FACULTEIT ECONOMIE EN BEDRIJFSKUNDE

SURVEY SCALE DEVELOPMENT FOR MEASURING CUSTOMER SUCCESS: ARE NET PROMOTER SCORE (NPS) AND CSAT STILL VALUABLE?

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Javeria Farhan

FOREWORD

This master's thesis was written in the context of my master's program, Business Economics with a major in Marketing at Ghent University.

Here I would like to take the opportunity to thank several people who helped me to realize this thesis.

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List of Abbreviations

CRM	Customer Relationship Management
CS	Customer Satisfaction
CX	Customer experience
NPS	Net promoter score
QBRs	Quarterly business reviews

1 Introduction

Nowadays, customer experience (CX) plays a pivotal role in the retail sector. Many retailers consider it a top priority. Companies target different domains of customer experience such as ease of use, quality, product support, customer care, and valuable experience to maintain their customers (Michelli & Hill, 2007). Customer experience includes a complete package that a customer gets after purchasing a product. It is also influenced by factors such as advertising, packaging, product functionality, perceived value, value-added services, and reliability (Meyer & Schwager). Furthermore, a report by IBM defines customer experience as a key determinant for companies to employ in establishing loyalty to company products and services (Badgett et al., 2007).

Certainly, the rise of customer satisfaction has been a significant trend in the retail, health, and food industries. There is a growing significance of guiding consumers in finding the most health-beneficial food (Fagerstrøm et al., 2019; Martinez et al., 2018; Spiteri Cornish & Moraes, 2015). By integrating this information allows one for creating new, more customized and personalized products and services, as well as to understand their market segments for expansion and investment opportunities. Moreover, in this way, businesses can not only improve customer satisfaction but also contribute to the overall well-being of their customers (Nielsen, 2016). Thus, identifying actual and real customer satisfaction determinants and its accurate or systematic measurement for research becomes more relevant (Patterson et al., 1997). On top of that, it is also important to compare studies using different types of products (Churchill & Surprenant, 1982).

Even though the customer satisfaction popularity is growing, there is not a lot of research focusing explicitly on consumers' actual shopping patterns rather than buying or purchase intensions (Hansen et al., 2004). Mostly, the studies examine the link between external factors and one or more components of the customer satisfaction process. The findings of their study show a scarcity of research on a number of components of decision making, as well as inconsistencies in the way the customer satisfaction is characterized and a need to investigate the effects of service quality and satisfaction on customers' behavioral intentions in the context of shopping (Darley et al., 2010; Gounaris et al., 2010; Lim et al., 2006).

Given the importance and relevance of customer satisfaction and loyalty in businesses researchers need accessible tools, methods and scales for its detailed evaluation and measurement (Pizam et al., 2016). Several methods to measure customer experience are described and debated extensively in both academia and among practitioners in business companies. The two most widely used and discussed customer experience metrics are the Net promoter score (NPS) and Customer satisfaction (CSAT). Customer satisfaction (CS) and customer loyalty (CL) measurement are becoming more popular, particularly in financial management of business to business companies (Homburg & Rudolph, 2001; Mittal & Frennea, 2010).

Indeed, the Net Promoter Score (NPS) (F. F. Reichheld, 2003), has gained widespread recognition as a key metric for measuring customer loyalty across various industries but often failed to provide valuable insights into real consumer satisfaction behavior and circumstantial scenarios. The way organizations can influence corporate growth based on the NPS is also ambiguous and inaccurate as compared to other measures of loyalty. The use of NPS is increasing among practitioners as opposed to the scientific community. Bain & Company and Satmetrix tried to address this research gap and claimed that they had determined the conditions to use Net Promoter Score (NPS) for customer experience (Bendle et al., 2019). Additionally, (Baquero, 2022; Kristensen & Eskildsen, 2014) recommended the use of different customer satisfaction scales as employed American customer satisfaction Index (ACSI) or European customer satisfaction Index (EPSI). Peter et.al performed a comparative study to assess customer satisfaction methodologies and required or more useful question scales measuring performance, satisfaction and disconfirmation. The study highlights the importance of performance scale over satisfaction scale (Danaher & Haddrell, 1996). A study by (Giró Manzano, 2021) mentions that there are companies that use a combination of an average score, and Customer Satisfaction (CSAT) score or Net Promoter Score (NPS). The advantage is significant in measuring customer behavior (satisfied/dissatisfied) where no particular variable influences the results.

Although, customer satisfaction (CSAT), customer effort score (CES), and net promoter score (NPS) to measure customer satisfaction and loyalty is active research. Little research has been done details about the authenticity and its validation. The reliability of Net Promoter Scores (NPS) as a primary metric for measuring customer satisfaction is indeed a topic of debate among experts and practitioners. Conversely, NPS has gained widespread adoption due to its simplicity and ease of implementation, critics argue that numerical values alone may not

provide a comprehensive or accurate measurement of customer satisfaction (Sharp, 2008) . In addition, customer satisfaction (CSAT) scores and Net promoter scores (NPS) and their weakness or reliability in their adoption to be addressed properly (Heinemann, 2023).

Customer health scores are key performance indicators (KPIs) for managing and forecasting customer success as compared to key reflective indicators like customer satisfaction and loyalty that give insight into past customer outcomes (Hilton et al., 2020) . Customer health scores are used in business companies to track and monitor the well-being of their customers and what perception they have regarding the company and its products. Accurate and real customer health scores are a powerful tool that enables business managers to know their customer experience. However, there exists little to no consensus on what are the key descriptors to measure customer health. Therefore, in this work, we extend the existing knowledge of the metrics (NPS and CSAT) that are extensively employed in the business community and will investigate their credibility by the methodological approach developed in this work.

Extant studies seem to exclude the fact that there currently is not yet any validation study on the combinatorial usage of business surveys and business reviews in proposing a rather more accurate customer health score (Barsky & Huxley, 1992; Yüksel & Rimmington, 1998). This research will extend the literature by combining surveys and QBR to have a better or more accurate score in the context of B2B companies. An improved score corresponds to an actual customer satisfaction behavioral intention to produce more valuable conclusions. In this thesis, by creating questionnaires and based on their scores we question to what extent CSAT or NPS be considered reliable and justifiable. Through our approach we intend to find which approach is good NPS alone or if we combine the metrics, it will become more powerful.

The main aim of this work is to predict a better or more accurate customer health score by using a holistic approach. This approach combines Net Promoter Score (NPS), Customer Satisfaction (CSAT) surveys and Quarterly Business Reviews (QBRs) that is a qualitative and quantitative representation of customer satisfaction that can indeed be a powerful strategy for enhancing customer response rates, improving customer company relationship, customer perceived value, gathering valuable customer feedback, supplementing and the effectiveness of QBR meetings. Therefore, implementing interventions and improvements for the growth of the business.

2 Literature review

This section examines thoroughly the different theoretical concepts, phenomenon and studies that are related to consumer satisfaction behavior descriptors towards B2C and more specifically in the context of business professional services within the scope of this thesis. B2B customer satisfaction includes optimizing and inspiring experiences that will help guide customers to purchase. Our intention is to focus on three inter-related research streams. The first section discusses extant NPS and CSAT in measuring customer satisfaction. The second section discusses the implications of implementing them as a true representative of customer behavior. The third section discusses the use and significance of quarterly business reviews and customer feedback surveys and the unique needs of coupling them with the conventional customer satisfaction scores in determining the customer survey with the aim to propose hypotheses and to answer the research questions.

2.1 Metrics - measuring customer experience (CX)

Paul et.al discusses the predictors or determinants of customer success/ dissatisfaction and finds out that the equity, purchase situation and an individual customers information, characteristics or attributes that can influence their behavior, preferences, and responses to surveys or other interactions and finds out that disconfirmation has the major impact (Patterson et al., 1997). To predict better customer recommendations and retention, it is better to use of a multiple indicator instead of a single predictor model (Keiningham et al., 2007). The findings suggest that customers' perceived value in use does not simply develop rationally. Despite, through the implementation of customer-related activities of customer success management (Prohl-Schwenke & Kleinaltenkamp, 2021). However, recent research suggests that a central element to measure customer success (CS) management is the tracking of customer health, which is a new marketing metric that is viewed as the pulse of CS strategy. Knowledge of customer health enables the track of relationship quality, product usage, and customer value realization (Hochstein et al., 2023).

There are various metrics to measure customer satisfaction. For instance Customer Satisfaction (CSAT), Net Promoter Score (NPS), Customer effort score (CES), Customer churn and retention rate, customer lifetime value (CLV) (BIESOK & WYRÓD-WRÓBEL,

2021; May et al., 2020) . Two widely used and known metrics are Customer Satisfaction (CSAT), Net Promoter Score (NPS)(Baquero, 2022). It is important to mention here that many of these metrics may also involve the use of detailed questionnaires (Cazzaro & Chiodini, 2023).

The NPS metric measures the likehood of recommendation on the [0-10] scale with 11 ratings, considers all customers who rated with 9 or 10 as satisfied customers and all the customers that rated with 6 or lower than that as dissatisfied customers. The customers that rated with 7 or 8 are considered as passive or neutral. NPS ranges from -100 (all customers are dissatisfied) to 100 (all customers are satisfied).

$$\mathbf{NPS_{score}} = 100 \times \frac{\textbf{Satisfied customers (promoters)} - \textbf{Dissatisfied customers (detractors)}}{\textbf{Number of respondents(Sample size)}} \qquad 1$$

NPS is in scale [-100 ; 100] and it is in percent points that is obtained for e.g., detractors by getting a count of the number of people who are detractors scores between (0-6) divided by the total number of respondents. Same for promoters, (9-10) count of people who are promoters divided by total number of respondents.

Customer Satisfaction (CSAT) is one of the most used metrics of customer experience, measure the satisfaction level of customers. The variation of a simple question is used: “How is your experience with our company?” or “ How satisfied are you with the recent purchase of the product? (Tislerova, 2021) The customer picks the answer with a scale ranging from very unsatisfactory, satisfactory, neutral, satisfactory, very satisfactory. There are various customer satisfaction scales reported in the literature (Danaher & Haddrell, 1996). The more customers give positive answers, the higher the satisfaction score. This metric is the most common because it can be used for any kind of interactions of customers with the company in any field. The question is simple, and the result is quick to see. The company will get immediate feedback related to their customer experience which can further enable them to follow changes in customer attitudes before and after an adjustment was made in the company. Based on the results, the company can figure out what did or did not go well. However, as quick, and easy as it is, CSAT is unable to give companies predictions of their customer behavior, or the level of their customer loyalty. It can only provide the level of satisfaction of the customer for the time being (Morgan, 2019).

To measure the customer loyalty level, the company can use another metric called Net Promoter Score (NPS). Despite considerable criticism in the scientific community, NPS index turns out

to be a tool that is easy to implement even by those without specific statistical knowledge. In the context of business, the evaluation of the number of potentially satisfied customers (promoters) is easy. Their satisfaction is measured indirectly through the score they give to the possibility of suggesting the brand/product to other possible buyers. This mechanism is believed to trigger a growth/decline process of the company's image on the market with the consequent increase/decline of customers. The index reading helps the company to understand its standing in the market relative to its competitors, but also whether its position has been on an incline i.e. detractors or passives becoming promoters or declining promoters i.e. moving to the position of detractors or passives (Baquero, 2022).

Another commonly used metric to measure customer loyalty is the Customer Effort Score (CES). It is a relatively new metric built to identify issues occurring in service interactions. The customer variations ask for the question: "How hard did you have to work to get a problem solved? (Dixon et al., 2010).

2.2 Validity of NPS and CSAT

Although NPS is widely used in many countries, there has been little research to validate its effectiveness and value in the B2B setting. Despite all the merits, NPS has received lots of criticisms that center on its failure to predict loyalty behaviors, business growth, and its random grouping of promoters/passives/detractors. Its predictive validity is challenged mainly because this measure is attitudinal rather than behavioral and thus can only reflect present intention than future behavior. NPS alone would not serve as a single predictor of customers' future loyalty behaviors. Instead, multiple indicators performs significantly better (Adams et al., 2022; Keiningham et al., 2007).

The authors found that NPS works better for new customers than regular ones in predicting repeat purchase behaviors and changes of purchase volume and value. In addition, in online surveys, a polarized segmentation of promoters/passives/detractors could effectively improve the predictive validity of NPS for new customers (Huang & Wang, 2014).

An empirical investigation on the use of Net Promoter Score (NPS) to predict sales growth substantiate that the original premise of NPS is reasonable and stress that the methodological concerns raised by academics are still valid, and only the more recently developed brand health measure of NPS (using an all potential customer sample) is effective at predicting future sales growth (Baehre et al., 2022). Furthermore, additional concerns regarding NPS score are related to its presumed link to business growth, the assumption that low NPS scores indicate negative

word of mouth, the weak association between stated likelihood to recommend and actual recommending, the claim that NPS is a superior metric to customer satisfaction, and the counting method used to calculate the NPS introduces additional variation in scores compared to mean average likelihood-to-recommend scores (Jaramillo et al., 2024).

Recently, a paper published on improving the service quality through a combination of customer feedback metrics and NPS approach. Their work extends the discussion on the merit of using a NPS to enhance the service design of organizations and to facilitate quality monitoring and improvement. It was concluded that NPS is a basic measure to assess the likelihood of a customer recommending a company to somebody else and that this metric can be effective in monitoring and improving the quality of workplace training (Ziegler et al., 2023). Another work by John G. Dawes et.al was based on the managerial implications on the use of NPS and provides an overview of the various ways in which the NPS can be most efficiently used rather than using NPS alone by considering the valid concerns raised by researchers. Bettencourt et.al established the significance of NPS study in the improvement of NPS usage (Bălan, 2012; Bettencourt & Houston, 2023; Dawes, 2023).

Extensive debate has been conducted in the literature regarding the fact that the so-called move from one "state" to the next may not be easy to detect, i.e. the NPS indicator does not provide any insight into the decision-making process or the motivation for the customer to move from one state to the next. Ultimately, there is a little doubt that detractor is unlikely to become a promoter. It is more reasonable to expect that passives (ignored in the calculation of the NPS) which can change the state by altering the state of affairs and the value of the index (Cazzaro & Chiodini, 2023). A central question is what if NPS reaches until 100 (which is the maximum): would it mean the company can't grow further?

We find limited studies that address how accurately customers evaluate suppliers' specific sales practices (e.g., relationship marketing versus solution selling, buyer-selling relationship) in terms of NPS and these scores are often misleading, invalid and are not actual representation of customer mindset. Moreover, there is less evidence that NPS is a lead indicator of business outcomes; indeed, the AT&T experience suggests that there may be no connection. NPS focuses only on the user who, in many cases, will not be the person making the purchasing decision. It is uncalibrated by competitive information. It often derives from a single customer experience with unknown influence on a decision-maker's overall perception of value (Baehre et al., 2022).

Customer Satisfaction (CSAT) is a valid and useful marketing metric to gauge the firms current and the future thereby its most asset, i.e. its customer base. To the extent a firm's overall performance is related to the health of its customer base, CSAT is a strong indicator of a firm's long-term health. Leading-edge firms are therefore using CSAT as an important metric that enables them to design, implement, and measure a customer-focused strategy. Therefore, such customer-focused strategy can be implemented because CSAT is linked downstream to customer behaviors and financial outcomes, and linked upstream to attribute perceptions and operations/engineering metrics (Mittal & Frennea, 2010). Higher the CSAT score is, it is better in explaining improved sales growth i.e. market share (Anderson et al., 1994). By incorporating CSAT into their key performance indicators (KPS's), businesses can build stronger relationships with customers and pave the way for sustained success in the market (Gastezzi et al., 2024; Majka).

2.2.1 Challenges/Limitations in NPS and CSAT applications

There are certain challenges and limitation that are hindering the use of NPS and CSAT scores to gain customer trust. In the following subsection, certain critical points are highlighted.

NPS and CSAT requires larger sample sizes than customer feedback metrics (CFM's) that are based on average calculations. It is not better in explaining outcome variables such as sales growth (Pingitore et al., 2007). It is more prone to cultural bias than other CFMs. NPS is typically lower in measuring customer health (Seth et al., 2016). Another study on NPS and revenue growth with an examination across three industries concluded that NPS is not an indicator of future revenue growth (Dawes, 2022). It is important to mention here that a CSAT with just a question on customer satisfaction is not a good representation to investigate customer behaviour or customer satisfaction

(Fisher & Kordupleski, 2019) conducted a critical review about the NPS and highlight five further problems with NPS as an index. First problem is NPS provides no data on how a company can improve. Secondly, NPS focuses only on keeping customers, not on winning new customers. Thirdly, there is no such thing as a "passive" customer. Another problem is that NPS provides no competitive data. Also, NPS is internally focused, not externally focused. However, the interesting finding was that the NPS remains popular because it is well marketed, easy to understand and its model makes intuitive sense: every organization wants more promoters than detractors despite the above-mentioned points of criticism.

Furthermore, another study has found that while NPS was positively and significantly correlated with customer loyalty, satisfaction, and financial performance, customer experience quality (CEQ) surpassed NPS in all three measures. The research also showed that CEQ was strongly correlated with NPS, suggesting that the two metrics are interacting each other. The findings demonstrate that there is certain and conclusive value in exploring metrics beyond NPS that companies may be missing and thereby limiting their growth and competitiveness (Bennett & Molisani, 2020).

Moreover, one more limitation showed in prior research is that NPS is not better in explaining outcome variables such as sales growth. Most prior research, however, has not considered combinations of CFMs with affective components. (Müller et al., 2023) argued that NPS should be supplemented with other CFMs, e.g., emotions in the context of mobile phone industry, choose Net Emotional Value (NEV) to measure emotions. It was shown that combination of NPS and NEV leads to a better explanation of two out of three outcome variables compared to using only NPS or NEV.

Given these criticisms, some researchers have explored different ways to enhance this measure. One of these attempts is to merge NPS, CSAT survey with Quarterly Business Reviews (QBR) and customer feedback surveys will generate a more synthesized measure.

2.3 Importance of QBR and CSAT survey in businesses success

Most businesses find it challenging to manage short- and long-term objectives but it is vital and a prerequisite to perform well in dynamic environments. Pioneer organizations manage these goals in difficult environments through ongoing and evolving processes (Kiss et al., 2020; O'reilly Iii & Tushman, 2008).

Quarterly Business Reviews (QBRs) as a tool are widely referred by management articles. Articles claim that QBRs improve the implementation of strategy by mentioning timely and actionable risk information that provides the basis for the accurate and reliable representation of the prevailing risks the businesses or companies are facing or will face soon. However, if they don't improve the implementation of the strategy then it helps to making it sure that the resource management is made to balance the priorities of the company and acquiring every opportunity in business. The QBR process enables the organization to constantly rank the work order and adjust the resource demand based on changing environments and is in line with strategic priorities (Doerr, 2018).

Furthermore, an example of an incumbent car manufacturer's digital transformation business with the purpose of acquiring concrete insights into the implementation of the QBR. Also, that business unit shows that with the help of QBR, it is easy to identify right issue and to set priority with the introduction of Key Performance Indicators (KPIs) to promote and increase the performance of the business setup (Hoeft, 2023). It is equally crucial for companies to remain customer oriented. Competitor orientation alone can lead to a closed end scenario where companies become too focused on reacting to competitors rather than proactively satisfying customer needs (Rahimić & Uštović, 2012). The relation between customer satisfaction scores and companies stock prices is well established.

Moreover, customer Quarterly Business Reviews (QBRs) remained unexplored in the scholarly community and there is a need to elucidate on what QBRs are, how they are being used, and what are their relevance across organizations. The QBR is described as a quarterly business review meeting with customers to understand how value creation can be maximized and resources allocated can be done most favorably (Gainsight, 2022). QBR's are an integral part of the buyer-seller relationship, and believe that procurement should lead the team, set up the timing of these reviews, invite the key participants, and follow-up on the outcomes of the reviews. As such, it is important that key business stakeholders from the customer participate, and that the business development lead for the relationship also be involved. Typically, customer business representatives will be involved in scoring the evaluations for Cost, Service, Quality/Safety, Innovation, and Contract Compliance (Handfield, 2019). The key is knowing your customer well and adjusting based on their specific requirements.

Customer Satisfaction (CSAT) is a strong indicator of a firm's long-term health. Companies that have an edge due to their advancement in certain fields employed customer satisfaction as an important metric that enables them to design, implement, and measure a customer-focused strategy. CSAT Survey is having more questions than just the question leading to CSAT. As customer satisfaction is related to customer behavior and customer success (revenue generation), such a customer-based strategy can be implemented (Mittal & Frennea, 2010). The decline in customer satisfaction is an indication of underlying issues the company is facing in terms of products, services, customer experience which can ultimately impact its financial performance and stock valuation (Whitaker et al., 2008; Willand, 2015). This leads to an increasing importance of customer feedback and their satisfaction that is reflected in several factors and dimensions and have contributed to the popularity and widespread adoption of e-commerce.

Customer Relationship Management (CRM) strategies are more valuable and impactful when managers know the process of customer satisfaction, in the broader context the customer experience and their level of engagement. Companies should not make CRM just an automatic process with no customer emotions involved but the purpose should be to evaluate how customers value their products and the strategies should be built on that (Buttle & Maklan, 2019). However, different studies provide valuable insights into the critical aspects of implementing customer success (CS) or satisfaction programs within Business-to-Business (B2B) companies. One of them is to identify and validate eight strategic attributes that are relevant and appropriate in B2B contexts are: quality of product/service, pricing, safety, sales process, project management, corporate social responsibility, communication, and ongoing service and support. Additionally, examines industry-subgroup heterogeneity, exploring variations in desired economics in maintaining the health of a market economy, and finally establishes a link between satisfaction and performance, particularly focusing on sales outcomes. Together, these studies contribute to filling the existing gap in guidance for B2B companies by offering subtle insights into the strategic attributes driving satisfaction, industry and customer subgroup variations in satisfaction dynamics, and the consequential link between satisfaction and business performance (Mittal et al., 2021).

Nowadays, customer satisfaction surveys are widely accepted across different industries from service to healthcare to the aviation industry. This rise is propelled by the large number of service industries as compared to the industrial sector and the need for total quality management among these two industry types. Also, due to the importance of customer satisfaction both among scholars and practitioners is increasing. It results in an increase in the demand for different customer satisfaction scales (Danaher & Haddrell, 1996). More studies suggest that customer surveys measure indicators such as overall satisfaction, specific attributes, and loyalty. Loyalty is gauged by the likelihood of recommending a product to a colleague or friend or repurchasing by the customer and customer feedback metrics (de Haan et al., 2015; Giró Manzano, 2021; Rego et al.) Customer satisfaction (CSAT) surveys are different than CSAT. Customer surveys are broader and deeper. CSAT is all about, “How satisfied are you with this product or with this company”.

To analyze the reasons of the occurrence of missed opportunities (profit losses) in business the internal stakeholders, related to the process of selling and working with the specific account must be interviewed. Moreover, the results of those interviews must be compared to the Client’s feedback received on Quarterly Business Review meetings (QBRs) and via Customer

Satisfaction Survey (CSAT) with the purpose of identification of progress review, sales statistics, key performance indicators (KPI), CSAT score, NPS score and activities that should be performed to improve the health score on an annual basis and for next year are determined. It was found that customer feedback has a significance in interpreting consumer mindset (Хариш, 2021).

The prediction of sales growth or revenue improves when combining NPS with customer satisfaction or Customer Effort Score (CES) with customer satisfaction. They conclude that this means that by combining customer feedback metrics (CFMs) i.e., having a dashboard of metrics that measure multiple dimensions, companies can obtain better predictions about their customer base as a whole (de Haan et al., 2015).

Furthermore, customer complaints play a pivotal role in customer satisfaction. Research and analysis of customer complaints is required because it results in customer dissatisfaction and possible loss of business. The integrated approach or combination of structured methodology to define, measure, analyze, improve and control (DMAIC) i.e. (for the purpose of improving existing quality) and Net Promoter Score is applied to increase the satisfaction level of the packaging company's customers. The NPS Score indicates a positive shift in customer satisfaction because it is 17.2 points higher than the average NPS score in the packaging industry. The result is a significant improvement in company growth. It is important to mention here that there are still improvement areas of concern are left (Nurprihatin et al., 2022). Quarterly Business Reviews (QBRs) and customer advisory boards (CABs) have almost similar meanings and would give further additional insights of customer health if one can combine them.

A key performance indicator that is based on data and facilitates the interaction between companies and their customers by measuring the overall well-being or health of the customer is called the customer health score. The concept termed customer health, which was described as “knowing how customers see us” and “understanding how customers use our product”. Therefore, the predicted variable i.e. customer health is best defined as the value a customer experiences they receive when using a product. The customer health score is a comprehensive metric that uses indicators that are both objective and subjective in nature, to assess the quality of customer relationships. It means that it incorporates both qualitative and quantitative key performance indicators (KPIs). CSAT Survey is having more than just the numberPossible metrics included in this research for the customer health score are the Net Promoter Score,

CSAT survey score and QBR ratings. (Hochstein et al., 2023). The theoretical framework is shown in Figure 1

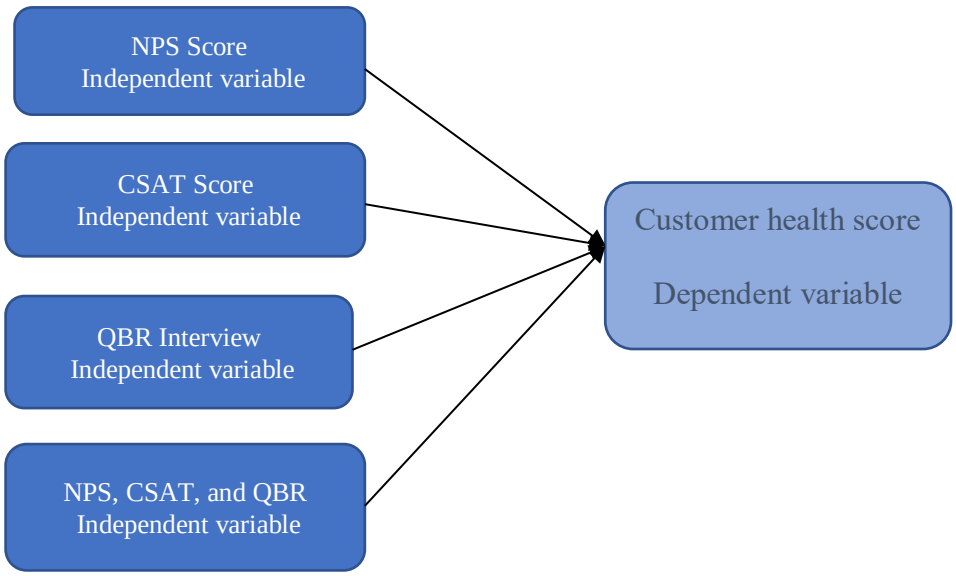

Figure 1: Conceptual Framework

2.4 Research expectations

To understand the critical role of the NPS, CSAT survey and QBRs in determining customer health that can influence the sustainable sales of a company. We pursue three research questions as follows:

RQ1: Whether Net Promoter Score (NPS) should be employed as a metric for measuring Customer Loyalty to predict Customer Health or if its utility is compromised?

H1a: Net Promoter Score (NPS) is a weak indicator to predict Customer Health.

H1b: Net Promoter Score (NPS) is a strong indicator to predict Customer Health.

RQ2: How accurately does different customer experience metrics, such as net promoter score (NPS) and Customer Satisfaction (CSAT) survey score measure customer health score?

H2a: Net Promoter Score (NPS) is less accurate, and Customer Satisfaction (CSAT) survey score is relatively more accurate to measure customer health.

H2b: Net Promoter Score (NPS) is more accurate, and Customer Satisfaction (CSAT) survey score is relatively less accurate to measure customer health.

A complete understanding of customer behavior and value requires businesses to use an adaptable and versatile approach that combines NPS with other relevant metrics. We made this approach even more comprehensive and powerful through the inclusion of feedback. This extensive approach will certainly help and enable businesses to know the areas/ specific areas that require improvement, and eventually increase customer experience. Therefore, it is important to evaluate how well a combination of NPS, CSAT, and QBRs can explain the predicted variables. To address this challenge, we present a new evaluation approach to predict more reliable and accurate customer health scores.

RQ3: How well does a combination of Net Promoter Score (NPS), Customer Satisfaction (CSAT) survey, and Quarterly Business Review (QBR) can explain the predicted variable, customer health.

H3a: Combining Net Promoter Score (NPS), Customer Satisfaction (CSAT) survey, and Quarterly Business Review (QBR) accompanied by managerial feedback after every step will be more accurate.

H3b: Combining Net Promoter Score (NPS), Customer Satisfaction (CSAT) survey, and Quarterly Business Review (QBR) accompanied by managerial feedback after every step will be less accurate.

First, is NPS a valid predictor of future sales growth? Second, whether NPS should be employed as a metric for assessing customer loyalty, measuring brand health, or if its utility is compromised? Third, how effectively NPS and CSAT can predict different outcome measures or variables of interest.

To answer these research questions, we examine the values of NPS and CSAT within the B2B industry of choice. This industry was chosen because metrics such as NPS are better predictors of performance in industries where customers have both quick repeat buying and strong emotional connection during purchasing. However, we propose key indicators of customer experience, that include the NPS, CSAT surveys, findings from quarterly or annual review meetings (quarterly business basis) in an open interview type of questions.

3 Methodology

In this part, the methodology is discussed. At first, section 3.1 talks about the procedures, where the following items are addressed: How did the survey look like and which scales were used? Throughout the procedure, the survey flow is made clear. Indeed, using metric scores alone can sometimes lack depth in understanding customer sentiment and preferences. While incorporating additional questions or feedback inquiries can provide richer insights. However, it is crucial to consider the willingness of customers to engage with such questionnaires. We focused on distributors rather than actual customers to maintain a pure B2B context.

3.1 Research design

An experimental quantitative study is carried out with 3 different evaluation approaches based on one questionnaire distributed to same respondents in three stages. It is important to mention that we used homogenized sample data collection to make the data consistent, and comparable. Despite the differences in the items of questionnaires, each evaluation approach contained a question about the overall level of customer satisfaction in the form of Customer Satisfaction survey (CSAT), QBR topic guide, and a question of recommendation in the questionnaire for Net Promoter Score (NPS). In Figure 2, the methodological process designed in this work is show:

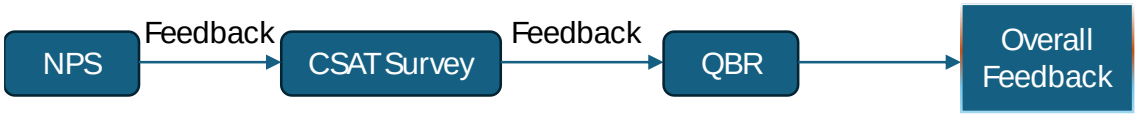

Figure 2 Pictorial representation of methodology adopted in this study

3.2 Sample and data collection

The dataset includes a unique customer ID i.e. full name of each respondent. The choice of Net Promoter Score (NPS), Customer Satisfaction (CSAT) score, and QBR interview as the predictive metrics for this study is grounded in their well-established relevance and importance in the e-commerce industry. An independent sample (Male/Female) with same type of questions

but one change we introduce that is the main point of the research. It is worthwhile to mention here that a pretest of the questionnaire is performed by randomly selecting 5 people and ask them if everything was clear to them and they understood it well.

A total of 35 participant responses was collected for analysis through a Qualtrics based survey link send to distributors/ dealers of a B2B food company during the month of July. The sample consisted of adults living in Pakistan. The questionnaire asked participants about their perceptions and satisfaction about the company with which they do business or from which they purchase and sell.

In the next step, respondents are asked to indicate their opinion about the products and in general their satisfaction. The variable Net Promoter Score (NPS) which is about recommendation of product , "How likely you recommend a product/company to a friend or colleague etc.", ranging from 0 (not at all likely) to 10 (extremely likely) is measured on a 11-point rating scale (F. F. Reichheld, 2003). Similarly, for CSAT score, which is a mean value of answers to questions about overall satisfaction measured using a five-point Likert scale (1 = strongly agree; 5 = strongly disagree) (Gilbert et al., 2004) and followed by QBR (interview type) open ended questions, using a seven-point Likert scale (Harzing et al., 2009; Meertens & Lion, 2008; Taherdoost, 2019) on a scale of 1-7. Further, an individual's risk propensity was assessed using the 6-item risk propensity scale (Meertens and Lion, 2008), measured on a 7- point likert scale. It is important to mention here that we did make a control check in Qualtrics to send three different customer satisfaction evaluation approaches to respondents separately, one by one. A Likert scale is a rating scale used to measure opinions, attitudes, or behaviors. The measurement of the three variables were composed of multiple items and are shown in Table 1.

Table 1: Dimensions and Items for Questionnaire

Dimensions	Definition & Literature Evidence	Items
QBR (interview)	Quarterly business review purpose, process, advantages, satisfaction-performance level, risk and improvement areas (Hoeft, 2023)	7
Dealer-Manager Engagement (DME)	Solicits feedback; wants feedback from company manager; managerial focus on distributor experiences, surprise element; What do they think. How do they look at it (Bustamante & Rubio, 2017; Grewal et al., 2017; Yee et al., 2010)	3[a]
Customer Satisfaction (CSAT survey)	Overall satisfaction: company asks about satisfaction (James et al., 2019; Keiningham et al., 2007; Kristensen & Eskilden, 2014; Mbama, 2018) Perceived value (PV), functional quality (FQ), perceived usability (PU) of the products (Mbama, 2018; Maklan & Klaus, 2011, Sierra & McQuitty, 2005, Kim et al., 2019)(Swaddling & Miller, 2002)	7
NPS	Net promoter score (Keiningham et al., 2007; Kristensen & Eskildsen, 2014; Reichheld, 2003) Long-time customer; will continue to buy; superior products (James et al., 2019; Mbama, 2018)	2

a: 03 interval feedback after every step

To obtain the necessary answers, this research adopted a qualitative approach through NPS score combined with CSAT survey score and QBR topic guide with group of distributors linked to the National foods, Pakistan. After the interview the feedback session with the manager is to do to analyze the overall picture in comparison to NPS and the survey. QBR is done to identify the more positive and less positive areas or the areas that are at risk. Through a deep theoretical basis and the data collected from the combined evaluation approach to predict real or more accurate customer health, it was possible to observe some of the main pains and challenges of company mangers professionals in the analyzed context, in addition to opportunities for improvement to enhance the performance of the company. This will allow for a deeper understanding of successful approaches and opportunities for improvement in different markets. Questions regarding NPS (F. Reichheld, 2006, 2011).

3.3 Measures

There are always two ways to calculate the distribution 1) looking at the average score for each task across the participants 2) looking at the average score for each participant across the tasks. We followed looking at the average score for each participant across the tasks. Each of the items in the questionnaires measures a specific customer experience. For adequately measuring the customer health, a weighted mean of the Customer Satisfaction Score (CSAT) survey, Net Promoter Score (NPS) and QBR ratings is analyzed in One-way ANOVA in statistical software (SPSS). We have created a specific assessment (measure) for open ended QBR interview-based answers to acquire a score of the individual participant.

To elaborate, QBR (interview based questions) ratings are analyzed using a comparative case study in this research. (Ragin, 2014), defines the comparative approach as an analytical technique that include comparing two or more cases, typically to find causal relationships. This approach is beneficial when dealing with complex social phenomena that may not be understood with other methods in an easy manner.

A grading grid is made to score the interviews consistently. It uses a rating system ranging from 1-7 with weightage vary w.r.t factors considered in the QBR interview. Consideration of customers level of satisfaction, feedback, product usage and value, risk areas highlighted, and amount of improvement required.

Furthermore, company manager feedback is taken on the total score of the participants for variables NPS, CSAT survey scores and the QBR interview ratings in a consecutive manner (one by one) with the purpose to evaluate the engagement/ answers and overall score of respondents are discussed.

We use 3 metrics to measure a customer health score (CHI). Each is scaled differently, are measured on a scale of 0-10 , 1-7 and 1-5 and then finally converted into a scale of 10.

4 Results

The relationship of the NPS to other variables was first assessed by examining the distributions of the scores. For the NPS and the customer satisfaction survey, this was done by comparing an 11-point scale and a 5-point Likert scale, including an analysis of variance (ANOVA) in a statistical analysis software, SPSS.

Unitatian is used to compare different scores. This brings all values to a scale of 10 and then they are comparable. Converting the scores using eq.1

$$\textbf{Score unitated} = \frac{\textbf{Score} - \textbf{Min. of scale}}{\textbf{Max.of scale} - \textbf{Min.of scale}} \qquad (2)$$

An average NPS, CSAT and QBR score is used in this study, it considers the full sample, and captures variability in the answers (Seal & Moody, 2008). However, presentation of NPS scores in percent points and in average, CSAT mean , QBR mean score also including standard deviations of each variable is shown in Table 2.

A total of 45 participants (N = 45) took part in the online survey experiment of which 10 people did not show up and neither complete the questionnaire completely. If we exclude those who have not fully completed the questionnaire, 35 participants will be left (N = 35). One participant did not agree with the informed consent, and we also left that person out. The sample consists of 85% men, 15% women.

4.1 Main findings and interpretations

Once we get all distributors NPS scores we ask for feedback interview from manager of National foods by asking a question, "What do you think about this overall score?" and "How do you look at it". Manager replied that, "he had some concerns over different scores of the participants also he was ambiguous about the CSAT survey scores". He said," based on his last quarter sales and two strong competitors, it can be considered a good score, he was expecting a rather lower"

Managers analyze that NPS is more positive and CSAT survey is less positive to QBR ratings. It shows that the manager's views change along the notion, i.e. views of the manager change after getting more feedback and receiving data. It proves little data gives little insights.

Table 2 Descriptive Statistics

IV	[a]Mean	Std. Deviation	N	[b]NPS	
NPS	7.743	1.05	35	-63.3[c]	-23.3[d]
CSAT survey	7.029	1.36	35		
QBR	5.829	0.79	35		

IV denoted independent variable

a based on average score of participants; c and d correspond to item no. 1 and 2 in NPS questionnaire based on eq.1 * Ranges from -100 to 100

Criteria for evaluating measurement scales used in this work is measured by Cronbach's coefficient alpha (Danaher & Haddrell, 1996) . Cronbach's alpha is a measure used to "assess the reliability, or internal consistency, of a set of scale or test items" that why it is very relevant in this study to report this value. In NPS questionnaire, Cronbach's α are all higher than 0.7 (0.845). Therefore, it initially determined that the questionnaire items of the study are relatively consistent. The Cronbach's α (0.829) and standardized Cronbach's α (0.845) based on two items. For CSAT survey, standardized Cronbach's alpha value is found to be 0.897 and for combined NPS and CSAT the standardized value is 0.866 and for QBR is 0.829

Table 3 Correlation results

Hypothesis	Pearson Correlation	Outcome
H1: There is a week statistically insignificant correlation between NPS and QBR	r = .136, p = .137	Accept
H2: There is a strong statistically significant correlation between CSAT survey and QBR	r = .685, p < .001**	Accept
H3: There is a significant correlation between combined approach (NPS, CSAT survey and QBR)	r =-0.58, p < .001**	Accept

There is a not a significant correlation between NPS and CSAT survey r = -0.295, p = .086

Pearson's r correlation measures the degree of linear relationship between two quantitative variables. We found strong (Sullivan & Feinn, 2012) statistical significant correlation r=0.685 between CSAT survey and QBR. However, we found weak and statistical insignificant correlation r=0.136, p value=0.137 between NPS and QBR. It is also evident by seeing 95%CI values for Pearson correlation. As Pearson correlation assumes linearity we also calculated Spearmon correlation to look for any monotic relationship between variables. Non parametric Spearmans correlation verify the Pearson correlation results.

Table 4: Pearsons Correlation with 95% Confidence intervals

IV's[a]	Pearsons correlation	Sig. (2 tailed)	95% Confidence intervals	
			Lower	Upper
NPS-CSAT survey	-0.295	0.086	-.57	.043
NPS-QBR	0.136	0.437	-.207	0.449
CSAT survey-QBR	0.685	<0.001	0.455	0.829

a Independent variables

Table 5: Nonparametric Spearman's correlation with 95% CI

	Pearsons correlation	Sig. (2 tailed)	95% Confidence intervals (CI)	
			Lower	Upper
NPS-CSAT survey	-0.193	0.267	-.50	.160
NPS-QBR	0.218	0.209	-.135	0.521
CSAT survey-QBR	0.703	<0.001	0.475	0.843

Table 6 Tests of Normality

IV	Kolmogoror-Smirnov	Shapiro-Wilk
	Sig.	Sig.
NPS	0.200	0.226
CSAT survey	<0.001	0.019
QBR	<0.001	<0.001

Hypothesis 1: NPS is a weak/strong predictor of customer health.

Table 7 95% CI of NPS and QBR scores mean

	Mean	St.Dev	Std.error	B/w component-var	95% Confidence intervals	
					Lower	
					Upper	
NPS	7.74	1.052	0.1779		7.381	8.104
QBR	5.829	0.794	0.1343		5.556	6.102
Total	6.786	1.3365	0.1597	1.807	6.467	
					7.104	

As Levene statistic is statistically not significant with p>0.05, assumption of homogeneity of variances across variables is valid and we will accept the null hypothesis. Levene statistic for the test of homogeneity of variances, test statistics (based on mean) =0.977 Sig. value=0.327 One-way ANOVA F-value (B/W groups)=73.764 and p<0.001, df1=1 and df2=68, (ANOVA effect size (Point Estimate (Cohen's d)=0.52). The F-statistic <Fcrit. Fcritic is obtained by using alpha=0.05 and degree of freedom of numerator and denominator

It is important to mention here, SPSS output prints the value of point size that is Cohens'd value. For the NPS, QBR case, we found d>0.50 (0.52) considers large, visible effect. Cohen's d (B/w group) is an effect size used to indicate the standardized difference between two means Cohen's d is an appropriate effect size for the comparison between two means and therefore its very relevant to find out in this work. Cohen d value can be used at the initial stage to find the

required sample size for sufficient power of your study (Ferguson, 2016; Sullivan & Feinn, 2012).

Additionally, we did not calculate (Welch) Robust test of Equality of means, because Levene statistic of homogeneity of variance assumption between group is maintained. However, NPS and QBR mean score value=6.786

Independent sample t-test value can be calculated by diving variable score mean difference with Std.error difference.t-value=8.589 and its statistically insignificant. It implies tha the difference between the means of the two groups is not statistically significant, higher values of the t-score indicate that a large difference exists between NPS and QBR. It says any observed difference could have arisen due to sampling error.

Conclusion. It shows that NPS is not a good predictor of customer health.

Analyzing Table 2, the Standard deviations of 3 variables are in b/w 0.79-1.36 in relation to their mean values =5.9-7.74, is not large and considered acceptable. It shows there is not a wide disparity in responses of participants.

Hypothesis2: Customer Satisfaction (CSAT) survey score is relatively more accurate to measure customer health.

Table 8 Descriptives for hypothesis 2

	Mean	St.Dev	Std.error	B/w component-var	95% Confidence intervals	
					Lower	Upper
CSAT survey	7.029	1.360	0.23		6.561	7.496
QBR	5.829	0.7947	0.13		5.556	6.102
Total	6.429	1.3365	0.15	0.6845	6.467	7.104

Levene statistic for the test of homogeneity of variances, test statistics (based on mean) =6.398 Sig. =0.014 ; ANOVA F-value (B/W groups) =20.293 and $p<0.001$, df1=1 and df2=68, (ANOVA effect size (Point Estimate (Cohen's d) =0.23)) Cohen'd value is good. df1 and df2 are degree of freedom for numerator and denominator. As levene test is insignificant we performed Welch test because the assumption of equal variances between the two groups being compared is violated in levene test.

We performed Welch test of Robust equality of means. Welch statics value=20.293, $p<0.001$, df1=1, df2=54.77

Welch test is statistically significant, it shows that there is a statistically significant mean difference between two variables.

Hypothesis 3:

Interpretation and main findings:

By performing the Shapiro-Wilk Test and Kolmogorov test, for each of the independent variables it can be checked whether the independent variable in each group is approximately normally distributed (see Table 9). As can be seen, the data was tested on normality, and it seemed that the Net promoter score is normally distributed ($p > 0.05$). Significance value < 0.05, We find here that the K-S test is not significant; thus, we cannot reject the null hypothesis and may assume that NPS is normally distributed.

Table 9 Tests of Normality

IV	Kolmogoror-Smirnov	Shapiro-Wilk
	Sig.	Sig.
NPS	0.200	0.226
CSAT survey	<0.001	0.019
QBR	<0.001	<0.001

However, CSAT and QBR are not normally distributed ($p<0.05$). We analyzed variables Q-Q plots of residuals to check if Gaussian or normal distribution is followed in the variables. Plots are attached in the Appendix. However, the data points are close to the line, indicating a normal distributed data.

Manager feedback:

Similarly, after CSAT survey, “Is it surprising”? Manager replied, it is normal. He was thinking that regular customers are satisfied but we are facing problem to increase our market share”

It is relevant to mention that we are fully aware that ANOVA is a method that requires several conditions to be met to be reliable, e.g. normality of distribution. Looking at Table 5, it seems these conditions were not met in our case for variable CSAT and QBR. However, it’s also worth mentioning that by checking the literature, we find that there is a mixed opinion about the fact that whether Normality tests are suited to come up to a decision that whether the normal assumption is reasonable, or it is not met to do further statistical analysis.

Next, the data was tested for homogeneity of variance by performing the Levene's Test. The Levene's of homogeneity of variance shows that there is no homogeneity of variances ($p > 0.05$) among variables (groups) and thus the assumption is invalid. The standard deviations are shown SD=1.36 (CSAT), SD=0.79 (QBR) since Levene's test of equality of error variances based on mean proves that the error variances are not equal assumed in the different groups ($F(2, 102) = 3.264$, $p = .042$).

However, in this case the Levene's Test showed that equal variances could not be assumed ($p < .05$). Therefore, an independent sample t-test with a Confidence Interval (CI) of 95% was not carried out. Instead, Welch test results are reported.

As conventional F test of the equality of means in ANOVA is not robust to unequal variances, to deal with this heteroscedasticity or heterogeneity, Welch test is recommended (Jan & Shieh, 2014). Welch test (Robust test of equality of means) statistic assumes that the groups have unequal variances. Welche is found to be significant with $p<0.05$ and conclude that the mean values of the group (NPS, CSAT and QBR) are significantly different.

As Leven's test is significant, whether parametric ANOVA or a non-parametric ANOVA test should be performed is a central question. Also, we did not perform Turkey method for Post hoc analysis as it assumes no violation of homogeneity of variance, which is not the case here. Therefore, Tamhane and Games Howell post hoc analysis are preferred in Hypothesis 3. Finally, multiple comparisons procedure for the simultaneous estimation of all pairwise differences of means in one-way ANOVA design with heterogeneous variances is discussed. We noticed that all methods are statistically significant with $p<0.05$. In addition, mean of NPS is 0.714 higher than the mean of CSAT. It also implies that mean of CSAT is -0.714 lower than the mean of NPS. Secondly, mean of NPS is 1.914 higher than the mean of QBR. Also, mean of CSAT survey score is 1.2 higher than the mean of QBR and all the means are statistically significant, and it's also verified by checking the 95% confidence interval values.

Furthermore, Bootstrap Sampling is done to validate the results of ANOVA. The bootstrap method (parametric) can also be used, if the condition to test ANOVA is not valid (Krishnamoorthy et al., 2007) . The One-way ANOVA with bootstrapping, number of samples (N)=1000 produces the same results as without Bootstrap ANOVA. This finding provides further confidence and evidence that there is really a statistically significant difference between NPS, CSAT survey and QBR score, if we repeat the experiment and do data collection analysis

for 1000 times. However, we do find a small change in the standard error of the mean and the bias bootstrap confidence intervals.

Just for curiosity, we did run a second Approach: Non-Parametric analysis because the Kruskal-Wallis test is a better option as the normality of observation assumption is not met. It compares population medians rather than population means, which we are not really interested in. However, we find statistically significant test statistics that gives to confidence to the values in TABLE 10

Kruskal-Wallis (Non-parametric test)

IV	Rank
NPS	72.90
CSAT survey	58.07
QBR	28.03

Test statistics

DV[a]	
Kruskal-Wallis-H	39.804
Asymp.sig	<0.001

Kruskal-Wallis test statistic is significant
a dependent variable

Independent-Samples Kruskal-Wallis Test

Pairwise comparison of groups.Table -10

	Test-statistics	Std.test statistic	Sig. (2 sided)	Adj.sigma*
QBR-CSAT survey	30.043	4.145	<0.001	0.00
QBR-NPS	44.871	6.192	<0.001	0.00
CSAT survey-NPS	14.829	2.046	0.041	0.122

*Significance values have been adjusted for Bonferroni correction

Finally, after QBR, when all the scores are laid down acquiring feedback from the manager on the total picture. There according to the comments/answers of customers managers receive in QBR, he seemed worried but also happy because based on the performance and word of

mouth, he was expecting the same QBR scores by distributors. Although he seems these QBR score as an opportunity for National foods to improve and work on and make the risk zones identified in QBR to stable zones. There were problems related to company products identified by customers in QBR.

Regarding hypothesis 3, A high mean score (7.74) of NPS may be more an effect of the context and the person responding than their willingness to recommend. We found those scoring low were still satisfied when asked about it in an open-ended way and can be analyzed by CSAT survey mean score (7.0) and comparing it with to QBR interview mean score (5.81) of the respondents (also see Table 1 for descriptive statistics). The NPS is a problematic but can be a useful measure if used in an informed manner. It is important to reconsider how we classify people as promoters or detractors if we find those passive is still positive about a brand and likely to recommend or wise versa it when are asked in feedback and QBR meetings. Some outliers at 2 data points are below and above the vertical line. It is important to note that a high customer health score is more about "likelihood to renew" and may not mean a direct growth in sales, but rather sustainable sales. Typically, better health scores do also drive growth. Quarterly Business review (QBR) can be validated through quarterly sales data of the selling company. From an analysis point of view we watch first the NPS number, and to understand trends further we then as 2nd data point see if CSAT is giving us additional insights and then compare with QBR rating and customer feedbacks to get a full picture.

5 Discussion

In literature the perception and faith of two commonly used customer experience metrics, NPS and CSAT employed by company managers or practitioners and researchers to predict customer health, remain arguable and unclear. (Hochstein et al., 2023) mentioned that companies that use a health score have found that NPS is only a part of the answer, as it is a flawed measure that has a lot of missing data, may not represent many different views of the customer firm, and is not collected often, so it can be out of date. (Müller et al., 2023) demonstrated that NPS is not better than other key performance indicators (KPIs) such as customer satisfaction in explaining outcome variables such as sales growth. NPS is indeed about the intention to recommend and not about recommendations in terms of behavior. (Baehre et al., 2022) results confirm the

methodological concerns raised by academics are still valid, and only the developed brand health (using an all potential customer sample measure of NPS) is effective at predicting future sales growth. (Kristensen & Eskildsen, 2014) also highlighted that the NPS is a bad predictor of both customer loyalty and customer satisfaction.

There is certain research, that is suggesting that NPS is indeed a predictor for sales growth. (F. F. Reichheld, 2003) claimed that the NPS is very easy to understand the only number the company need to grow, and the only number you need to manage customer loyalty. (McGregor, 2006) found that managers are putting the Net promoter score into practice and (Creamer, 2006) also mentioned that among executives from some of the world's most reputable firms have adopted Net Promoter with full faith to gauge their firms' efforts to improve customer loyalty. According to the findings of (Ziegler et al., 2023) from the lens of a business or organization, NPS offers a concrete ground to make business decisions that can benefit a company. Additionally, claiming that NPS was linked to enhanced satisfaction with training, although they found significant violations that are dependent on the region. Moreover, based on their data, developed a service business model that recommends NPS as a tool for ongoing improvement. (Wohllebe et al., 2020) on studying new users of mobile apps installation, confirms that as the willingness to recommend in NPS increases, the willingness to install a retailer's app by consumers also increases. It suggests that when customers are more willing to recommend a retailer, they are also more likely to install the retailer's app.

In a survey of 70 global operators conducted in 2013, it was reported that Net Promoter Score (NPS) ranked last among different metrics used to evaluate customer experience. It is due to one of the primary reasons that NPS lacks specific follow-up actions as it cannot be experienced or shown and it is not real, making it a challenging metric to implement effectively. This indicates that NPS is just one of many factors to consider when assessing customer experience. Moreover, respondents have 85% confidence on customer satisfaction (CSAT) metric as a key performance indicator for customer experience On the contrary, according to another survey related to telecommunications decision-makers survey, NPS was found to be very important to 44% of respondents with an additional 28% of respondents inclined towards the NPS which makes it more important among them. That says, due to simplicity of the NPS it is attractive and widely acknowledged (Massam, 2015) CSAT survey provides a valuable and efficient way for companies to get an indication of what their customers think and feel about their products, areas for improvement, and eventually the overall customer experience. Upon sticking to best practices, businesses can make use of the full potential of CSAT as an effective tool for

understanding, adjusting, modifying, and optimizing the customer experience. CSAT surveys can be easily adjusted, adopted to specific need and purpose and can be designed to acquire customer preferences or priorities (Majka; Viitanen, 2021)

Furthermore, there are companies that use a hybrid methodology i.e. combination of average and CSAT and NPS scores as it helps quantifying the impact of outliers and lower quality experiences that are deviating from standard norm to monitor their customer experience (Giró Manzano, 2021).

In summary, researchers have mixed and contrasted opinions about Net promoter score (NPS) and customer satisfaction (CSAT) to predict customer health. Some researchers believe that NPS is the strongest indicator of customer experience some believe that NPS is invalid and lacks customer experience. Some researchers rooted for CSAT that it is better and prefer CSAT over NPS. This research brings some clarity to the discussion by showing our results that the highest average score (NPS), is a weaker score of customer health suggesting that the NPS is an overestimation of the customer health score as the average for NPS is much higher than that of Quarterly business review (QBR). Because respondents filled out the NPS questionnaire too easily and quickly, and it is not about giving in-depth feedback that one can get in a QBR. It is important to point out here that QBRs review customer input from NPS and CSAT, (customer advisor boards (CABs) not included in this work) and cross-functional actions the firm is making to drive continuous improvements.

6 Conclusion

To extend the existing knowledge of the business concept customer health and show how to identify relevant metrics for measuring customer health. The metrics that were found to best indicate customer health at the company studied were linked to customer experiences gauged by NPS, detailed CSAT survey, and QBR. Moreover, regular feedback after every stage was also found to be very important and insightful. However, business reviews are one of the most overlooked tools in the business world. QBRs offer new strategies to assist clients in reaching their objectives, reveal opportunities and risks the company is prepared to handle, and make sure customers see the company as a crucial component of their growth initiatives. In this research we make use of QBR. A critical element in this research is understanding the customer journey and the factors that influence overall customer satisfaction at each stage. Understanding

the customer journey enables company managers to identify areas that require a lot of improvement and determine regions that are at risk. Furthermore, in NPS we missed quite some depth and important details, and the manager doesn't notice the loopholes and mistakes. Business strategies based on little insights and wrong data lead to wrong decisions made by the managers of the selling company.

Although creating a customer health score is not the goal of this research, the study will focus on examining the validity of various customer experience metrics that could be used to develop such a score.

7 Practical Implications

Customer health is more related to customer satisfaction. The problem and difficulty managers faced was identifying the customers who according to them are satisfied with the product and company. Still, they often divert to other suppliers or product brands. The reality is that it is not necessary for satisfied customers to be loyal customers. In other words, "Does satisfaction lead to more loyal customers"? (Reinartz & Kumar, 2002) but that is beyond the scope and not the specific aim of this research. However, we believe that our results would be useful for practitioners who may want to use this methodology in order to get in-depth, realistic, and more accurate insights by combining all the approaches thereby helping them in making strong marketing plans, post-purchase strategies, effective communication, customer needs and level of customer satisfaction, changing trend in customer views about the product in context of product innovation or functionality, competitive analysis and market research, and resource management.

8 Limitations and suggestions for future research

Although this study leads to several theoretical and practical implications, there are also some limitations regarding this research, which can contribute to future research.

First and foremost, limitation of the research is that it uses data from one industry the food industry. To make the methodological approach developed in this work more broadly applicable, it is important to have customer health data from multiple industries. Also, since the company studied in this research is a medium-sized company, it makes sense to apply this approach to large-sized companies will be valuable. Furthermore, it will be useful to compare this approach in a Consumer-packaged goods company (CPG) where a longer product development cycle is noticed to Fast moving consumer goods (FMCG) company.

Secondly, due to time limitations and other valid constraints, a relatively small sample size became possible that has been used in this study. Small sample sizes are more prone to statistical limitations. It is advisable to encourage as many participants as possible to fill out a questionnaire.

Finally, it is important to test and include additional relevant customer experience metrics in the survey.

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Appendix A: Questionnaire

Customer Health Score Survey

Introduction Dear Sir/Madam,

Thank you for participating in this survey. I am therefore looking for respondents who are the distributors or dealers in a food company.

By agreeing to participate in this study, I confirm my participation in research by the Department of Marketing, Ghent University. As a participant in this study:
(1) I am voluntarily participating in this research
(2) I give permission to the researchers to store, process and report my data.
(3) I am aware that I can stop participating in this study at any time

This research is conducted to accurately predict customer health score. I kindly request that you provide your full name to participate in this survey.

I really appreciate your time and effort for this academic research.

Thank you for your cooperation.
Javeria Farhan
javeria.farhan@ugent.be

What is your full name?

_____

Start of Block: Net Promoter Score (NPS)

Q1 On a one-to-ten scale, how likely is it that you would recommend the company / product to a friend or colleague?

	0	1	2	3	4	6	7	8	9	10
1=Very Unlikely, 10=Very Likely ()										

Q2 On a one-to-ten scale, how likely is it that in the future, you will continue to use the product

	0	1	2	3	4	6	7	8	9	10
1=Very Unlikely, 10=Very Likely ()										

Start of Block: Customer Satisfaction Survey (CSAT)

Q1 How satisfied or dissatisfied are you with the product? Select one of the following 5 options

- ○ Very satisfied (1)
- ○ Somewhat satisfied (2)
- ○ Neither satisfied nor dissatisfied (3)
- ○ Somewhat dissatisfied (4)
- ○ Very dissatisfied (5)

Q2 How useful do you think this product is? Select one of the following 4 options

- ○ Very useful (1)
- ○ Somewhat useful (2)
- ○ High Price / usefulness (3)
- ○ Useless (4)

Q4 How satisfied are you with the features and functionalities of company products?

	1 2 3 4 5 6 7 8 9 10
1=Very satisfied, 10=Very dissatisfied ()	

Q5 How would you rate your overall satisfaction with the products you received? Select one of the following 5 options

- ○ Very satisfied (1)
- ○ Somewhat satisfied (2)
- ○ Neither satisfied nor dissatisfied (3)
- ○ Somewhat dissatisfied (4)
- ○ Very dissatisfied (5)

Q6 Overall, how satisfied are you with your most recent interaction with the company?

- ○ Very satisfied (1)
- ○ Somewhat satisfied (2)
- ○ Neither satisfied nor dissatisfied (3)
- ○ Somewhat dissatisfied (4)
- ○ Very dissatisfied (5)

Q7 Based on your most recent interaction with the company, how likely are you to purchase products again?

- ○ Extremely satisfied (1)
- ○ Somewhat satisfied (2)
- ○ Neither satisfied nor dissatisfied (3)
- ○ Somewhat dissatisfied (4)
- ○ Extremely dissatisfied (5)

Q8 Based on your most recent interaction with the company, would you recommend products to a friend or family member?

- ○ Extremely likely (1)
- ○ Very likely (2)
- ○ Moderately likely (3)
- ○ Slightly likely (4)
- ○ Not at all likely (5)

Start of Block: Quarterly Business Review (QBR)

Q1 What surprised you about the QBR?

_____

Q2 What went well during the QBR? How really are you satisfied?

_____

Q3 How you look at our products in general, usefulness of products and interaction with the company? What do you think about the performance of the company?

_____

Q4 What could be improved?

_____

Q5 How could the improvements be implemented?

_____

Q6 Is there anything else QBR-related you consider relevant?

_____

Appendix B: Outputs

Correlations

Descriptive Statistics

	Mean	Std. Deviation	N
NPS Scores	7,743	1,0522	35
CSAT Scores	7,029	1,3609	35
QBR Scores	5,829	,7947	35

Correlations

		NPS Scores	CSAT Scores	QBR Scores
NPS Scores	Pearson Correlation	1	-,295	,136
	Sig. (2-tailed)		,086	,437
	N	35	35	35
CSAT Scores	Pearson Correlation	-,295	1	,685**
	Sig. (2-tailed)	,086		<,001
	N	35	35	35
QBR Scores	Pearson Correlation	,136	,685**	1
	Sig. (2-tailed)	,437	<,001	
	N	35	35	35

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

Confidence Intervals

	Pearson Correlation	Sig. (2-tailed)	95% Confidence Intervals (2-tailed)[a] Lower	Upper
NPS Scores - CSAT Scores	-,295	,086	-,572	,043
NPS Scores - QBR Scores	,136	,437	-,207	,449
CSAT Scores - QBR Scores	,685	<,001	,455	,829

a. Estimation is based on Fisher's r-to-z transformation.

Correlations (Combination of NPS CSAT and QBR)

Descriptive Statistics

	Mean	Std. Deviation	N
Scores	6,867	1,3430	105
Groups	2,00	,820	105

Correlations

		Scores	Groups
Scores	Pearson Correlation	1	-,585**
	Sig. (2-tailed)		<,001
	N	105	105
Groups	Pearson Correlation	-,585**	1
	Sig. (2-tailed)	<,001	
	N	105	105

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

Confidence Intervals

	Pearson Correlation	Sig. (2-tailed)	95% Confidence Intervals (2-tailed)[a] Lower	Upper
Scores - Groups	-,585	<,001	-,698	-,443

a. Estimation is based on Fisher's r-to-z transformation.

Reliability NPS

Case Processing Summary

		N	%
Cases	Valid	35	68,6
	Excluded[a]	16	31,4
	Total	51	100,0

a. Listwise deletion based on all variables in the procedure.

Case Processing Summary

		N	%
Cases	Valid	35	68,6
	Excluded[a]	16	31,4
	Total	51	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,829	,845	2

Item Statistics

	Mean	Std. Deviation	N
NPS Q1	6,743	1,8205	35
NPS Q2	7,229	1,4160	35

Inter-Item Correlation Matrix

	NPS Q1	NPS Q2
NPS Q1	1,000	,731
NPS Q2	,731	1,000

ANOVA

		Sum of Squares	df	Mean Square	F	Sig
Between People		154,486	34	4,544		
Within People	Between Items	4,129	1	4,129	5,323	,027
	Residual	26,371	34	,776		
	Total	30,500	35	,871		
Total		184,986	69	2,681		

Grand Mean = 6,986

Reliability CSAT
Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	35	100,0
	Excluded[a]	0	,0
	Total	35	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,897	,897	7

Item Statistics

	Mean	Std. Deviation	N
CSATQ1	2,03	,785	35
CSATQ2	1,89	,932	35
CSATQ4	2,57	,884	35
CSATQ5	2,49	1,040	35
CSATQ6	2,23	,973	35
CSATQ7	2,20	1,023	35
CSATQ8	2,20	1,183	35

Inter-Item Correlation Matrix

	CSATQ1	CSATQ2	CSATQ4	CSATQ5	CSATQ6	CSATQ7	CSATQ8
CSATQ1	1,000	,487	,569	,163	,569	,578	,563
CSATQ2	,487	1,000	,546	,454	,711	,611	,741
CSATQ4	,569	,546	1,000	,425	,459	,650	,703
CSATQ5	,163	,454	,425	1,000	,323	,597	,612
CSATQ6	,569	,711	,459	,323	1,000	,544	,598
CSATQ7	,578	,611	,650	,597	,544	1,000	,743
CSATQ8	,563	,741	,703	,612	,598	,743	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
CSATQ1	13,57	23,899	,601	,541	,892
CSATQ2	13,71	21,681	,758	,664	,875
CSATQ4	13,03	22,440	,705	,558	,881
CSATQ5	13,11	22,692	,541	,507	,901
CSATQ6	13,37	22,123	,662	,574	,886
CSATQ7	13,40	20,659	,798	,665	,869
CSATQ8	13,40	18,894	,859	,760	,861

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
15,60	29,129	5,397	7

Reliability NPS and CSAT
Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	35	100,0
	Excluded[a]	0	,0
	Total	35	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,839	,866	9

Item Statistics

	Mean	Std. Deviation	N
NPSQ1	6,74	1,821	35
NPSQ2	7,23	1,416	35
CSATQ1	2,03	,785	35
CSATQ2	1,89	,932	35
CSATQ4	2,57	,884	35
CSATQ5	2,49	1,040	35
CSATQ6	2,23	,973	35
CSATQ7	2,20	1,023	35
CSATQ8	2,20	1,183	35

Inter-Item Correlation Matrix

	NPSQ1	NPSQ2	CSATQ1	CSATQ2	CSATQ4	CSATQ5	CSATQ6	CSATQ7	CSATQ8
NPSQ1	1,000	,731	,211	,485	,222	,379	,383	,534	,243
NPSQ2	,731	1,000	,100	,154	-,107	-,018	,110	,150	-,169
CSATQ1	,211	,100	1,000	,487	,569	,163	,569	,578	,563
CSATQ2	,485	,154	,487	1,000	,546	,454	,711	,611	,741
CSATQ4	,222	-,107	,569	,546	1,000	,425	,459	,650	,703
CSATQ5	,379	-,018	,163	,454	,425	1,000	,323	,597	,612
CSATQ6	,383	,110	,569	,711	,459	,323	1,000	,544	,598
CSATQ7	,534	,150	,578	,611	,650	,597	,544	1,000	,743
CSATQ8	,243	-,169	,563	,741	,703	,612	,598	,743	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
NPSQ1	22,83	31,617	,613	,784	,827
NPSQ2	22,34	41,232	,234	,709	,864
CSATQ1	27,54	41,432	,538	,579	,827
CSATQ2	27,69	37,987	,751	,726	,806
CSATQ4	27,00	40,353	,566	,571	,823
CSATQ5	27,09	39,669	,515	,534	,827
CSATQ6	27,34	38,820	,637	,581	,816
CSATQ7	27,37	36,593	,795	,748	,799
CSATQ8	27,37	36,770	,649	,824	,812

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
29,57	47,487	6,891	9

Reliability of QBR
Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	35	100,0
	Excluded[a]	0	,0
	Total	35	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,845	,844	7

Item Statistics

	Mean	Std. Deviation	N
QBRQ1	4,714	1,1000	35
QBRQ2	4,686	1,0224	35
QBRQ3a	4,429	1,2196	35
QBRQ3b	4,314	,9322	35
QBRQ4	4,629	,9727	35
QBRQ5	4,857	1,0612	35
QBRQ6	4,714	,9873	35

Inter-Item Correlation Matrix

	QBRQ1	QBRQ2	QBRQ3a	QBRQ3b	QBRQ4	QBRQ5	QBRQ6
QBRQ1	1,000	,362	,576	,520	,530	,468	,600
QBRQ2	,362	1,000	,347	,323	,234	,500	,316
QBRQ3a	,576	,347	1,000	,654	,535	,480	,398
QBRQ3b	,520	,323	,654	1,000	,424	,344	,484
QBRQ4	,530	,234	,535	,424	1,000	,232	,407
QBRQ5	,468	,500	,480	,344	,232	1,000	,437
QBRQ6	,600	,316	,398	,484	,407	,437	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
QBRQ1	27,629	19,593	,714	,543	,805
QBRQ2	27,657	22,232	,465	,284	,843
QBRQ3a	27,914	18,904	,695	,588	,808
QBRQ3b	28,029	21,382	,639	,499	,819
QBRQ4	27,714	21,916	,538	,384	,832
QBRQ5	27,486	21,139	,563	,424	,829
QBRQ6	27,629	21,299	,602	,441	,823

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
32,343	27,761	5,2689	7

Oneway (NPS =1, CSAT= 2, QBR=3) Groups and Scores (without bootstrap)

Descriptives

Scores

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
						Lower Bound	Upper Bound			
NPS		35	7,743	1,0522	,1779	7,381	8,104	4,6	9,8	
CSAT		35	7,029	1,3609	,2300	6,561	7,496	4,0	9,5	
QBR		35	5,829	,7947	,1343	5,556	6,102	4,5	7,5	
Total		105	6,867	1,3430	,1311	6,607	7,127	4,0	9,8	
Model	Fixed Effects			1,0941	,1068	6,655	7,078			
	Random Effects				,5585	4,464	9,270			,9016

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Scores	Based on Mean	3,264	2	102	,042
	Based on Median	2,103	2	102	,127
	Based on Median and with adjusted df	2,103	2	78,919	,129
	Based on trimmed mean	3,040	2	102	,052

ANOVA

Scores

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	65,505	2	32,752	27,363	<,001
Within Groups	122,089	102	1,197		
Total	187,593	104			

ANOVA Effect Sizes[a]

		Point Estimate	95% Confidence Interval	
			Lower	Upper
Scores	Eta-squared	,349	,198	,464
	Epsilon-squared	,336	,182	,453
	Omega-squared Fixed-effect	,334	,181	,451
	Omega-squared Random-effect	,201	,099	,291

a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.

Robust Tests of Equality of Means

Scores

	Statistic[a]	df1	df2	Sig.
Welch	38,465	2	65,012	<,001
Brown-Forsythe	27,363	2	86,725	<,001

a. Asymptotically F distributed.

X

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Scores

	(I) Groups	(J) Groups	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Tukey HSD	NPS	CSAT	,7143*	,2615	,020	,092	1,336
		QBR	1,9143*	,2615	<,001	1,292	2,536
	CSAT	NPS	-,7143*	,2615	,020	-1,336	-,092
		QBR	1,2000*	,2615	<,001	,578	1,822
	QBR	NPS	-1,9143*	,2615	<,001	-2,536	-1,292
		CSAT	-1,2000*	,2615	<,001	-1,822	-,578
Scheffe	NPS	CSAT	,7143*	,2615	,027	,065	1,364
		QBR	1,9143*	,2615	<,001	1,265	2,564
	CSAT	NPS	-,7143*	,2615	,027	-1,364	-,065
		QBR	1,2000*	,2615	<,001	,550	1,850
	QBR	NPS	-1,9143*	,2615	<,001	-2,564	-1,265
		CSAT	-1,2000*	,2615	<,001	-1,850	-,550
LSD	NPS	CSAT	,7143*	,2615	,007	,196	1,233
		QBR	1,9143*	,2615	<,001	1,396	2,433
	CSAT	NPS	-,7143*	,2615	,007	-1,233	-,196
		QBR	1,2000*	,2615	<,001	,681	1,719
	QBR	NPS	-1,9143*	,2615	<,001	-2,433	-1,396
		CSAT	-1,2000*	,2615	<,001	-1,719	-,681
Bonferroni	NPS	CSAT	,7143*	,2615	,022	,078	1,351
		QBR	1,9143*	,2615	<,001	1,278	2,551
	CSAT	NPS	-,7143*	,2615	,022	-1,351	-,078
		QBR	1,2000*	,2615	<,001	,563	1,837
	QBR	NPS	-1,9143*	,2615	<,001	-2,551	-1,278
		CSAT	-1,2000*	,2615	<,001	-1,837	-,563
Sidak	NPS	CSAT	,7143*	,2615	,022	,079	1,349
		QBR	1,9143*	,2615	<,001	1,279	2,549
	CSAT	NPS	-,7143*	,2615	,022	-1,349	-,079
		QBR	1,2000*	,2615	<,001	,565	1,835
	QBR	NPS	-1,9143*	,2615	<,001	-2,549	-1,279
		CSAT	-1,2000*	,2615	<,001	-1,835	-,565
Tamhane	NPS	CSAT	,7143*	,2908	,049	,001	1,427
		QBR	1,9143*	,2229	<,001	1,368	2,461
	CSAT	NPS	-,7143*	,2908	,049	-1,427	-,001
		QBR	1,2000*	,2664	<,001	,544	1,856
	QBR	NPS	-1,9143*	,2229	<,001	-2,461	-1,368
		CSAT	-1,2000*	,2664	<,001	-1,856	-,544
Games-Howell	NPS	CSAT	,7143*	,2908	,044	,017	1,412
		QBR	1,9143*	,2229	<,001	1,379	2,449
	CSAT	NPS	-,7143*	,2908	,044	-1,412	-,017
		QBR	1,2000*	,2664	<,001	,558	1,842
	QBR	NPS	-1,9143*	,2229	<,001	-2,449	-1,379
		CSAT	-1,2000*	,2664	<,001	-1,842	-,558

*. The mean difference is significant at the 0.05 level.

Homogeneous Subsets

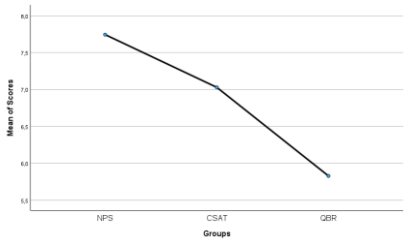
Scores

	Groups	N	Subset for alpha = 0.05 1	2	3
Tukey HSD[a]	QBR	35	5,829		
	CSAT	35		7,029	
	NPS	35			7,743
	Sig.		1,000	1,000	1,000
Scheffe[a]	QBR	35	5,829		
	CSAT	35		7,029	
	NPS	35			7,743
	Sig.		1,000	1,000	1,000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 35,000.

Means Plots



Frequencies

Statistics

		Groups	Scores
N	Valid	105	105
	Missing	0	0
Mean		2,00	6,867
Std. Deviation		,820	1,3430
Variance		,673	1,804
Skewness		,000	-,037
Std. Error of Skewness		,236	,236
Kurtosis		-1,515	-,618
Std. Error of Kurtosis		,467	,467

Frequency Table

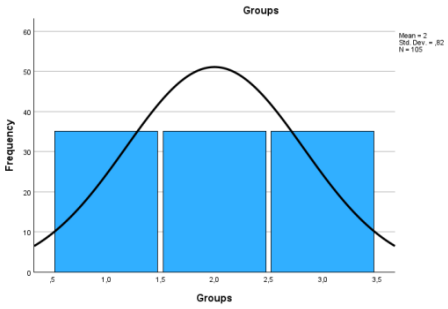
Groups

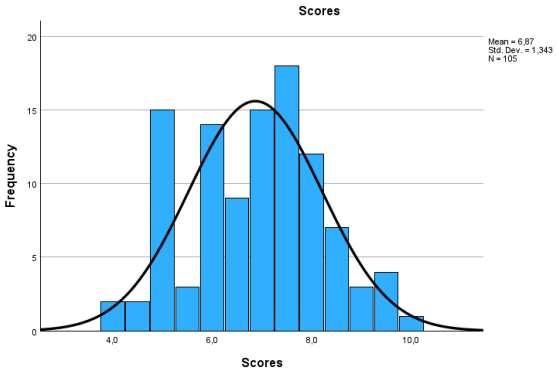
	N	%
NPS	35	33,3%
CSAT	35	33,3%
QBR	35	33,3%

Scores

	N	%
4,0	2	1,9%
4,5	1	1,0%
4,6	1	1,0%
5,0	15	14,3%
5,5	3	2,9%
6,0	14	13,3%
6,4	2	1,9%
6,5	6	5,7%
6,6	1	1,0%
6,8	2	1,9%
7,0	10	9,5%
7,2	3	2,9%
7,4	2	1,9%
7,5	14	13,3%
7,6	2	1,9%
7,8	5	4,8%
8,0	3	2,9%
8,2	4	3,8%
8,4	2	1,9%
8,5	5	4,8%
8,8	1	1,0%
9,0	1	1,0%
9,2	1	1,0%
9,4	2	1,9%
9,5	1	1,0%
9,6	1	1,0%
9,8	1	1,0%

Histogram





Oneway with bootstrap = 1000 Bootstrap

Bootstrap Specifications

Sampling Method	Simple
Number of Samples	1000
Confidence Interval Level	95,0%
Confidence Interval Type	Percentile

Oneway

Descriptives

Scores

				Statistic	Bootstrap[a] Bias	Std. Error	95% Confidence Interval Lower	Upper
NPS		N		35	0	5	25	44
		Mean		7,743	-,010	,179	7,339	8,100
		Std. Deviation		1,0522	-,0232	,1531	,7612	1,3412
		Std. Error		,1779				
		95% Confidence Interval for Mean	Lower Bound	7,381				
			Upper Bound	8,104				
		Minimum		4,6				
		Maximum		9,8				
CSAT		N		35	0	5	26	44
		Mean		7,029	,003	,232	6,574	7,477
		Std. Deviation		1,3609	-,0328	,1575	1,0080	1,6200
		Std. Error		,2300				
		95% Confidence Interval for Mean	Lower Bound	6,561				
			Upper Bound	7,496				
		Minimum		4,0				
		Maximum		9,5				
QBR		N		35	0	5	26	45
		Mean		5,829	,005	,133	5,581	6,087
		Std. Deviation		,7947	-,0109	,0758	,6278	,9320
		Std. Error		,1343				
		95% Confidence Interval for Mean	Lower Bound	5,556				
			Upper Bound	6,102				
		Minimum		4,5				
		Maximum		7,5				
Total		N		105	0	0	105	105
		Mean		6,867	-,006	,137	6,583	7,141
		Std. Deviation		1,3430	-,0120	,0755	1,1834	1,4744
		Std. Error		,1311				
		95% Confidence Interval for Mean	Lower Bound	6,607				
			Upper Bound	7,127				
		Minimum		4,0				
		Maximum		9,8				
Model	Fixed Effects	Std. Deviation		1,0941	-,0190	,0839	,9064	1,2389
		Std. Error		,1068				
		95% Confidence Interval for Mean	Lower Bound	6,655				
			Upper Bound	7,078				
	Random Effects	Std. Error		,5585				
		95% Confidence Interval for Mean	Lower Bound	4,464				
			Upper Bound	9,270				
		Between- Component Variance		,9016				

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Scores	Based on Mean	3,264	2	102	,042
	Based on Median	2,103	2	102	,127
	Based on Median and with adjusted df	2,103	2	78,919	,129
	Based on trimmed mean	3,040	2	102	,052

ANOVA

Scores

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	65,505	2	32,752	27,363	<,001
Within Groups	122,089	102	1,197		
Total	187,593	104			

ANOVA Effect Sizes[a]

		Point Estimate	95% Confidence Interval Lower	Upper
Scores	Eta-squared	,349	,198	,464
	Epsilon-squared	,336	,182	,453
	Omega-squared Fixed-effect	,334	,181	,451
	Omega-squared Random-effect	,201	,099	,291

a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.

Robust Tests of Equality of Means

Scores

	Statistic[a]	df1	df2	Sig.
Welch	38,465	2	65,012	<,001
Brown-Forsythe	27,363	2	86,725	<,001

a. Asymptotically F distributed.

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Scores

	(I) Groups	(J) Groups	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Tukey HSD	NPS	CSAT	,7143*	,2615	,020	,092	1,336
		QBR	1,9143*	,2615	<,001	1,292	2,536
	CSAT	NPS	-,7143*	,2615	,020	-1,336	-,092
		QBR	1,2000*	,2615	<,001	,578	1,822
	QBR	NPS	-1,9143*	,2615	<,001	-2,536	-1,292
		CSAT	-1,2000*	,2615	<,001	-1,822	-,578
Scheffe	NPS	CSAT	,7143*	,2615	,027	,065	1,364
		QBR	1,9143*	,2615	<,001	1,265	2,564
	CSAT	NPS	-,7143*	,2615	,027	-1,364	-,065
		QBR	1,2000*	,2615	<,001	,550	1,850
	QBR	NPS	-1,9143*	,2615	<,001	-2,564	-1,265
		CSAT	-1,2000*	,2615	<,001	-1,850	-,550
LSD	NPS	CSAT	,7143*	,2615	,007	,196	1,233
		QBR	1,9143*	,2615	<,001	1,396	2,433
	CSAT	NPS	-,7143*	,2615	,007	-1,233	-,196
		QBR	1,2000*	,2615	<,001	,681	1,719
	QBR	NPS	-1,9143*	,2615	<,001	-2,433	-1,396
		CSAT	-1,2000*	,2615	<,001	-1,719	-,681
Bonferroni	NPS	CSAT	,7143*	,2615	,022	,078	1,351
		QBR	1,9143*	,2615	<,001	1,278	2,551
	CSAT	NPS	-,7143*	,2615	,022	-1,351	-,078
		QBR	1,2000*	,2615	<,001	,563	1,837
	QBR	NPS	-1,9143*	,2615	<,001	-2,551	-1,278
		CSAT	-1,2000*	,2615	<,001	-1,837	-,563
Sidak	NPS	CSAT	,7143*	,2615	,022	,079	1,349
		QBR	1,9143*	,2615	<,001	1,279	2,549
	CSAT	NPS	-,7143*	,2615	,022	-1,349	-,079
		QBR	1,2000*	,2615	<,001	,565	1,835
	QBR	NPS	-1,9143*	,2615	<,001	-2,549	-1,279
		CSAT	-1,2000*	,2615	<,001	-1,835	-,565
Tamhane	NPS	CSAT	,7143*	,2908	,049	,001	1,427
		QBR	1,9143*	,2229	<,001	1,368	2,461
	CSAT	NPS	-,7143*	,2908	,049	-1,427	-,001
		QBR	1,2000*	,2664	<,001	,544	1,856
	QBR	NPS	-1,9143*	,2229	<,001	-2,461	-1,368
		CSAT	-1,2000*	,2664	<,001	-1,856	-,544
Games-Howell	NPS	CSAT	,7143*	,2908	,044	,017	1,412
		QBR	1,9143*	,2229	<,001	1,379	2,449
	CSAT	NPS	-,7143*	,2908	,044	-1,412	-,017
		QBR	1,2000*	,2664	<,001	,558	1,842
	QBR	NPS	-1,9143*	,2229	<,001	-2,449	-1,379
		CSAT	-1,2000*	,2664	<,001	-1,842	-,558

*. The mean difference is significant at the 0.05 level.

Bootstrap for Multiple Comparisons

Dependent Variable: Scores

				Bootstrap[a]			
						95% Confidence Interval	
	(I) Groups	(J) Groups	Mean Difference (I-J)	Bias	Std. Error	Lower	Upper
Tukey HSD	NPS	CSAT	,7143	-,0135	,2913	,1094	1,2554
		QBR	1,9143	-,0149	,2152	1,4688	2,3237
	CSAT	NPS	-,7143	,0135	,2913	-1,2554	-,1094
		QBR	1,2000	-,0013	,2613	,7050	1,7299
	QBR	NPS	-1,9143	,0149	,2152	-2,3237	-1,4688
		CSAT	-1,2000	,0013	,2613	-1,7299	-,7050
Scheffe	NPS	CSAT	,7143	-,0135	,2913	,1094	1,2554
		QBR	1,9143	-,0149	,2152	1,4688	2,3237
	CSAT	NPS	-,7143	,0135	,2913	-1,2554	-,1094
		QBR	1,2000	-,0013	,2613	,7050	1,7299
	QBR	NPS	-1,9143	,0149	,2152	-2,3237	-1,4688
		CSAT	-1,2000	,0013	,2613	-1,7299	-,7050
LSD	NPS	CSAT	,7143	-,0135	,2913	,1094	1,2554
		QBR	1,9143	-,0149	,2152	1,4688	2,3237
	CSAT	NPS	-,7143	,0135	,2913	-1,2554	-,1094
		QBR	1,2000	-,0013	,2613	,7050	1,7299
	QBR	NPS	-1,9143	,0149	,2152	-2,3237	-1,4688
		CSAT	-1,2000	,0013	,2613	-1,7299	-,7050
Bonferroni	NPS	CSAT	,7143	-,0135	,2913	,1094	1,2554
		QBR	1,9143	-,0149	,2152	1,4688	2,3237
	CSAT	NPS	-,7143	,0135	,2913	-1,2554	-,1094
		QBR	1,2000	-,0013	,2613	,7050	1,7299
	QBR	NPS	-1,9143	,0149	,2152	-2,3237	-1,4688
		CSAT	-1,2000	,0013	,2613	-1,7299	-,7050
Sidak	NPS	CSAT	,7143	-,0135	,2913	,1094	1,2554
		QBR	1,9143	-,0149	,2152	1,4688	2,3237
	CSAT	NPS	-,7143	,0135	,2913	-1,2554	-,1094
		QBR	1,2000	-,0013	,2613	,7050	1,7299
	QBR	NPS	-1,9143	,0149	,2152	-2,3237	-1,4688
		CSAT	-1,2000	,0013	,2613	-1,7299	-,7050
Tamhane	NPS	CSAT	,7143	-,0135	,2913	,1094	1,2554
		QBR	1,9143	-,0149	,2152	1,4688	2,3237
	CSAT	NPS	-,7143	,0135	,2913	-1,2554	-,1094
		QBR	1,2000	-,0013	,2613	,7050	1,7299
	QBR	NPS	-1,9143	,0149	,2152	-2,3237	-1,4688
		CSAT	-1,2000	,0013	,2613	-1,7299	-,7050
Games-Howell	NPS	CSAT	,7143	-,0135	,2913	,1094	1,2554
		QBR	1,9143	-,0149	,2152	1,4688	2,3237
	CSAT	NPS	-,7143	,0135	,2913	-1,2554	-,1094
		QBR	1,2000	-,0013	,2613	,7050	1,7299
	QBR	NPS	-1,9143	,0149	,2152	-2,3237	-1,4688
		CSAT	-1,2000	,0013	,2613	-1,7299	-,7050

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Homogeneous Subsets

Scores

			Subset for alpha = 0.05		
	Groups	N	1	2	3
Tukey HSD[a]	QBR	35	5,829		
	CSAT	35		7,029	
	NPS	35			7,743
	Sig.		1,000	1,000	1,000
Scheffe[a]	QBR	35	5,829		
	CSAT	35		7,029	
	NPS	35			7,743
	Sig.		1,000	1,000	1,000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 35,000.

Frequency with bootstrap = 1000 Bootstrap

Bootstrap Specifications

Sampling Method	Simple
Number of Samples	1000
Confidence Interval Level	95,0%
Confidence Interval Type	Percentile

Frequencies

Statistics

				Bootstrap[a]			
						95% Confidence Interval	
			Statistic	Bias	Std. Error	Lower	Upper
N	Valid	Groups	105	0	0	105	105
		Scores	105	0	0	105	105
	Missing	Groups	0	0	0	0	0
		Scores	0	0	0	0	0
Mean		Groups	2,00	,00	,08	1,84	2,15
		Scores	6,867	,007	,126	6,624	7,126
Std. Deviation		Groups	,820	-,004	,029	,753	,875
		Scores	1,3430	-,0054	,0759	1,1838	1,4883
Variance		Groups	,673	-,005	,048	,566	,766
		Scores	1,804	-,009	,203	1,401	2,215
Skewness		Groups	,000	,006	,152	-,286	,314
		Scores	-,037	-,008	,149	-,338	,228
Std. Error of Skewness		Groups	,236				
		Scores	,236				
Kurtosis		Groups	-1,515	,036	,119	-1,694	-1,203
		Scores	-,618	,001	,206	-,971	-,150
Std. Error of Kurtosis		Groups	,467				
		Scores	,467				

a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

Frequency Table

Groups

			Bootstrap for Percent[a]			
					95% Confidence Interval	
	N	%	Bias	Std. Error	Lower	Upper
NPS	35	33,3%	,2	4,7	24,8	42,9
CSAT	35	33,3%	-,2	4,7	23,8	42,9
QBR	35	33,3%	-,1	4,7	23,8	42,9

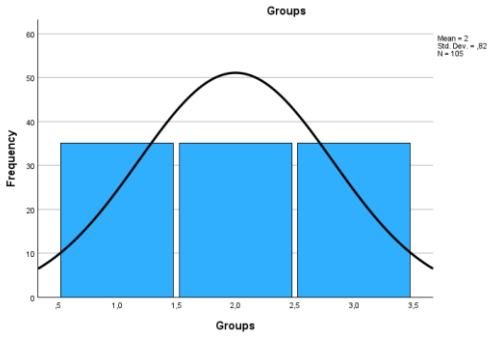
a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

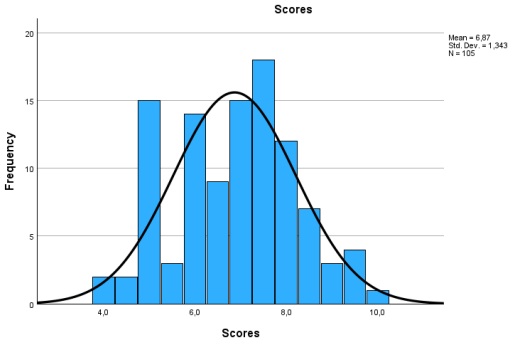
Scores

			Bootstrap for Percent[a]			
					95% Confidence Interval	
	N	%	Bias	Std. Error	Lower	Upper
4,0	2	1,9%	,0	1,3	,0	4,8
4,5	1	1,0%	,0	,9	,0	2,9
4,6	1	1,0%	,0	1,0	,0	2,9
5,0	15	14,3%	-,1	3,4	7,6	21,0
5,5	3	2,9%	,0	1,6	,0	6,7
6,0	14	13,3%	-,1	3,4	6,7	20,0
6,4	2	1,9%	,0	1,3	,0	4,8
6,5	6	5,7%	,0	2,2	1,9	10,5
6,6	1	1,0%	,0	,9	,0	2,9
6,8	2	1,9%	-,1	1,3	,0	4,8
7,0	10	9,5%	,0	2,8	3,8	15,2
7,2	3	2,9%	,0	1,6	,0	6,7
7,4	2	1,9%	,1	1,3	,0	4,8
7,5	14	13,3%	-,2	3,2	7,6	20,0
7,6	2	1,9%	,0	1,3	,0	4,8
7,8	5	4,8%	,1	2,1	1,0	9,5
8,0	3	2,9%	-,1	1,6	,0	6,7
8,2	4	3,8%	,0	1,8	1,0	7,6
8,4	2	1,9%	,0	1,4	,0	4,8
8,5	5	4,8%	,0	2,1	1,0	8,6
8,8	1	1,0%	,0	,9	,0	2,9
9,0	1	1,0%	,0	,9	,0	2,9
9,2	1	1,0%	,1	1,0	,0	2,9
9,4	2	1,9%	,1	1,3	,0	4,8
9,5	1	1,0%	,0	1,0	,0	2,9
9,6	1	1,0%	,0	1,0	,0	2,9
9,8	1	1,0%	,0	,9	,0	2,9

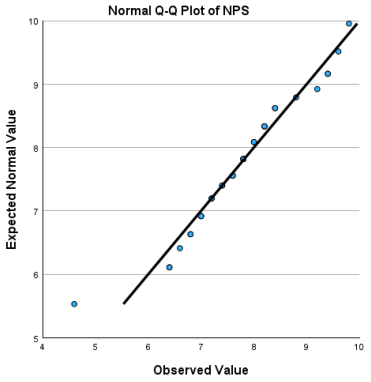
a. Unless otherwise noted, bootstrap results are based on 1000 bootstrap samples

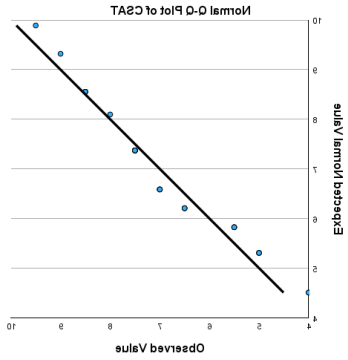
Histogram

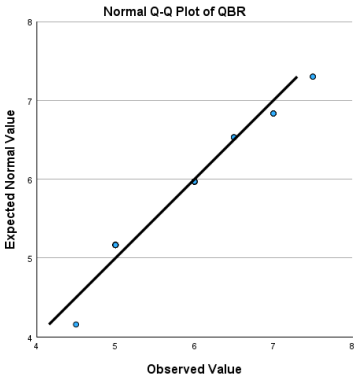




Normality Plots







Oneway CSAT and QBR

Descriptives

CSAT and QBR Scores

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
						Lower Bound	Upper Bound			
CSAT		35	7,029	1,3609	,2300	6,561	7,496	4,0	9,5	
QBR		35	5,829	,7947	,1343	5,556	6,102	4,5	7,5	
Total		70	6,429	1,2606	,1507	6,128	6,729	4,0	9,5	
Model	Fixed Effects			1,1144	,1332	6,163	6,694			
	Random Effects				,6000	-1,195	14,052			,6845

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
CSAT and QBR Scores	Based on Mean	6,398	1	68	,014
	Based on Median	3,796	1	68	,056
	Based on Median and with adjusted df	3,796	1	51,082	,057
	Based on trimmed mean	5,929	1	68	,018

ANOVA

CSAT and QBR Scores

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	25,200	1	25,200	20,293	<,001
Within Groups	84,443	68	1,242		
Total	109,643	69			

ANOVA Effect Sizes[a]

		Point Estimate	95% Confidence Interval Lower	Upper
CSAT and QBR Scores	Eta-squared	,230	,075	,383
	Epsilon-squared	,219	,062	,374
	Omega-squared Fixed-effect	,216	,061	,370
	Omega-squared Random-effect	,216	,061	,370

a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.

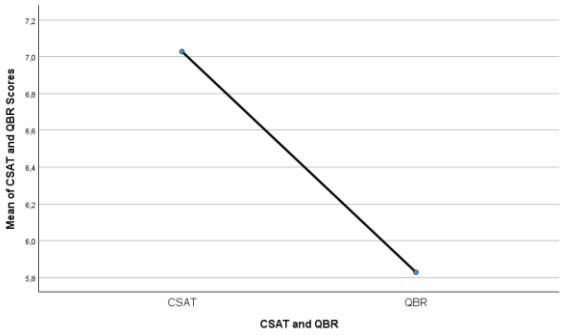
Robust Tests of Equality of Means

CSAT and QBR Scores

	Statistic[a]	df1	df2	Sig.
Welch	20,293	1	54,771	<,001

a. Asymptotically F distributed.

Means Plots



Oneway NPS and CSAT

Descriptives

NPS and CSAT Scores

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	Upper Bound	Minimum	Maximum	Between-Component Variance
NPS		35	7,743	1,0522	,1779	7,381	8,104	4,6	9,8	
CSAT		35	7,029	1,3609	,2300	6,561	7,496	4,0	9,5	
Total		70	7,386	1,2600	,1506	7,085	7,686	4,0	9,8	
Model	Fixed Effects			1,2164	,1454	7,096	7,676			
	Random Effects				,3571	2,848	11,924			,2128

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
NPS and CSAT Scores	Based on Mean	2,164	1	68	,146
	Based on Median	,970	1	68	,328
	Based on Median and with adjusted df	,970	1	59,536	,329
	Based on trimmed mean	2,064	1	68	,155

ANOVA

NPS and CSAT Scores

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8,929	1	8,929	6,034	,017
Within Groups	100,617	68	1,480		
Total	109,546	69			

ANOVA Effect Sizes[a,b]

		Point Estimate	95% Confidence Interval Lower	Upper
NPS and CSAT Scores	Eta-squared	,082	,002	,221
	Epsilon-squared	,068	-,012	,209
	Omega-squared Fixed-effect	,067	-,012	,207
	Omega-squared Random-effect	,067	-,012	,207

a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.

b. Negative but less biased estimates are retained, not rounded to zero.

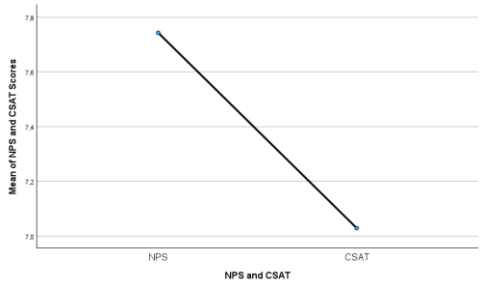
Robust Tests of Equality of Means

NPS and CSAT Scores

	Statistic[a]	df1	df2	Sig.
Welch	6,034	1	63,949	,017

a. Asymptotically F distributed.

Means Plots



T-Test (NPS, CSAT)

Group Statistics

	Groups	N	Mean	Std. Deviation	Std. Error Mean
Scores	NPS	35	7,743	1,0522	,1779
	CSAT	35	7,029	1,3609	,2300

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Scores	Equal variances assumed	2,164	,146	2,456	68	,008	,017	,7143	,2908	,1340	1,2945
	Equal variances not assumed			2,456	63,949	,008	,017	,7143	,2908	,1334	1,2952

Independent Samples Effect Sizes

		Standardizer[a]	Point Estimate	95% Confidence Interval Lower	Upper
Scores	Cohen's d	1,2164	,587	,106	1,064
	Hedges' correction	1,2300	,581	,105	1,052
	Glass's delta	1,3609	,525	,037	1,006

a. The denominator used in estimating the effect sizes.
Cohen's d uses the pooled standard deviation.
Hedges' correction uses the pooled standard deviation, plus a correction factor.
Glass's delta uses the sample standard deviation of the control (i.e., the second) group.

T-Test (CSAT, QBR)

Group Statistics

	Groups	N	Mean	Std. Deviation	Std. Error Mean
Scores	CSAT	35	7,029	1,3609	,2300
	QBR	35	5,829	,7947	,1343

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Scores	Equal variances assumed	6,398	,014	4,505	68	<,001	<,001	1,2000	,2664	,6684	1,7316
	Equal variances not assumed			4,505	54,771	<,001	<,001	1,2000	,2664	,6661	1,7339

Independent Samples Effect Sizes

				95% Confidence Interval	
		Standardizer[a]	Point Estimate	Lower	Upper
Scores	Cohen's d	1,1144	1,077	,571	1,576
	Hedges' correction	1,1268	1,065	,565	1,558
	Glass's delta	,7947	1,510	,914	2,092

a. The denominator used in estimating the effect sizes.
Cohen's d uses the pooled standard deviation.
Hedges' correction uses the pooled standard deviation, plus a correction factor.
Glass's delta uses the sample standard deviation of the control (i.e., the second) group.

T-Test (NPS, QBR)

Group Statistics

	Groups	N	Mean	Std. Deviation	Std. Error Mean
Scores	NPS	35	7,743	1,0522	,1779
	QBR	35	5,829	,7947	,1343

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Scores	Equal variances assumed	,977	,327	8,589	68	<,001	<,001	1,9143	,2229	1,4695	2,3590
	Equal variances not assumed			8,589	63,264	<,001	<,001	1,9143	,2229	1,4689	2,3597

Independent Samples Effect Sizes

				95% Confidence Interval	
		Standardizer[a]	Point Estimate	Lower	Upper
Scores	Cohen's d	,9324	2,053	1,467	2,630
	Hedges' correction	,9428	2,030	1,450	2,600
	Glass's delta	,7947	2,409	1,663	3,139

a. The denominator used in estimating the effect sizes.
Cohen's d uses the pooled standard deviation.
Hedges' correction uses the pooled standard deviation, plus a correction factor.
Glass's delta uses the sample standard deviation of the control (i.e., the second) group.