0039	0.0174
-0.6621	0.0048	0.0054	-0.0039	0.0174
0.7945	0.0031	0.0062	-0.0034	0.0205

Index of moderated mediation

			Bootstrap 95% CI	
	Index	*BootSE*	*LL*	*UL*
ZGRP	-0.0012	0.0036	-0.0074	0.0077

4.4 Robustness analysis – Two-Stage Least Square analysis

4.4.1 2SLS Mediation analysis

In the 2SLS mediation analysis (tables 14-18), the model summary for the mediator (ZOVR_PR) shows that predicted waiting time (ZWTM_PR) explains 1.00% of the variance in the overall rating, as indicated by the R-squared value of 0.0100. The F-statistic (6.0734) with a p-value of 0.0140 suggests that this relationship is statistically significant, unlike the marginal significance observed in the OLS model. The coefficient for ZWTM_PR (-0.1002) indicates a significant negative effect of waiting time on overall rating, with the confidence interval (-0.1801, -0.0204) not including zero.

Moving to the dependent variable (ZSPD), the model summary reveals that predicted waiting time and overall rating together explain 1.14% of the variance in spending, reflected by the R-squared value of 0.0114. The F-statistic (2.1545) with a p-value of 0.1168 indicates that the overall model is not statistically significant, though it is closer to significance than the OLS model. The direct effect of predicted waiting time on spending is marginally significant, with a coefficient of 0.0865 (p = 0.0728). The confidence interval (-0.0080, 0.1809) includes zero, indicating a borderline significance.

The mediator, ZOVR_PR, has a coefficient of -0.0547 on spending, suggesting a negative relationship, but this effect is not significant (p = 0.2752), and its confidence interval includes zero. The direct and indirect effects section reveals that the indirect effect of predicted waiting time on spending through the overall rating is 0.0055, with a bootstrapped standard error of 0.0065. The bootstrapped confidence interval (-0.0036, 0.0216) includes zero, indicating that this indirect effect is not statistically significant.

The 2SLS analysis shows that predicted waiting time has a significant direct negative effect on overall rating and a marginally significant direct positive effect on spending, but overall rating does not significantly mediate this relationship. The improved model fit and significant results for the mediator in the 2SLS approach, compared to the OLS model, highlight the importance of addressing endogeneity to obtain more accurate estimates. While the mediation pathway through overall rating remains non-significant, the 2SLS model provides a clearer picture of the direct effects, suggesting that further research should consider additional mediators or alternative models to fully understand the dynamics at play.

2SLS Mediation Analysis

Table 14: *Model Summary (5)*

Model	*R*	*R-Squared*	*MSE*	*F(HC0)*	*df1*	*df2*	*p*
5	0.1002	0.0100	0.9915	6.0734	1.0000	658.0000	0.0140

a. Outcome variable: ZOVR_PR

b. Predictors: Constant, ZWTM_PR

Table 15: *Estimated Coefficients (5)*

					95% CI	
	B	*SE (HC0)*	*t*	*p*	*LL*	*UL*
Constant	0.0000	0.0387	0.0000	1.0000	-0.0760	0.0760
ZWTM_PR	-0.1002*	0.0407	-2.4644	0.0140	-0.1801	-0.0204

a. Outcome variable: ZOVR_PR

Note. ***p<0.001; **p<0.01; *p<0.1

Table 16: *Model Summary (6)*

Model	*R*	*R-Squared*	*MSE*	*F(HC0)*	*df1*	*df2*	*p*
6	0.1068	0.0114	0.9916	2.1545	2.0000	657.0000	0.1168

a. Outcome variable: ZSPD

b. Predictors: Constant, ZWTM_PR, ZOVR_PR

Table 17: *Estimated Coefficients (6)*

					95% CI	
	B	*SE (HC0)*	*t*	*p*	*LL*	*UL*
Constant	0.0000	0.0387	0.0000	1.0000	-0.0759	0.0759
ZWTM_PR	0.0865*	0.0481	1.7969	0.0728	-0.0080	0.1809
ZOVR_PR	-0.0547	0.0501	-1.0920	0.2752	-0.1530	0.0436

a. Outcome variable: ZSPD

Note. ***p<0.001; **p<0.01; *p<0.1

Table 18: Direct and indirect effects of ZWTM_PR on ZSPD

Direct effect

					95% CI	
	B	*SE (HC0)*	*t*	*p*	*LL*	*UL*
ZWTM_PR	0.0865*	0.0481	1.7969	0.0728	-0.0080	0.1809

a. Outcome variable: ZSPD

b. Note. ***p<0.001; **p<0.01; *p<0.1

Indirect effect through ZOVR_PR

			Bootstrapped 95% CI	
	B	*BootSE*	*LL*	*UL*
ZOVR_PR	0.0055	0.0065	-0.0036	0.0216

4.4.2 2SLS Moderation analysis

In the 2SLS moderation model (table 19-21), the multiple R is slightly higher at 0.1101, and the R-squared value of 0.0121 indicates that 1.21% of the variance in ZOVR is explained by the predictors, which, while still low, represents an improvement over the OLS model. The mean squared error (MSE) of 0.9924 is marginally lower, suggesting a better fit. The F-statistic

of 2.0574, with degrees of freedom (df1 = 3 and df2 = 656), has a p-value of 0.1046, indicating that the overall model is still not statistically significant but closer to the threshold than the OLS model. Moreover, the coefficient for ZWTM_PR in the 2SLS analysis is -0.0906 with a p-value of 0.0170, demonstrating a significant negative effect of ZWTM_PR on ZOVR_PR, an improvement from the marginal significance observed in the OLS model. The coefficient for ZGRP remains non-significant (-0.0095, p = 0.8321), similar to the OLS results, indicating that group size does not significantly affect the overall rating. The interaction term (Int_2: ZWTM_PR * ZGRP) also remains non-significant with a coefficient of -0.0412 and a p-value of 0.4831, suggesting that the interaction between waiting time and group size does not significantly influence the overall rating. The test of highest order unconditional interactions shows a slight improvement, with an R-squared change of 0.0019 and an F-statistic of 0.4924 (p = 0.4831), but it remains non-significant.

This analysis indicates that while the direct effect of waiting time on overall rating becomes significant when addressing endogeneity, the interaction effects and the impact of group size remain non-significant. Therefore, the 2SLS model reinforces the marginal findings of the OLS model and highlights the importance of considering endogeneity to accurately capture the direct effects.

2SLS Moderation Analysis

Table 19: *Model Summary (7)*

Model	*R*	*R-Squared*	*MSE*	*F(HC0)*	*df1*	*df2*	*p*
7	0.1101	0.0121	0.9924	2.0574	3.0000	656.0000	0.1046

a. Outcome variable: ZOVR_PR

b. Predictors: Constant, ZWTM_PR, ZGRP, Int_2

Table 20: *Estimated Coefficients (7)*

					95% CI	
	B	*SE (HC0)*	*t*	*p*	*LL*	*UL*
Constant	0.0030	0.0380	0.0786	0.9374	-0.0717	0.0777
ZWTM_PR	-0.0906*	0.0378	-2.3928	0.0170	-0.1649	-0.0162
ZGRP	-0.0095	0.0446	-0.2121	0.8321	-0.0969	0.0780
Int_1	-0.0412	0.0587	-0.7017	0.4831	-0.1564	0.0741

a. Outcome variable: ZOVR_PR

Note. ***p<0.001; **p<0.01; *p<0.1

Table 21: *Test of higher order unconditional interaction*

	R-Squared change	*F(HC0)*	*df1*	*df2*	*p*
ZWTM_PR*ZGRP	0.0019	0.4924	1.0000	656.0000	0.4831

4.4.3 2SLS Moderated Mediation analysis

The 2SLS analysis (tables 22-24) reveals a slightly improved model fit for the moderated mediation analysis as well, with respect to that in OLS analysis. The R-squared value for ZSPD increases to 0.0114, indicating that the predictors explain 1.14% of the variance in spending. The F-statistic (2.1545) with a p-value of 0.1168 suggests that the overall model is not statistically significant but closer to significance than the OLS model. The direct effect of predicted waiting time on spending remains marginally significant, with a coefficient of 0.0865 ($p = 0.0728$). The indirect effect through predicted overall rating remains non-significant, with a bootstrapped confidence interval (-0.0036, 0.0216) including zero. Notably, the index of moderated mediation for group size changes to 0.0023, with a bootstrapped confidence interval (-0.0031, 0.0189), which still includes zero, indicating no significant moderated mediation effect.

The key difference between the OLS and 2SLS analyses lies in the improved significance and model fit in the 2SLS approach, suggesting that addressing endogeneity provides more reliable estimates. While the direct effect of waiting time on spending remains significant or marginally significant in both models, the moderation and mediation effects through overall rating and group size do not achieve significance in either model. This comparison once again highlights the importance of considering endogeneity to refine the analysis and obtain more accurate estimates, even though the moderated mediation pathway remains non-significant.

2SLS Moderated Mediation Analysis

Table 22: *Model Summary (8)*

Model	*R*	*R-Squared*	*MSE*	*F(HC0)*	*df1*	*df2*	*p*
8	0.1068	0.0114	0.9916	2.1545	2.0000	657.0000	0.1168

a. Outcome variable: ZSPD

b. Predictors: Constant, ZWTM_PR, ZOVR_PR

Table 23: *Estimated Coefficients (8)*

					95% CI	
	B	*SE (HC0)*	*t*	*p*	*LL*	*UL*
Constant	0.0000	0.0387	0.0000	1.0000	-0.0759	0.0759
ZWTM_PR	0.0865*	0.0481	1.7969	0.0728	-0.0080	0.1809
ZOVR_PR	-0.0547	0.0501	-1.0920	0.2752	-0.1530	0.0436

a. Outcome variable: ZSPD

Note. ***p<0.001; **p<0.01; *p<0.1

Table 24: *Direct and conditional indirect effects of ZWTM_PR on ZSPD*

Direct effect

					95% CI	
	B	*SE (HC0)*	*t*	*p*	*LL*	*UL*
ZWTM_PR	0.0865*	0.0481	1.7969	0.0728	-0.0080	0.1809

a. Outcome variable: ZSPD

b. Note. ***p<0.001; **p<0.01; *p<0.1

Conditional indirect effects of ZWTM_PR on ZSPD

ZWTM_PR → ZOVR_PR → ZSPD

			Bootstrap 95% CI	
ZGRP	*B*	*BootSE*	*LL*	*UL*
-0.6621	0.0035	0.0048	-0.0059	0.0140
-0.6621	0.0035	0.0048	-0.0059	0.0140
0.7945	0.0067	0.0088	-0.0036	0.0305

Table 24 (continued):

Index of moderated mediation

			Bootstrap 95% CI	
	Index	*BootSE*	*LL*	*UL*
ZGRP	0.0023	0.0057	-0.0031	0.0189

4.5 Note on the direct effect

Despite not being one of the core empirical questions of this study, it is important to note that both OLS and 2SLS analyses recognized a significantly positive effect of waiting time on spending. This finding indicates that longer waiting times are associated with increased spending. The positive relationship suggests that as waiting time increases, so does the amount spent by customers. This result is consistent across both Ordinary Least Squares (OLS) and Two-Stage Least Squares (2SLS) models, reinforcing the robustness of this finding. The significant direct effect of waiting time on spending highlights an interesting dynamic within the restaurant context, where waiting time, rather than deterring customers, seems to enhance their spending behavior.

CHAPTER FIVE: DISCUSSION

This chapter summarizes the research by examining and discussing the results gathered so far, together with the previously examined literature. The first section discusses the results of hypothesis testing. Then, this chapter will mention the theoretical contributions from this research. This chapter ends with managerial recommendations, limitations of this study, and future avenues of research.

5.1 Discussion

The goal of this study is to examine the potential interaction, indirect, and conditional indirect effects arising from the intricate relationships between waiting time, customer satisfaction, group size, and restaurant performance. The need for such an analysis arises from the review of the literature, where it is noticed that despite the constructs had been extensively analyzed by past scholarly works, and some of the relationships presented in this study had been studied as well, there still was a lack of studies analyzing them in conjunction and in the settings of the restaurant industry.

Based on the findings established by previous literature, establishing waiting time as an antecedent of customer satisfaction (Davis & Vollmann, 1990; Hensley & Sulek, 2007; Lee et al., 2020; Caruelle et al., 2023), and business performance and financial outcomes as consequences of customer satisfaction (Anderson & Sullivan, 1993; Chevalier & Mayzlin, 2006; Simon et al., 2009; Eklos et al., 2020), this study hypothesized the mediating role of customer satisfaction on the relationship between waiting time and restaurant performance in hypothesis 1. The findings from the mediation analysis do not offer empirical support for H1, as the mediation effect through overall rating is not significant. When examining the impact on spending, waiting time and overall rating together account for a very small percentage of the variance, indicating other factors likely influencing spend data, and meaning that the pathway through which waiting time affects spend data via overall rating is not strong. Interestingly, however, the study found empirical validation for the direct effect of waiting time on customer satisfaction, as waiting time significantly negatively affects overall rating, suggesting that longer waiting times tend to decrease customer satisfaction: this confirms the findings

advanced by scholars proposing waiting time as an antecedent of customer satisfaction (Davis & Vollmann, 1990; Hensley & Sulek, 2007; Lee et al., 2020; Caruelle et al., 2023).

The analysis also highlighted a peculiar direct effect of waiting time on spend data, suggesting that longer waiting times increase restaurant performance: this might seem counterintuitive at first, however previous scholarly works determined that consumers who waited more for products or services thought them to be of greater quality than those consumers who did not (Koo & Fischbach, 2010; Giebelhausen et al., 2011): this is because, even if consumers perceive longer waits as more negative than shorter waits (as explained by academic works), the length of a wait can positively influence future consumption when the long wait is understood as a mark of quality of the product or service, and that it is worth waiting for, because the product or service is thought to be valuable for other consumers, according to a deduction process based on social characteristics (Munichor & Cooke, 2022).

Meaningful insight can be derived from these findings, as they highlight the critical role of managing waiting times to enhance customer satisfaction and spending directly. The consistent non-significance of the mediation effect suggests instead that other mediators may play a role in this relationship, warranting further exploration. This aligns with the literature emphasizing the multifaceted nature of customer satisfaction and spending behaviours in service contexts (Maister, 1985; Anderson & Mittal, 2000).

Moreover, hinging on the findings of the literature on the effect of group dynamics on individual perceptions of waiting time (Lewin, 1948; Maister, 1985; Wu et al., 2013; Ruddock et al., 2019), this research hypothesized that group size would moderate the relationship between waiting time and restaurant performance in hypothesis 2.

The results from the empirical analysis conducted by this study did not find support for H2: as a matter of fact, the non-significant effects of group size and the interaction term suggest that group size does not significantly influence overall rating or moderate the relationship between waiting time and customer satisfaction. This finding contrasts with previous studies suggesting that group dynamics might mitigate the negative perceptions of waiting time due to social interactions (Lewin, 1948; Maister, 1985; Wu et al., 2013; Ruddock et al., 2019). The findings suggest that other unexamined factors may better explain the variance in overall rating and the dynamics of customer satisfaction in restaurant settings.

Finally, building on hypotheses 1 and 2, this research hypothesized in H3 a moderating role of group size on the mediation effect of customer satisfaction on the relationship between waiting time and restaurant performance. This hypothesis was particularly relevant to the purpose of this study, as the review of the literature highlighted that even if the mediation and moderation

effects previously analyzed had been discussed to some extent (either the effects were studied in other contexts, or only partial relations were studied in the restaurant context), the literature showed a gap when combining the effects together, and studying the conditional indirect effect. However, the analysis conducted in this study does not provide empirical evidence supporting H3, as the index of moderated mediation was not statistically significant.

These findings suggest that while waiting time directly impacts both customer satisfaction and restaurant performance, the expected interplay through overall rating as a mediator and group size as a moderator does not hold strong in this context: other factors not considered in this model may play a more significant role in influencing customer satisfaction and restaurant performance. Overall, this study underscores the complexity of customer satisfaction and performance, highlighting the need for profound and multifaceted approaches to fully capture the factors driving restaurant performance.

5.2 Managerial recommendations

This research creates value for managers in the restaurant industry by providing them with insights that can enhance decision-making processes and improve operational effectiveness. By analyzing the outcome of this research, in particular with respect to the relationship between waiting times, group size, customer satisfaction, and restaurant performance, managers can gain an in-depth understanding of the factors that can influence customer experiences at the restaurant. This understanding can help managers identify potential areas for improvement within their operations, as implementing technology solutions to manage wait times more effectively or adjusting staffing levels to accommodate fluctuations in customer demand. Moreover, managers can use the insights from this research to develop more targeted approaches to managing customer flow and optimizing resource allocation, particularly during peak hours or for different group sizes. By leveraging these insights, managers can also aim to create more positive dining experiences for customers, improve overall satisfaction levels, and potentially drive repeat business. Furthermore, the research findings may empower managers to make more informed decisions regarding pricing strategies, promotional efforts, and resource allocation, ultimately contributing to the long-term success and profitability of their business.

Overall, the practical value of this research lies in its ability to provide managers with actionable insights that can help them better understand and address the needs and preferences

of their customers, ultimately leading to improved business performance and competitiveness in the restaurant industry: thus, the findings from this study provide several important managerial implications for restaurant managers aiming to enhance customer satisfaction and performance.

The significant direct effect of waiting time on both customer satisfaction and spending underscores the critical importance of managing waiting times effectively. Longer waiting times were found to negatively impact customer satisfaction. However, longer waits were also associated with increased spending, possibly due to perceived value or quality associated with busier restaurants. Managers should strive to optimize waiting times by improving operational efficiency, such as streamlining reservation and seating processes to minimize negative customer perceptions, while maintaining the positive aspects of perceived value.

Given that the mediation effect of overall rating on the relationship between waiting time and spending was not significant, and thus overall rating does not explain how waiting time influences spending, it suggests that other factors beyond customer satisfaction play a critical role in explaining it. This, however, does not mean that managers can overlook customer satisfaction (which still is a driver of sales), but rather that they should also focus on enhancing other aspects of the relationship, such as perceived value and customer expectations, promotional offers, offer of complementary services or entertainment during waits, and the use of technology and communication.

The non-significant moderation effect of group size indicates that group size does not significantly alter the relationship between waiting time and customer satisfaction. This suggests that the social dynamics of dining in groups may not mitigate the negative effects of waiting times as previously thought. Managers should consider that individual customer experiences, regardless of group size, are crucial and should be addressed uniformly. Personalized attention and tailored services for different group sizes may still be beneficial, but the primary focus should remain on individual customer satisfaction.

By focusing on these managerial implications, restaurant managers can develop more effective strategies to improve business performance.

5.3 Limitations and future research

The limitations of this study provide critical insights into areas for improvement and future research. Addressing these limitations is essential for enhancing the robustness and generalizability of the findings.

The direct effect of waiting time on spending, although marginally significant, suggests that while waiting time does influence restaurant performance, its impact is not strong enough to be considered a key determinant. It is possible that other factors play a more significant role in determining spending behavior in a restaurant setting, and thus future studies should consider exploring additional variables to be included in the analysis. Additionally, the non-significant moderation effect of group size suggests that the interaction between waiting time and group size does not significantly influence overall rating. One possible explanation is that the effect of group size on waiting time perceptions may be more context-dependent than previously thought. In this study, the variability in group dynamics, such as the composition and behavior of groups, differing expectations, and interactions within different groups, might have diluted any potential moderating effects. Furthermore, the range of group sizes in the sample may not have been sufficient to detect significant interactions. Also in this case, future research should consider exploring additional variables such as customer demographics, special events, promotions, and loyalty programs. Understanding these factors can provide a more holistic view of customer behaviour and help in designing more effective marketing and operational strategies.

Moreover, the aggregation of food, service, and dining experience ratings into a single overall rating might mask specific nuances that could be crucial in understanding the mediation effect, as each dimension might interact with waiting time differently. Furthermore, the measurement of customer satisfaction might not have captured all the dimensions that influence spending. Such an aggregation might also not be sensitive enough to capture the effects of group size on the waiting time-satisfaction relationship. Since component of the overall rating could interact with waiting time differently, group size might moderate these relationships in varying ways.

Another limitation might be related to the context and environment of the restaurant itself. For instance, if the restaurant is perceived as a high-end or exclusive venue, customers might expect and tolerate longer waiting times as part of the dining experience, which might not significantly reduce overall satisfaction: this expectation could mitigate the negative impact of waiting time on overall rating, resulting in a non-significant mediation effect. Future research should investigate other potential mediators (such as perceived value, service quality, ambiance,

customer expectations, food and beverage quality, customer loyalty, perceived fairness, promotional offers, technology and communication, and emotional responses), and contextual factors (such as restaurant type (e.g., fine dining vs. fast food), geographic location, and cultural differences) that might influence these dynamics and how waiting time affects customer satisfaction and restaurant performance.

The non-significant moderated mediation effect suggests that the interplay between the variables at hand is more complex than initially theorized. One possible explanation is that while waiting time and customer satisfaction influence restaurant performance directly, the combined effect of these pathways is not significantly altered by group size. This could imply that other contextual or individual factors, such as customer expectations, restaurant type, or specific situational factors, play a more significant role in shaping these relationships.

Moreover, one more limitation might come from the lack of meaningful sales data for many months in the observed data: from the 48,622 observations related to transactions, and from 29,693 observations related to feedback, it was only possible to retrieve data on spending from 660 observations. This limited data availability significantly constrains the robustness and generalizability of the findings. With such a small subset of data, the statistical power to detect significant effects is reduced, and the results may not accurately represent the broader population of transactions and customer experiences. This scarcity of spending data may also introduce bias, as the available data might not be representative of typical customer behavior and spending patterns, further complicating the interpretation and reliability of the study's findings. Future research could involve a more comprehensive and prolonged data collection period to include a larger sample size and more varied data, to enhance the validity and applicability of the results.

Moreover, although the use of instrumental variables and 2SLS regression analysis improved the results obtained with OLS regression analysis in terms of robustness and validity, it is important to notice that the number of instrumental variables used was the minimum allowed by the literature: this was due to the difficulties that the author of this research encountered when searching for reliable data to add to the research in the form of instrumental variables. Therefore, to further enhance the reliability of the research, future studies should include more instrumental variables within the analysis.

Finally, including qualitative research methods (e.g., interviews) could provide deeper insight into the customer experience and related factors, while conducting longitudinal studies could provide insight into how the relationships studied in this research evolve over time. This approach could help identify long-term patterns and effects.

These improvements will lead to more robust and actionable insights, ultimately benefiting both academic research and practical applications in the restaurant industry.

CHAPTER SIX: CONCLUSION

This study delves into the complex interplay between waiting times, customer satisfaction, group size, and restaurant performance, particularly in the context of the restaurant industry. This study builds on existing literature, which identifies waiting time as a significant factor influencing customer satisfaction and, consequently, business performance, with attention posed also on the role of group size. By examining these relationships, the research provides valuable insights that contribute to both theoretical and practical understandings of restaurant management.

The primary objective of this study was to explore whether customer satisfaction mediates the relationship between waiting time and restaurant performance, and whether this mediation effect is moderated by group size. The research involved an extensive analysis of transactional data and customer feedback from a restaurant chain in India, focusing on variables such as waiting time, overall rating (as a measure of customer satisfaction), group size, and spending (as a measure of restaurant performance).

The findings reveal that waiting time has a significant direct positive effect on spending, suggesting that longer waits may lead to higher spending by customers. This counterintuitive result aligns with previous studies indicating that longer waiting times can enhance perceived value and quality, leading to increased spending. However, the study also found that waiting time negatively impacts customer satisfaction, confirming that longer waits generally reduce overall ratings. This finding emphasizes the importance of managing waiting times to improve customer experiences.

Despite the direct effects, the mediation analysis did not support the hypothesis that customer satisfaction mediates the relationship between waiting time and spending. The overall rating did not significantly explain the pathway from waiting time to spending, suggesting that other factors might better account for this relationship. This result highlights the multifaceted nature of customer satisfaction and spending behaviours, indicating the need for further research to identify additional mediators or alternative models that could better capture these dynamics.

The moderation analysis also showed that group size does not significantly influence the relationship between waiting time and customer satisfaction. This finding contrasts with previous research suggesting that social interactions in larger groups might mitigate negative perceptions of waiting time. The lack of significant moderation effect implies that individual

customer experiences remain crucial regardless of group size, and restaurant managers should address these experiences uniformly to enhance overall satisfaction.

The moderated mediation analysis showed that the conditional indirect effect of group size and customer satisfaction does not significantly influence the relationship between waiting time and restaurant performance.

This study's contributions are twofold. Theoretically, it advances the understanding of how waiting times and group dynamics interact to influence customer satisfaction and business performance in the restaurant industry. Practically, it offers actionable insights for restaurant managers. By recognizing the direct impact of waiting time on performance and customer satisfaction, managers can implement strategies to optimize waiting times, such as improving reservation and seating processes, leveraging technology for better communication, and offering complementary services during waits. These strategies can help balance the negative aspects of longer waits while capitalizing on their potential to increase performance.

However, the study also acknowledges its limitations, such as the relatively small sample size and the context-specific nature of the data, which may affect the generalizability of the findings. Future studies should involve a wider and more diverse sample, consider additional mediators and moderators, consider additional instrumental variables, and explore the effects of other contextual factors such as restaurant type, geographic location, and cultural differences. Qualitative research methods and longitudinal studies could also provide deeper insight into the evolving nature of the variables at hand over time.

In conclusion, this research highlights the complexity of customer satisfaction and restaurant performance, providing a foundation for future studies to build upon. By addressing both theoretical gaps and practical challenges, it contributes to a more detailed understanding of the dynamics at play in the restaurant industry, ultimately aiding in the development of more effective strategies for enhancing customer satisfaction and business performance.

References

Alonso-Almeida, M. del M., Bagur-Femenias, L., Llach, J., & Perramon, J. (2018). Sustainability in small tourist businesses: the link between initiatives and performance. *Current Issues in Tourism*, 21(1), 1–20. https://doi.org/10.1080/13683500.2015.1066764

Anderson, E. W., & Sullivan, M. W. (1993). The Antecedents and Consequences of Customer Satisfaction for Firms. *Marketing Science*, 12(2), 125–143. http://www.jstor.org.tilburguniversity.idm.oclc.org/stable/184036

Anderson, E.W. (1994) Cross-Category Variation in Customer Satisfaction and Retention. *Marketing Letters*, 5, 19-30. https://doi.org/10.1007/BF00993955

Anderson, E. W., Fornell, C., & Lehmann, D. R. (1994). Customer Satisfaction, Market Share, and Profitability: Findings from Sweden. *Journal of Marketing*, 58(3), 53–66. https://doi.org/10.1177/002224299405800304

Anderson, E. W., & Mittal, V. (2000). Strengthening the Satisfaction-Profit Chain. *Journal of Service Research*, 3(2), 107–120. https://doi.org/10.1177/109467050032001

Anderson, R. E. (1973). Consumer Dissatisfaction: The Effect of Disconfirmed Expectancy on Perceived Product Performance. *Journal of Marketing Research*, 10(1), 38–44. https://doi.org/10.2307/3149407

Ayodeji, Y., & Rjoub, H. (2021). Investigation into waiting time, self-service technology, and customer loyalty: The mediating role of waiting time in satisfaction. *Human Factors and Ergonomics in Manufacturing & Service Industries*, *31*(1), 27–41. https://doi.org/https://doi.org/10.1002/hfm.20867

Ayodeji, Y., Rjoub, H., & Özgit, H. (2023). Achieving sustainable customer loyalty in airports: The role of waiting time satisfaction and self-service technologies. *Technology in Society*, 72, 102106. https://doi.org/https://doi.org/10.1016/j.techsoc.2022.102106

Barnes, N., Singh, B. R., & Parayitam, S. (2013). New England Indic restaurants business and culture: an exploratory empirical study. *Int. J. of Indian Culture and Business Management*, 7, 336–347. https://doi.org/10.1504/IJICBM.2013.056212

Beckers, S. F., van Doorn, J., & Verhoef, P. C. (2017). Good, better, engaged? The effect of company-initiated customer engagement behavior on shareholder value. *Journal of the Academy of Marketing Science*, 45(3), 1–18. https://doi.org/10.1007/s11747-017-0539-4

Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quiñonez, H. R., & Young, S. L. (2018). Best Practices for Developing and Validating Scales for Health, Social, and Behavioral Research: A Primer. *Frontiers in public health*, 6, 149. https://doi.org/10.3389/fpubh.2018.00149

Bolton, R. N. (1998). A Dynamic Model of the Duration of the Customer's Relationship with a Continuous Service Provider: The Role of Satisfaction. *Marketing Science*, 17(1), 45–65. http://www.jstor.org/stable/193196

Borgstede, M., & Scholz, M. (2021). Quantitative and Qualitative Approaches to Generalization and Replication - A Representationalist View. *Frontiers in psychology*, *12*, 605191. https://doi.org/10.3389/fpsyg.2021.605191

Calantone, R. J., & Vickery, S. K. (2010). Introduction to the special topic forum: Using archival and secondary data in supply chain management research. *Journal of Supply Chain Management, 46*(4), 3-11. https://www.proquest.com/scholarly-journals/introduction-special-topic-forum-using-archival/docview/839873009/se-2

Cantele, S., Cassia, F. (2020). Sustainability implementation in restaurants: A comprehensive model of drivers, barriers, and competitiveness-mediated effects on firm performance. *International Journal of Hospitality Management* 87: 102510. https://doi.org/10.1016/j.ijhm.2020.102510

Cardozo, R. N. (1965). An Experimental Study of Customer Effort, Expectation, and Satisfaction. *Journal of Marketing Research*, 2(3), 244–249. https://doi.org/10.2307/3150182

Carlile, P. R., & Christensen, C. M. (2005). The cycles of theory building in management research. *Cambridge, MA: Division of Research, Harvard Business School.* https://doi.org/10.5465/amle.2009.41788846

Caruelle, D., Lervik-Olsen, L., & Gustafsson, A. (2023). The clock is ticking—Or is it? Customer satisfaction response to waiting shorter vs. longer than expected during a service encounter. *Journal of Retailing*, 99(2), 247–264. https://doi.org/https://doi.org/10.1016/j.jretai.2023.03.003

Cavazza, N., Graziani, A., & Guidetti, M. (2011). Looking for the "right" amount to eat at the restaurant: Social influence effects when ordering. *Social Influence*, 6(4), 274–290. https://doi.org/10.1080/15534510.2011.632130

Cavusoglu, M. (2019), "An analysis of technology applications in the restaurant industry", *Journal of Hospitality and Tourism Technology*, Vol. 10 No. 1, pp. 45-72. https://doi.org/10.1108/JHTT-12-2017-0141

Chan, B. J., Barbosa, J., Moinul, P., Sivachandran, N., Donaldson, L., Zhao, L., Mullen, S. J., McLaughlin, C. R., & Chaudhary, V. (2018). Patient satisfaction with wait times at an emergency ophthalmology on-call service. *Canadian Journal of Ophthalmology*, 53(2), 110–116. https://doi.org/https://doi.org/10.1016/j.jcjo.2017.08.002

Chevalier, J. A., & Mayzlin, D. (2006). The Effect of Word of Mouth on Sales: Online Book Reviews. *Journal of Marketing Research*, 43(3), 345-354. https://doi.org/10.1509/jmkr.43.3.345

Chi, C. G., & Gursoy, D. (2009). Employee satisfaction, customer satisfaction, and financial performance: An empirical examination. *International Journal of Hospitality Management*, 28(2), 245–253. https://doi.org/https://doi.org/10.1016/j.ijhm.2008.08.003

Clauss, T., Kesting, T., Naskrent, J. (2019). A rolling stone gathers no moss: The effect of customers' perceived business model innovativeness on customer value co-creation behavior

and customer satisfaction in the service sector. *R&D Management* 49(2): 180–203. https://doi.org/10.1111/radm.12318

Clauzel, A., Guichard, N., & Riché, C. (2019). Dining alone or together? The effect of group size on the service customer experience. *Journal of Retailing and Consumer Services*, 47, 222–228. https://doi.org/https://doi.org/10.1016/j.jretconser.2018.11.010

Curley, C., Krause, R. M., Feiock, R., & Hawkins, C. V. (2019). Dealing with Missing Data: A Comparative Exploration of Approaches Using the Integrated City Sustainability Database. *Urban Affairs Review*, 55(2), 591-615. https://doi-org.tilburguniversity.idm.oclc.org/10.1177/1078087417726394

Davis, M. M., & Vollmann, T. E. (1990). A Framework for Relating Waiting Time and Customer Satisfaction in a Service Operation. *Journal of Services Marketing*, 4(1), 61–69. https://doi.org/10.1108/EUM0000000002506

Davis, M.M. and Heineke, J. (1998), "How disconfirmation, perception and actual waiting times impact customer satisfaction", *International Journal of Service Industry Management*, Vol. 9 No. 1, pp. 64-73. https://doi.org/10.1108/09564239810199950

De Vries, J., Roy, D., & De Koster, R. (2018). Worth the wait? How restaurant waiting time influences customer behavior and revenue. *Journal of Operations Management*, 63. https://doi.org/10.1016/j.jom.2018.05.001

Demoulin, N. T., & Djelassi, S. (2013). Customer responses to waits for online banking service delivery. *International Journal of Retail & Distribution Management*, 41(6), 442-460.

Dhora, R., & Dionizi, B. (2014). The Role of the Restaurant Sector in Promoting the Local Cuisine. The Case of Shkodra City. *Academic Journal of Interdisciplinary Studies*, 3(2), 327. https://www.richtmann.org/journal/index.php/ajis/article/view/2983

Donkor, E. A. (2013). Effect of customer satisfaction on water utility business performance. *Journal (American Water Works Association)*, 105(10), E553–E560. http://www.jstor.org.tilburguniversity.idm.oclc.org/stable/jamewatworass.105.10.e553

Edmondson, A. C., & Mcmanus, S. E. (2007). Methodological fit in management field research. *The Academy of Management Review, 32*(4), 1155–1179. https://doi.org/10.2307/20159361

Eklof, J., Podkorytova, O., & Malova, A. (2020). Linking customer satisfaction with financial performance: an empirical study of Scandinavian banks. *Total Quality Management & Business Excellence,* 31(15-16), 1684-1702. https://doi.org/10.1080/14783363.2018.1504621

Elkhwesky, Z., Castañeda-García, J.-A., Abuelhassan, A. E., & Tag-Eldeen, A. (2022). A systematic and critical review of restaurants' business performance: Future directions for theory and practice. Tourism and Hospitality Research, 23(3), 441–458. https://doi.org/10.1177/14673584221104983

Fang, E., & Zou, S. (2009). Antecedents and consequences of marketing dynamic capabilities in international joint ventures. *Journal of International Business Studies*, 40, 742-761. https://doi.org/10.1057/jibs.2008.96

Feinberg, R. A., & Smith, P. (1989). Misperceptions of Time in the Sales Transaction. *Advances in Consumer Research*, 16(1).

Fodness, D., & Murray, B. (2007). Passengers' expectations of airport service quality. *Journal of Services Marketing,* 21(7), 492-506.

Fornell, C., Mithas, S., Morgenson, F. V., III, & Krishan, M. S. (2006). Customer satisfaction and stock prices: high returns, low risk. *Journal of Marketing*, 70(1), 1–14 https://doi.org/10.1509/jmkg.70.1.003.qxd

Fornell, C., Morgeson, F. V., III, & Hult, G. T. M. (2016a). An abnormally abnormal intangible: stock returns on customer satisfaction. *Journal of Marketing*, 80(5), 122–125 https://doi.org/10.1509/jm.16.0248

Frennea, C., Mittal, V., & Westbrook, R. (2014). The satisfaction profit chain (pp. 182–218). https://doi.org/10.4337/9780857938855.00017

Giebelhausen, M.D., Robinson, S.G. & Cronin, J.J. (2011). Worth waiting for: increasing satisfaction by making consumers wait. *J. of the Acad. Mark. Sci.* 39, 889–905. https://doi.org/10.1007/s11747-010-0222-5

Giese, J. L., & Cote, J. A. (2000). Defining consumer satisfaction. *Academy of marketing science review*, 1(1), 1-22.

Gilbert, G., Veloutsou, C., Goode, M., & Moutinho, L. (2004). Measuring customer satisfaction in the fast food industry: A cross-national approach. *Journal of Services Marketing*, 18, 371–383. https://doi.org/10.1108/08876040410548294

Gkritza, K., Niemeier, D., & Mannering, F. (2006). Airport security screening and changing passenger satisfaction: An exploratory assessment. *Journal of Air Transport Management*, 12(5), 213-219.

Gómez, M. I., McLaughlin, E. W., & Wittink, D. R. (2004). Customer satisfaction and retail sales performance: an empirical investigation. *Journal of Retailing*, 80(4), 265–278. https://doi.org/https://doi.org/10.1016/j.jretai.2004.10.003

Grigoroudis, E., Tsitsiridi, E., & Zopounidis, C. (2013). Linking customer satisfaction, employee appraisal, and business performance: an evaluation methodology in the banking sector. *Annals of Operations Research*, 205(1), 5–27. https://doi.org/10.1007/s10479-012-1206-2

Gupta, S., McLaughlin, E., & Gomez, M. (2007). Guest satisfaction and restaurant performance. *Cornell Hotel and Restaurant Administration Quarterly*, *48*(3), 284-298. https://doi.org/10.1177/0010880407301735

Hayes, A. F., & Montoya, A. K. (2017). A Tutorial on Testing, Visualizing, and Probing an Interaction Involving a Multicategorical Variable in Linear Regression Analysis. *Communication Methods and Measure*s, 11(1), 1–30. https://doi.org/10.1080/19312458.2016.1271116

Halstead, D., Hartman, D., & Schmidt, S. (1994). "Multisource Effects on the Satisfaction Formation Process." *Journal of the Academy of Marketing Science 22* (Spring): 114-129. https://doi.org/10.1177/0092070394222002

Hanson, R. (1992). Determining attribute importance. *Quirk's Marketing Research Review*, 6(10), 16-18.

Hensley, R., & Sulek, J. (2007). Customer satisfaction with waits in multi-stage services. *Managing Service Quality*, 17, 152–173. https://doi.org/10.1108/09604520710735173

Heskett James L., Jones Thomas O., Loveman Gary W., Sasser W. Earl Jr., and Schlesinger Leonard A. (1994), "Putting the Service-Profit Chain to Work", *Harvard Business Review*, 72 (2), 164–74.

Holbrook, A., Glenn, H., Mahmood, R., Cai, Q., Kang, J., & Duszak, R. (2016). Shorter Perceived Outpatient MRI Wait Times Associated With Higher Patient Satisfaction. *Journal of the American College of Radiology*, 13(5), 505–509. https://doi.org/https://doi.org/10.1016/j.jacr.2015.11.008

Hornik, J. (1984). Subjective vs. Objective Time Measures: A Note on the Perception of Time in Consumer Behavior. *Journal of Consumer Research*, 11(1), 615–618. http://www.jstor.org/stable/2489149

Hult, T., Closs, D., & Frayer, D. (2014). How global should your supply chains be. *Q global EDGE BUSINESS review*, 8(2). https://globaledge.msu.edu/content/gbr/gbr8-2.pdf

Hult, G. T. M., Morgeson III, F. V, Sharma, U., & Fornell, C. (2022). Customer satisfaction and international business: A multidisciplinary review and avenues for research. *Journal of International Business Studies*, 53(8), 1695–1733. https://doi.org/10.1057/s41267-022-00546-2

Jang, Y. J. (2022). The Role of Stakeholder Engagement in Environmental Sustainability: A Moderation Analysis of Chain Affiliation. *Journal of Hospitality & Tourism Research*, 46(5), 1006-1026. https://doi.org/10.1177/1096348020936348

Jham, V., & Khan, K. M. (2009). Customer Satisfaction and Its Impact on Performance in Banks: A Proposed Model. *South Asian Journal of Management*, 16(2), 109-126. https://www.proquest.com/scholarly-journals/customer-satisfaction-impact-on-performance-banks/docview/222732011/se-2

Jones, P. and Peppiatt, E. (1996), "Managing perceptions of waiting times in service queues", *International Journal of Service Industry Management*, Vol. 7 No. 5, pp. 47-61. https://doi.org/10.1108/09564239610149957

Kang H. (2013). The prevention and handling of the missing data. *Korean journal of anesthesiology*, *64*(5), 402–406. https://doi.org/10.4097/kjae.2013.64.5.402

Khan, S., Hussain, S. M., & Yaqoob, F. (2013). Determinants of customer satisfaction in fast food industry A study of fast food restaurants peshawar pakistan. *Studia Commercialia Bratislavensia*, 6(21), 56-65. https://doi.org/10.2478/stcb-2013-0002

Kim, H., Jang, S. (2020). The effect of increasing employee compensation on firm performance: Evidence from the restaurant industry. *International Journal of Hospitality Management* 88: 102513. https://doi.org/10.1016/j.ijhm.2020.102513

Kim, J., Lee, M., Kwon, W., Park, H., & Back, K.. (2022). Why am I satisfied? See my reviews – Price and location matter in the restaurant industry. *International Journal of Hospitality Management*. 101. https://doi.org/10.1016/j.ijhm.2021.103111

Kim, J., Jun, J., Tang, L., et al. (2018). The behavioral and intermediate effects of advertising on firm performance: An empirical investigation of the restaurant industry. *Journal of Hospitality & Tourism Research* 42(2): 319–337. https://doi.org/10.1177/1096348015597031

Kirca, A.H., Hult, T.M., Roth, K., Cavusgil, S.T., Perry, M.Z., Akdeniz, M.B., Deligonul, S.Z., Mena, Z.A., Pollitte, W.A., Hoppner, J.J., Miller, J.C., & White, R.C. (2011). Firm specific assets, multinationality, and financial performance: A meta-analytic review and theoretical integration. *Academy of Management Journal*, 54(1), 47–72. http://dx.doi.org/10.2139/ssrn.1672973

Koo, M., & Fishbach, A. (2010). A Silver Lining of Standing in Line: Queuing Increases Value of Products. *Journal of Marketing Research*, 47(4), 713-724. https://doi.org/10.1509/jmkr.47.4.713

LaBarbera, P. A., & Mazursky, D. (1983). A Longitudinal Assessment of Consumer Satisfaction/Dissatisfaction: The Dynamic Aspect of the Cognitive Process. *Journal of Marketing Research*, 20(4), 393–404. https://doi.org/10.2307/3151443

Lahap, J., Azlan, R. I., Bahri, K. A., Said, N. M., Abdullah, D., & Zain, R. A. (2018). The effect of perceived waiting time on customer's satisfaction: A focus on fast food restaurant. *International Journal of Supply Chain Management*, *7*(5), 259-266. https://doi.org/10.59160/ijscm.v7i5.2057

Larson, R. C., Larson, B. M., & Katz, K. L. (1991). Prescription for waiting–in line blues: Entertain, enlighten and engage. *Sloan Management review*,(winter), 32(2), 44-55.

Lebans, M. & Euske, K. (2006). A conceptual and operational delineation of performance. Business Performance Measurement. *Cambridge University Press* https://doi.org/10.1017/CBO9780511753695.006

Lee, C., Hallak, R., & Sardeshmukh, S. R. (2016). Innovation, entrepreneurship, and restaurant performance: A higher-order structural model. *Tourism management*, 53, 215-228. https://doi.org/10.1016/j.tourman.2015.09.017

Lee, C. G., & How, S. M. (2019). Long-run causality between customer satisfaction and financial performance: the case of Marriott. *CURRENT ISSUES IN TOURISM*, 22(14), 1653–1658. https://doi.org/10.1080/13683500.2018.1453788

Lee, K., & Ha, I. "Steve." (2012). Exploring the Impacts of Key Economic Indicators and Economic Recessions in the Restaurant Industry. *Journal of Hospitality Marketing & Management*, 21(3), 330–343. https://doi.org/10.1080/19368623.2011.611752

Lee, S., Groß, S. E., Pfaff, H., & Dresen, A. (2020). Waiting time, communication quality, and patient satisfaction: An analysis of moderating influences on the relationship between perceived waiting time and the satisfaction of breast cancer patients during their inpatient stay. *Patient Education and Counseling*, 103(4), 819–825. https://doi.org/https://doi.org/10.1016/j.pec.2019.11.018

Lewin, K. (1948). Field theory.

Lin, W.-S., Tou, J.-C., & Yeh, M.-Y. (2014). The effective performance measures for store managers on restaurant chain growth. *Tourism and Hospitality Research*, 14(3), 131–142. https://doi.org/10.1177/1467358414540165

Lumeng, J. C., & Hillman, K. H. (2007). Eating in larger groups increases food consumption. *Archives of disease in childhood*, 92(5), 384–387. https://doi.org/10.1136/adc.2006.103259

Maister, D. (1985). The psychology of waiting lines. In J. A. Czepiel, M. Solomon, & C. S. Surprenant (Eds.), *The Service encounter, Lexington: Lexington Books*.

Makadok, R., Burton, R., Barney, J. A practical guide for making theory contributions in strategic management. *Strat Mgmt J*. 2018; 39: 1530–1545. https://doi.org/10.1002/smj.2789

Mittal, V., Han, K., Frennea, C., Blut, M., Shaik, M., Bosukonda, N., & Sridhar, S. (2023). Customer satisfaction, loyalty behaviors, and firm financial performance: what 40 years of research tells us. *Marketing Letters*, 34(2), 171–187. https://doi.org/10.1007/s11002-023-09671-w

Mittal, V., Ross Jr, W. T., & Baldasare, P. M. (1998). The asymmetric impact of negative and positive attribute-level performance on overall satisfaction and repurchase intentions. *Journal of marketing*, 62(1), 33-47. https://doi.org/10.1177/002224299806200104

Morgeson, F. V, Mithas, S., Keiningham, T. L., & Aksoy, L. (2011). An investigation of the cross-national determinants of customer satisfaction. *Journal of the Academy of Marketing Science*, 39(2), 198–215. https://doi.org/10.1007/s11747-010-0232-3

Munichor, N., & Cooke, A. D. J. (2022). Hate the wait? How social inferences can cause customers who wait longer to buy more. *Frontiers in psychology*, *13*, 990671. https://doi.org/10.3389/fpsyg.2022.990671

Nazari, N., Abd Rahman, A., Aziz, Y., & Hashim, H. (2020). The effect of customer satisfaction on the performance of the small an medium-sized hotels. *Tourism and Hospitality Management*, 26, 69–96. https://doi.org/10.20867/thm.26.1.5

Neely, A. (2002). Business Performance Measurement: Theory and Practice. *Cambridge: Cambridge University Press*. https://doi-org /10.1017/CBO9780511753695

Oliver, R. L. (1977). Effect of expectation and disconfirmation on postexposure product evaluations: An alternative interpretation. *Journal of Applied Psychology*, 62(4), 480–486. https://doi.org/10.1037/0021-9010.62.4.480

Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research*, 17(4), 460–469. https://doi.org/10.2307/3150499

Oliver, R.L. (1981). Measurement and Evaluation of Satisfaction Process in Retail Setting, *Journal of Retailing*, 57 (Fall): 25-48.

Otto, A. S., Szymanski, D. M., & Varadarajan, R. (2020). Customer satisfaction and firm performance: insights from over a quarter century of empirical research. *Journal of the Academy of Marketing Science*, 48(3), 543–564. https://doi.org/10.1007/s11747-019-00657-7

Park, K. (2013). Effects of within-industry diversification and related diversification strategies on firm performance. *International Journal of Hospitality Management*, 34, 51–60. https://doi.org/10.1016/j.ijhm.2013.02.009

Parker, C., and Mathews, B.P. (2001), "Customer satisfaction: contrasting academic and consumers' interpretations", *Marketing Intelligence & Planning*, Vol. 19 No. 1, pp. 38-44. https://doi.org/10.1108/02634500110363790

Pleerux, N., & Nardkulpat, A. (2023). Sentiment analysis of restaurant customer satisfaction during COVID-19 pandemic in Pattaya, Thailand. *Heliyon*, 9(11), e22193. https://doi.org/https://doi.org/10.1016/j.heliyon.2023.e22193

Porter, L. W. (1961). A Study of Perceived Need Satisfactions in Bottom and Middle Management Jobs. *Journal of Applied Psychology*, 45, 1-10. https://doi.org/10.1037/h0043121

Ralston, Roy W. (1996). Model Maps Out Sure Path to Growth in Marketplace. *Marketing News*, May 20, 30 (11), 12.

Ramachandran, A., Chidambaram, V. (2012) "A review of customer satisfaction towards service quality of banking sector", *Periodica Polytechnica Social and Management Sciences*, 20(2), pp. 71–79. https://doi.org/10.3311/pp.so.2012-2.02

Rao, P., Singh, A., O'Castillo, O., Jr, P., & Sajid, A. (2009). A Metric for Corporate Environmental Indicators … for Small and Medium Enterprises in the Philippines. *Business Strategy and the Environment*, 18, 14–31. https://doi.org/10.1002/bse.555

Rawley, E., & Seamans, R. (2020). Internal agglomeration and productivity: Evidence from microdata. *Strategic Management Journal*, 41(10), 1770–1798. https://doi.org/https://doi.org/10.1002/smj.3200

Reichheld, F. F., & Sasser, W. E., Jr. (1990). Zero defections: quality comes to services. *Harvard Business Review*, 68(5), 105–111.

Rhou, Y., Singal, M., Koh, Y. (2016). CSR and financial performance: The role of CSR awareness in the restaurant industry. *International Journal of Hospitality Management* 57: 30–39. https://doi.org/10.1016/j.ijhm.2016.05.007

Rubera, G., & Kirca, A. H. (2017). You gotta serve somebody: the effects of firm innovation on customer satisfaction and firm value. *Journal of the Academy of Marketing Science*, 45(5), 741-761. https://doi.org/10.1007/s11747-016-0512-7

Ruddock, H. K., Brunstrom, J. M., Vartanian, L. R., & Higgs, S. (2019). A systematic review and meta-analysis of the social facilitation of eating. *The American Journal of Clinical Nutrition*, 110(4), 842–861. https://doi.org/https://doi.org/10.1093/ajcn/nqz155

Rust, R.T. and Zahorik, A.J. (1993) Customer Satisfaction, Customer Retention, and Market Share. *Journal of Retailing*, 69, 193-215. http://dx.doi.org/10.1016/0022-4359(93)90003-2

Rust, R. T., Zahorik, A. J., & Keiningham, T. L. (1995). Return on Quality (ROQ): Making Service Quality Financially Accountable. *Journal of Marketing*, 59(2), 58–70. https://doi.org/10.2307/1252073

Saad Andaleeb, S., & Conway, C. (2006), Customer satisfaction in the restaurant industry: an examination of the transaction-specific model, *Journal of Services Marketing*, Vol. 20 No. 1, pp. 3-11. https://doi.org/10.1108/08876040610646536

Salehzadeh, R., Pool, J., Tabaeeian, R., Amani, M., & Mortazavi, M. (2017). The Impact of Internal Marketing and Market Orientation on Performance: An Empirical Study in Restaurant Industry. *Measuring Business Excellence*, 21, 0. https://doi.org/10.1108/MBE-02-2016-0009

Sherif, M., & Hovland, C. I. (1961). Social judgment : assimilation and contrast effects in communication and attitude change. *Yale University Press*.

Shirokova, G., Vega, G., & Sokolova, L. (2013). Performance of Russian SMEs: Exploration, exploitation and strategic entrepreneurship. *Critical Perspectives on International Business*, 9. https://doi.org/10.1108/17422041311299941

Shrestha, N. (2020). Detecting Multicollinearity in Regression Analysis. *American Journal of Applied Mathematics and Statistics*, 8, 39–42. https://doi.org/10.12691/ajams-8-2-1

Simon, D. H., & Gómez, M. I. (2014). Customer Satisfaction, Competition, and Firm Performance. *Managerial and Decision Economics*, 35(6), 371–386. https://www-jstor-org.tilburguniversity.idm.oclc.org/stable/26607788

Simon, D. H., Gómez, M. I., McLaughlin, E. W., & Wittink, D. R. (2009). Employee Attitudes, Customer Satisfaction, and Sales Performance: Assessing the Linkages in US Grocery Stores. *Managerial and Decision Economics*, *30*(1), 27–41. http://www.jstor.org.tilburguniversity.idm.oclc.org/stable/30219161

Singh, S., Singh, G., & Dhir, S. (2024). Impact of digital marketing on the competitiveness of the restaurant industry. *Journal of Foodservice Business Research*, 27(2), 109–137. https://doi.org/10.1080/15378020.2022.2077088

Song, M., & Noone, B. M. (2017). The moderating effect of perceived spatial crowding on the relationship between perceived service encounter pace and customer satisfaction. *International Journal of Hospitality Management*, 65, 37–46. https://doi.org/10.1016/j.ijhm.2017.06.005

Statista Research Department (2024). Global market size of the hospitality industry 2023-2029. In *Statista*. Retrieved June 3rd, 2024, from https://www.statista.com/statistics/1247012/global-market-size-of-the-hospitality-industry/

Steven, A. B., Dong, Y., & Dresner, M. (2012). Linkages between customer service, customer satisfaction and performance in the airline industry: Investigation of non-linearities and moderating effects. *Transportation Research Part E: Logistics and Transportation Review*, 48(4), 743-754. https://doi.org/10.1016/j.tre.2011.12.006

Subramanian, A., & Kessler, M. (2013). The hyperglobalization of trade and its future. Towards a better global economy: Policy implications for citizens worldwide in the 21st century. Peterson *Institute for International Economics Working Paper No. 13-6*. http://dx.doi.org/10.2139/ssrn.2297994

Suchánek, P., Richter, J., & Králová, M. (2014). Customer satisfaction, product quality and performance of companies. *Review of economic perspectives*, 14(4), 329-344. https://doi.org/10.1515/revecp-2015-0003

Sun, K. A., & Kim, D. Y. (2013). Does customer satisfaction increase firm performance? An application of American Customer Satisfaction Index (ACSI). *International Journal of Hospitality Management*, 35, 68–77. https://doi.org/10.1016/j.ijhm.2013.05.008

Szymanski, D.M. and Henard, D.H. (2001) Customer Satisfaction: A Meta-Analysis of the Empirical Evidence. *Journal of the Academy of Marketing Scienc*e, 29, 16-35. https://doi.org/10.1177/0092070301291002

Taouab, O., & Issor, Z. (2019). Firm performance: Definition and measurement models. *European Scientific Journal*, 15(1), 93-106. https://doi.org/10.19044/esj.2019.v15n1p93

Tom, G., & Lucey, S. (1997). A field study investigating the effect of waiting time on customer satisfaction. *Journal of Psychology: Interdisciplinary and Applied*, 131(6), 655–660. https://doi.org/10.1080/00223989709603847

Tse, D. K., & Wilton, P. C. (1988). Models of consumer satisfaction formation: An extension. *Journal of Marketing Research*, 25(2), 204–212. https://doi.org/10.2307/3172652

Van der Bijl, B., Vreeswijk, J. D., Bie, J., & van Berkum, E. C. (2011). Car drivers' perception and acceptance of waiting time at signalized intersectons. In *14th International IEEE Annual Conference on Intelligent Transportation Systems (ITSC)*, Washington DC, 5-7 October 2011 (pp. 451-456). IEEE. https://doi.org/10.1109/ITSC.2011.6082880

Van Riel, A. C. R., Semeijn, J., Ribbink, D., & Bomert-Peters, Y. (2012). Waiting for service at the checkout: Negative emotional responses, store image and overall satisfaction. *Journal of Service Management*, 23(2), 144-169. https://doi.org/10.1108/09564231211226097

Venkatraman, N., & Ramanujam, V. (1986). Measurement of Business Performance in Strategy Research: A Comparison of Approaches. *The Academy of Management Review*, 11(4), 801–814. https://doi.org/10.2307/258398

Westbrook, R.A., & Reilly, M.D. (1983). Value-Percept Disparity: an Alternative to the Disconfirmation of Expectations Theory of Consumer Satisfaction. *ACR North American Advances*.

Whiting, A., & Donthu, N. (2006). Managing Voice-to-Voice Encounters: Reducing the Agony of Being Put on Hold. *Journal of Service Research*, 8(3), 234-244. https://doi.org/10.1177/1094670505281703

Wittink, D. R., & Bayer, L. R. (1994). The measurement imperative. *Marketing Research*, 6(4), 14. https://www.proquest.com/scholarly-journals/measurement-imperative/docview/202681314/se-2

Wooldridge, J. M. (2016). Introductory Econometrics: A Modern Approach. *Adrian MI: South-Western Cengage Learning.*

Wu, J. R., Lu, S. G., & Ge, Y. E. (2013). Identifying Factors Impacting Customers' Perceived Waiting Time in High Density Passenger Flow Waiting Areas. *Procedia - Social and Behavioral Sciences*, 96, 1801–1811. https://doi.org/10.1016/j.sbspro.2013.08.205

Wu, X., Levinson, D. M., & Liu, H. X. (2009). Perception of Waiting Time at Signalized Intersections. *Transportation Research Record: Journal of the Transportation Research Board*, 2135(1), 52–59. https://doi.org/10.3141/2135-07

Yi, Y. (1990). A Critical Review of Consumer Satisfaction. In V. A. Zeithaml (Ed.), *Review of Marketing 1990* (pp. 68-123). Chicago, IL: American Marketing Association.

Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The Behavioral Consequences of Service Quality. *Journal of Marketing*, 60(2), 31–46. https://doi.org/10.2307/1251929

Zhang, Z., Ye, Q., Law, R., & Li, Y. (2010). The impact of e-word-of-mouth on the online popularity of restaurants: A comparison of consumer reviews and editor reviews. *International Journal of Hospitality Management,* 29(4), 694-700. https://doi.org/10.1016/j.ijhm.2010.02.002

Appendix

APPENDIX A: Cronbach's Alpha for Overall Rating

Cronbach's Alpha	N of Items
.880	4

APPENDIX B: Multicollinearity and Durbin-Watson Tests

Model Summary[b]

Model	Durbin–Watson
1	1.986[a]

a. Predictors: (Constant), ZGRP, ZWTM, INT_WTMGRP2

b. Dependent Variable: ZOVR

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	ZWTM	.998	1.002
	INT_WTMGRP2	.983	1.017
	ZGRP	.981	1.020

a. Dependent Variable: ZOVR

Model Summary[b]

Model	Durbin–Watson
1	2.004[a]

a. Predictors: (Constant), ZWTM

b. Dependent Variable: ZSPD

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	ZWTM	1.000	1.000

a. Dependent Variable: ZSPD

Model Summary[b]

Model	Durbin–Watson
1	1.996[a]

a. Predictors: (Constant), ZWTM

b. Dependent Variable: ZOVR

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	ZWTM	1.000	1.000

a. Dependent Variable: ZOVR

Model Summary[b]

Model	Durbin–Watson
1	2.007[a]

a. Predictors: (Constant), ZOVR, ZWTM

b. Dependent Variable: ZSPD

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	ZWTM	.995	1.005
	ZOVR	.995	1.005

a. Dependent Variable: ZSPD

Model Summary[b]

Model	Durbin–Watson
1	2.021[a]

a. Predictors: (Constant), ZOVR_PR2, ZWTM

b. Dependent Variable: ZSPD

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	ZWTM	.454	2.201
	ZOVR_PR2	.454	2.201

a. Dependent Variable: ZSPD

APPENDIX C: OLS Mediation

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.2 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2022). www.guilford.com/p/hayes3

**************************************************************************
Model  : 4
    Y  : ZSPD
    X  : ZWTM
    M  : ZOVR

Sample
Size:  660

**************************************************************************
OUTCOME VARIABLE:
 ZOVR

Model Summary
       R       R-sq        MSE       F(HC0)       df1        df2          p
    .0704      .0050      .9966     3.1378     1.0000   658.0000      .0770

Model
              coeff    se(HC0)          t          p       LLCI       ULCI
constant      .0000      .0388      .0000     1.0000     -.0762      .0762
ZWTM         -.0704      .0397    -1.7714      .0770     -.1485      .0076

**************************************************************************
OUTCOME VARIABLE:
 ZSPD

Model Summary
       R       R-sq        MSE       F(HC0)       df1        df2          p
    .1042      .0109      .9922     2.7756     2.0000   657.0000      .0630

Model
              coeff    se(HC0)          t          p       LLCI       ULCI
constant      .0000      .0387      .0000     1.0000     -.0760      .0760
ZWTM          .0829      .0399     2.0763      .0383      .0045      .1613
ZOVR         -.0575      .0507    -1.1334      .2575     -.1571      .0421


***************** DIRECT AND INDIRECT EFFECTS OF X ON Y *****************

Direct effect of X on Y
     Effect    se(HC0)          t          p       LLCI       ULCI
      .0829      .0399     2.0763      .0383      .0045      .1613

Indirect effect(s) of X on Y:
         Effect     BootSE   BootLLCI   BootULCI
ZOVR      .0040      .0052     -.0027      .0172

********************** ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000
```

```
Number of bootstrap samples for percentile bootstrap confidence intervals:
  10000

NOTE: A heteroscedasticity consistent standard error and covariance matrix
estimator was used.

------ END MATRIX -----
```

APPENDIX D: OLS Moderated mediation

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 4.2 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2022). www.guilford.com/p/hayes3

**************************************************************************
Model  : 7
    Y  : ZSPD
    X  : ZWTM
    M  : ZOVR
    W  : ZGRP

Sample
Size:  660

**************************************************************************
OUTCOME VARIABLE:
 ZOVR

Model Summary
      R       R-sq        MSE     F(HC0)        df1        df2          p
   .0757      .0057      .9988     1.3062     3.0000   656.0000      .2714

Model
              coeff    se(HC0)          t          p       LLCI       ULCI
constant     -.0010      .0389     -.0263      .9790     -.0774      .0754
ZWTM         -.0701      .0393    -1.7843      .0748     -.1472      .0070
ZGRP         -.0226      .0522     -.4340      .6644     -.1251      .0798
Int_1         .0212      .0412      .5150      .6067     -.0597      .1021

Product terms key:
 Int_1    :        ZWTM     x        ZGRP

Test(s) of highest order unconditional interaction(s):
       R2-chng     F(HC0)        df1        df2          p
X*W      .0004      .2652     1.0000   656.0000      .6067

**************************************************************************
OUTCOME VARIABLE:
 ZSPD

Model Summary
      R       R-sq        MSE     F(HC0)        df1        df2          p
   .1042      .0109      .9922     2.7756     2.0000   657.0000      .0630

Model
              coeff    se(HC0)          t          p       LLCI       ULCI
constant      .0000      .0387      .0000     1.0000     -.0760      .0760
```

```
ZWTM          .0829      .0399     2.0763      .0383      .0045      .1613
ZOVR         -.0575      .0507    -1.1334      .2575     -.1571      .0421


****************** DIRECT AND INDIRECT EFFECTS OF X ON Y *****************

Direct effect of X on Y
     Effect    se(HC0)          t          p       LLCI       ULCI
      .0829      .0399     2.0763      .0383      .0045      .1613

Conditional indirect effects of X on Y:

INDIRECT EFFECT:
 ZWTM        ->    ZOVR        ->    ZSPD

       ZGRP     Effect     BootSE   BootLLCI   BootULCI
     -.6621      .0048      .0054     -.0039      .0176
     -.6621      .0048      .0054     -.0039      .0176
      .7945      .0031      .0061     -.0034      .0204

      Index of moderated mediation:
          Index     BootSE   BootLLCI   BootULCI
ZGRP     -.0012      .0036     -.0076      .0080

********************** ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  10000

W values in conditional tables are the 16th, 50th, and 84th percentiles.

NOTE: A heteroscedasticity consistent standard error and covariance matrix
estimator was used.

NOTE: The following variables were mean centered prior to analysis:
          ZGRP     ZWTM

------ END MATRIX -----
```

APPENDIX E: 2SLS Mediation

```
Run MATRIX procedure:


***************** PROCESS Procedure for SPSS Version 4.2 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2022). www.guilford.com/p/hayes3

**************************************************************************
Model  : 4
    Y  : ZSPD
    X  : ZWTM_PR
    M  : ZOVR_PR

Sample
Size:  660
```

```
**************************************************************************
OUTCOME VARIABLE:
 ZOVR_PR

Model Summary
      R       R-sq        MSE     F(HC0)        df1        df2          p
   .1002      .0100      .9915     6.0734     1.0000   658.0000      .0140

Model
              coeff    se(HC0)          t          p       LLCI       ULCI
constant      .0000      .0387      .0000     1.0000     -.0760      .0760
ZWTM_PR      -.1002      .0407    -2.4644      .0140     -.1801     -.0204

**************************************************************************
OUTCOME VARIABLE:
 ZSPD

Model Summary
      R       R-sq        MSE     F(HC0)        df1        df2          p
   .1068      .0114      .9916     2.1545     2.0000   657.0000      .1168

Model
              coeff    se(HC0)          t          p       LLCI       ULCI
constant      .0000      .0387      .0000     1.0000     -.0759      .0759
ZWTM_PR       .0865      .0481     1.7969      .0728     -.0080      .1809
ZOVR_PR      -.0547      .0501    -1.0920      .2752     -.1530      .0436


***************** DIRECT AND INDIRECT EFFECTS OF X ON Y *****************

Direct effect of X on Y
     Effect    se(HC0)          t          p       LLCI       ULCI
      .0865      .0481     1.7969      .0728     -.0080      .1809

Indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
ZOVR_PR      .0055      .0065     -.0036      .0216

********************** ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  10000

NOTE: A heteroscedasticity consistent standard error and covariance matrix
estimator was used.

------ END MATRIX -----
```

APPENDIX F: 2SLS Moderated mediation

```
Run MATRIX procedure:


***************** PROCESS Procedure for SPSS Version 4.2 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2022). www.guilford.com/p/hayes3
```

```
**************************************************************************
Model  : 7
    Y  : ZSPD
    X  : ZWTM_PR
    M  : ZOVR_PR
    W  : ZGRP

Sample
Size:  660

**************************************************************************
OUTCOME VARIABLE:
 ZOVR_PR

Model Summary
      R       R-sq        MSE     F(HC0)        df1        df2          p
   .1101      .0121      .9924     2.0574     3.0000   656.0000      .1046

Model
              coeff    se(HC0)          t          p       LLCI       ULCI
constant      .0030      .0380      .0786      .9374     -.0717      .0777
ZWTM_PR      -.0906      .0378    -2.3928      .0170     -.1649     -.0162
ZGRP         -.0095      .0446     -.2121      .8321     -.0969      .0780
Int_1        -.0412      .0587     -.7017      .4831     -.1564      .0741

Product terms key:
 Int_1    :        ZWTM_PR  x        ZGRP

Test(s) of highest order unconditional interaction(s):
       R2-chng     F(HC0)        df1        df2          p
X*W      .0019      .4924     1.0000   656.0000      .4831

**************************************************************************
OUTCOME VARIABLE:
 ZSPD

Model Summary
      R       R-sq        MSE     F(HC0)        df1        df2          p
   .1068      .0114      .9916     2.1545     2.0000   657.0000      .1168

Model
              coeff    se(HC0)          t          p       LLCI       ULCI
constant      .0000      .0387      .0000     1.0000     -.0759      .0759
ZWTM_PR       .0865      .0481     1.7969      .0728     -.0080      .1809
ZOVR_PR      -.0547      .0501    -1.0920      .2752     -.1530      .0436


***************** DIRECT AND INDIRECT EFFECTS OF X ON Y *****************

Direct effect of X on Y
     Effect    se(HC0)          t          p       LLCI       ULCI
      .0865      .0481     1.7969      .0728     -.0080      .1809

Conditional indirect effects of X on Y:

INDIRECT EFFECT:
 ZWTM_PR     ->    ZOVR_PR     ->    ZSPD

       ZGRP     Effect     BootSE   BootLLCI   BootULCI
     -.6621      .0035      .0048     -.0059      .0140
```

```
     -.6621      .0035      .0048     -.0059      .0140
      .7945      .0067      .0088     -.0036      .0305

      Index of moderated mediation:
          Index     BootSE   BootLLCI   BootULCI
ZGRP      .0023      .0057     -.0031      .0189

************************ ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  10000

W values in conditional tables are the 16th, 50th, and 84th percentiles.

NOTE: A heteroscedasticity consistent standard error and covariance matrix
estimator was used.

NOTE: The following variables were mean centered prior to analysis:
          ZGRP     ZWTM_PR

------ END MATRIX -----
```