

The Trajectory of Social Norms in Stock Management

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ABSTRACT

This study investigates the influence of social norms on stock management practices within sachet water production companies in the Western Region, integrating the Theory of Planned Behavior (TPB) to analyze how subjective norms, specifically community expectations and cultural practices, shape behavioral intentions and operational decisions. Using a quantitative survey design, and structural equation modeling (SEM) to analyze data from 520 respondents, the study revealed that community influence and cultural practices significantly enhance firms' responsiveness to demand fluctuations driven by social events, which in turn leads to increased stock management challenges such as overstocking or stockouts. However, these challenges prompt the adoption of mitigation strategies, which are found to have a strong positive effect on business outcomes, including sales volume and profitability. The measurement model demonstrated excellent reliability and validity, with Cronbach's Alpha values ranging from 0.82 to 0.88 and AVE values above the threshold of 0.50. The structural model exhibited a good fit ($\chi^2/df = 2.14$, CFI = 0.95, RMSEA = 0.05, SRMR = 0.04), supporting the robustness of the findings. Path analysis results showed large effect sizes for key relationships, particularly Mitigation Strategies $\rightarrow$ Business Outcome ($f^2 = 0.59$), indicating that adaptive behaviors effectively translate norm-driven challenges into performance improvements. These findings underscore the critical role of social norms in shaping inventory decisions and highlight the importance of incorporating behavioral insights into supply chain training, planning tools, and incentive systems, particularly in culturally embedded and resource-constrained environments.

Keywords: social norms, stock management, Structural Equation Modeling, inventory decision-making, mitigation strategies, behavioral operations.

1. INTRODUCTION

Effective stock management is a cornerstone of operational efficiency and competitive advantage across industries. It involves the complex balancing act of minimizing holding costs while ensuring sufficient availability to meet demand and avoid costly stockouts (Danka *et al.*, 2023; Baily, 1969). Traditionally, models for inventory control, such as the Economic Order Quantity (EOQ) and its derivatives, have relied heavily on deterministic or probabilistic assumptions about demand, lead times, and costs, optimizing based on quantifiable economic factors (Wu *et al.*, 2023; Pentico and Drake, 2011). However, real-world inventory decisions are frequently made within organizational contexts characterized by uncertainty, information asymmetry, and crucially, the influence of human judgment and social dynamics (Manousiadou, 2024). This highlights a significant gap between theoretical optimization and practical implementation. Increasingly, research recognizes that human decision-making in operations, including stock management, are not purely rational or isolated but profoundly shaped by social and psychological factors (Pothos *et al.*, 2021; Sandholm, 1999). Among these, social norms, the shared, often implicit, rules and standards of behavior perceived as acceptable within a group or organization, exert a powerful influence on stock management (Melnik *et al.*, 2022; Boytsun *et al.*, 2011; Hsu and Lin, 2008). These norms manifest as descriptive norms, which reflect perceptions of typical behavior within a group,

and injunctive norms, representing perceptions of what others approve or disapprove of (Guckian *et al.*, 2018). For instance, a descriptive norm might involve managers mimicking the stocking levels of peers, whereas an injunctive norm implies that running out of stock is seen as unacceptable behavior. They create powerful pressures for conformity, influencing perceptions of risk, acceptable practices, and ultimately, the choices individuals make regarding ordering, stocking levels, and reporting. Social norms impact stock management decisions through several interconnected mechanisms. They shape the interpretation of information (Fahimnia *et al.*, 2023) and influence risk perception and aversion (Riddel and Hales, 2018). Norms also drive herding behavior, where managers mimic the perceived stocking practices of peers or superiors, regardless of local contextual differences (Zeller, 2021). Furthermore, norms regarding "acceptable" performance metrics or reporting lead to systematic biases in inventory record accuracy or the manipulation of orders to meet perceived expectations (Bicchieri, 2016), creating a ripple effect through the supply chain akin to the bullwhip effect (Dolgui *et al.*, 2020).

While there is substantial research on social norms in areas like environmental behavior, health, and marketing, their influence on stock management practices, especially at the organizational or supply chain level, is underexplored. While the influence of individual cognitive biases (like anchoring or overconfidence) on operations decisions is gaining attention (Noch and Rumasukun, 2024; Gabhane *et al.*, 2023; Constantino *et al.*, 2021), the specific and potentially more pervasive role of social norms in shaping stock management practices remains relatively underexplored empirically within the operations management and supply chain literature. Understanding how different types of norms (descriptive vs. injunctive, local vs. organizational) emerge, propagate, and interact with formal systems to influence ordering behaviors, safety stock levels, and overall inventory performance is crucial. Moreover, traditional inventory models (e.g., EOQ, Newsvendor) assume rational decision-making based on cost and demand (Yamini and Gajanand, 2022; Yamini, 2021; Perera *et al.*, 2020). However, few studies link behavioral biases and social norms to inventory management. Lastly, differences in global inventory practices are often attributed to economic or legal systems (Zhang *et al.*, 2022; Blum *et al.*, 2019) with little attention to cultural or social norms such as risk aversion, trust, or collectivism. This study directly addresses this gap. By investigating the multifaceted effects of social norms on stock management decisions, we aim to contribute a deeper understanding of the "black box" of human behavior in inventory control, moving beyond purely economic models to provide insights for designing more robust management systems, training programs, and incentive structures that account for the powerful force of social influence (Manousiadou, 2024).

The paper is organized as follows: the introduction is in the first section, and the second section involves analysis of the literature on the key concepts of the study. The third section focuses on methodology. Finally, an analysis of the findings is presented, along with the study's implications and a research agenda to guide future research.

2. THEORETICAL DEVELOPMENT AND HYPOTHESIS

2.1 *The Theory of Planned Behavior (TPB)*

Ajzen (1991) developed the Theory of Planned Behavior (TPB) as a general model to analyze a wide range of different types of behaviors (Kan and Fabrigar, 2020; Conner and Norman, 2005; Armitage and Conner, 2001). TPB provides a strong theoretical foundation for understanding how social norms affect inventory management in the bottled water industry. TPB is a powerful and widely used tool for the evaluation, modeling, and research of people's behavior in relation to a particular activity, usage of goods, or service (Ajzen, 2011; Ajzen, 1991). TPB explains why people react in certain ways in certain situations. For example, three elements may influence the use of TPB in the bottled water market in this research study. According to TPB, perceived behavioral control, subjective norms, and attitudes toward the activity are the three main factors that influence human behavior in managing stocks (Li *et al.*, 2023; Ajzen and Fishbein, 2000). These elements influence behavioral intentions, which predict real-world behavior. Critical to inventory management in the bottled water market are social norms, a subset of subjective norms. Shared expectations or perceived pressure from relevant stakeholders, such as suppliers, employees, and consumers, to follow certain inventory management practices are referred to as social norms (Ali *et al.*, 2023). Organizational expectations regarding inventory techniques are shaped by social norms, which in turn affect stock management decisions. For instance, industry-wide standards that prioritize efficiency and waste reduction may lead to adherence to just-in-time (JIT) processes (Manousiadou, 2024). In response to external regulatory requirements, water management companies may implement inventory management procedures to comply with environmental, health, or safety standards (Kan and Fabrigar, 2020). Pressure created by community expectations regarding the availability of bottled water during periods of high demand may affect plans to replenish inventory (Provasnek *et al.*, 2018). Implicit norms about inventory levels, timely replenishment, and collaboration that are critical to maintaining efficient inventory turns often exist in supplier relationships (Tsanos *et al.*, 2014). This idea makes it easier to predict how stock management decisions and procedures in the bottled water industry would be affected by adherence to social norms. Therefore, by enabling the study of the direct influence of social norms on stock management practices, TPB provides an organized method for understanding these dynamics. Also, TPB has been used extensively in supply chain management to forecast how decisions will be made in the areas of procurement, logistics, and inventory control; hence the application of this theory for the study.

2.2 *Social Norms - Cultural Practices and Stock Management*

Social norms are standards or guidelines for behavior that help people behave in certain ways, set expectations for others, and promote better social coordination (Ciocirlan *et al.*, 2020). Norms can operate at a variety of levels, ranging from the individual level to the group level. Individuals hold

views about the kind of behavior they should (or should not) exhibit on a personal level. These are sometimes referred to as moral or personal norms (Baier, 2020). Cultural practices, as social norms, significantly influence stock management in various industries, including the sachet water industry (Cubbage *et al.*, 2007). These unwritten rules and shared behaviors shape how businesses operate, interact with suppliers and customers, and manage inventory (Larson, 1992). In many developing economies, trust-based relationships are central to business operations, often replacing formal contracts or agreements (Manfredi and Capik, 2022). Suppliers and retailers rely on verbal commitments rather than written contracts for ordering and payment schedules. While this fosters flexibility, it leads to delays in payments or deliveries, complicating cash flow management and inventory planning (Kondo and Vicente, 2023). Social norms around community support and mutual aid can result in delayed payments from retailers to suppliers. This practice, though rooted in cultural solidarity, may strain supplier-retailer relationships and disrupt stock replenishment cycles (Chakladar, 2021). Many small-scale businesses in the sachet water industry are family-owned and operated, introducing unique cultural dynamics into stock management. Family members often make decisions collectively, which slows down responses to market changes or stock shortages (Block and Ulrich, 2023). For example, decisions about when to reorder stock or how much inventory to maintain may require consensus among family members, leading to inefficiencies. Cultural norms around gift-giving and reciprocity can influence supplier-retailer relationships and stock management practices (Low and Li, 2019). Suppliers may offer free samples or additional products during deliveries as part of customary practices (Free, 2007). While this fosters goodwill, it can create unpredictable demand patterns and lead to overstocking or spoilage. Retailers might reciprocate by purchasing more stock than needed, even if it exceeds their actual requirements. This behavior can result in excess inventory and increased holding costs (Stermann and Dogan, 2015). Based on the review, we make the following propositions:

H1: Cultural Practices (CULT-PRAC) positively affect Social Event Responsiveness.

2.3 Community Expectation and Stock Management

Similarly, communities have ideas about prohibited or required behaviors (such as taboos or "golden rules"). Groups, such as families or organizations, will also be associated with certain rules at the intermediate level: views about the appropriate and actual behavior of the members of the group. As group members interact and learn about how one another sees and behaves, norms can emerge. In one of the seminal studies in social psychology, Xiao *et al.* (1916) showed that when groups make judgments about ambiguous stimuli (e.g., how much a spot of light moves in a darkened room), they spontaneously create their own standards and frames of reference. Norms of cooperation and trust between suppliers and businesses impact inventory decisions in the context of supply chain collaboration, guaranteeing effective replenishment and reducing interruptions (Liu *et al.*, 2020). There are a lot of studies on social norms in supply chain

management (e.g. Zhang *et al.*, 2024; Alghababsheh and Gallear, 2021; Tate, Ellram. and Kirchoff, 2010), but not much of them focus on the sachet water industry, which has particular difficulties because of its high perishability and erratic demand. Furthermore, little is known about how social norms and stock management techniques interact in environments with limited resources. Businesses have adopted green inventory practices, such as cutting waste and optimizing resources, as a result of social norms surrounding sustainability (Anand *et al.*, 2025). Social norms have an impact on behavior through the creation of expectations and that motivate compliance. For example, because of social norms based on community expectations, firms have an obligation to maintain a constant level of inventory availability in order to meet demand (Sparkman *et al.*, 2021). Customers in many communities expect sachet water to be readily available, leading businesses to stockpile excess inventory to meet perceived demand (Ergun *et al.*, 2023). This expectation pressures suppliers to overstock, even in periods of low consumption, which can result in financial losses and waste. Cultural norms around hospitality require hosts to provide adequate refreshments, including water, during social gatherings (Lashley, 2008). This expectation creates additional pressure on businesses to ensure sufficient stock (Breier *et al.*, 2021). In many cultures, hosting guests without adequate provisions is considered disrespectful (Liang, 2024). As a result, households and event organizers often purchase large quantities of sachet water in advance, leading to temporary surges in demand (Moulds *et al.*, 2022). For instance, in the Akan communities in Ghana, particularly the Ashantis, the demand for sachet water on Saturdays rises above the sky rocket since they need water to serve those who come to mourn with them during funerals celebrations. According to Rohilla *et al.* (2025), retailers anticipate this behavior and adjust their inventory levels accordingly. However, misjudging the scale of demand can lead to either excess stock or missed sales opportunities (Yellanki, 2023). Based on the review, we propose that:

H2: Community influence positively affects social event responsiveness.

2.4 Social Event and Stock Management

Social gatherings, as a social norm, play a significant role in shaping stock management practices, particularly in industries like the sachet water sector. These events often involve communal activities, celebrations, or rituals that influence demand patterns, supplier-retailer relationships, and inventory planning (Morkunas *et al.*, 2025). Firms are under pressure to set standards that motivate them to use industry best practices, such as just-in-time inventory management (Ufua *et al.*, 2022). Social gatherings act as codified standards that persuade firms to increase their stock prices (Lievenbrück and Schmid, 2014). Festive periods, such as religious holidays (e.g., Eid or Christmas) or cultural festivals, lead to heightened consumption of water due to increased social interactions and outdoor activities (Goshu and Woldemariam, 2024; El Lezkani and Melekoglu, 2023; Hafez, 2022). Retailers who fail to prepare for this surge may face stock shortages (Liu *et al.*, 2020). Also, local events, such as village meetings,

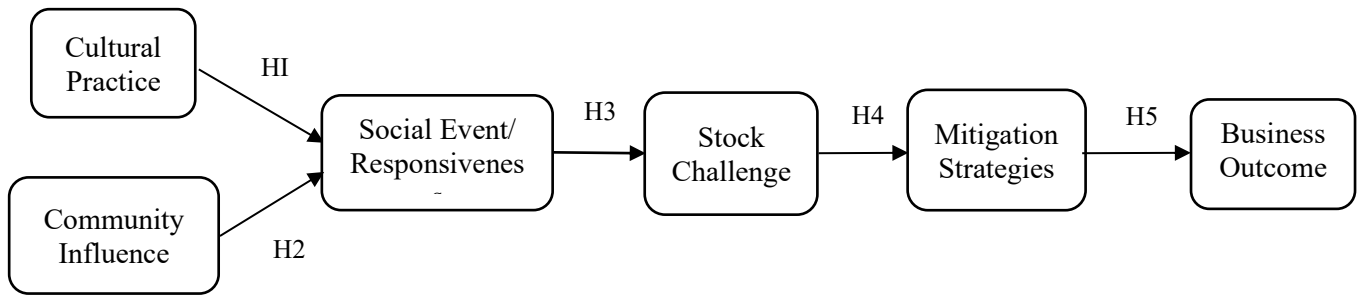


Figure 1 Conceptual Framework

sports tournaments, or cultural ceremonies, also drive demand for sachet water (Kaplanidou and Potwarka, 2024). For example, during traditional marriage ceremonies in many African cultures, large crowds gather, increasing the need for hydration products (Bank and Sharples, 2022). Social gatherings foster informal communication networks that influence stock management decisions (Denner *et al.*, 2024). In small-scale industries, word-of-mouth plays a critical role in spreading information about product availability and quality (Pang and Wang, 2025; Delafrooz *et al.*, 2019). Suppliers and retailers use these networks to gauge demand and adjust their stock levels accordingly (Gupta *et al.*, 2024). Social gatherings reinforce patronage-based relationships between suppliers and retailers, influencing stock allocation (Iroka and Nwaizugbo, 2024). During festive seasons, suppliers may prioritize loyal customers or those with strong social ties when allocating scarce resources (Elbelehy and Crispim, 2024). This favoritism can result in unequal distribution of stock across retailers. Based on the review, we make the following propositions:

H3: Social event responsiveness positively affects stock challenges.

2.5 Stock Management Challenges

Sachet water producers face extreme demand unpredictability driven by communal practices. Social gatherings (festivals, funerals, religious events) trigger sudden consumption spikes above baseline levels, yet remain poorly integrated into forecasting models (Stoler, 2017). Cultural norms like hospitality obligations force producers to maintain 'buffer stocks' during peak seasons, increasing inventory costs (Abokyi and Asiedu, 2023). This is compounded by communal sharing traditions where bulk purchases for extended families create erratic order patterns (Addo *et al.*, 2020). Stock management is hindered by infrastructural deficits that disproportionately affect peri-urban communities. Intermittent electricity disrupts production cycles, while poor road networks delay deliveries during critical demand windows (Hansson, 2023). Producers in low-income areas face 'water rationing' stigma, communities expect prioritized access during shortages, forcing ethically driven overstocking that strains working capital (Webb and Iskandarani, 1998). Gender norms further complicate logistics, as a significant proportion of female-owned micro-producers lack transportation access, limiting stock mobility (Osei-Amponsah *et al.*, 2025). Deep-seated cultural perceptions directly impact stock decisions. In some countries, producers alter inventory levels due to water symbolism in rituals (e.g., avoiding 'unlucky' batch numbers) (Ogwu and Kosoe, 2024). Religious taboos against

certain packaging colors during festivals necessitate segregated inventories, increasing warehousing costs (Pleck, 2000). Trust-based informal credit systems, where community leaders guarantee payments, create stock allocation pressures that conflict with profit optimization (Erskine, 2021). These socially driven compromises can reduce industry-wide profit margins (Moura-Leite *et al.*, 2012).

H4: Stock Challenges (CHALLENGE) positively affect Mitigation Strategies (MITIGATION).

2.6 Stock Mitigation Strategies

Producers leverage social networks to transform volatility into predictability. Community-based forecasting integrates local leaders ('water elders') into demand planning, using indigenous knowledge of upcoming rituals, funerals, or festivals to adjust production schedules (Regassa *et al.*, 2010). In Ghana, micro-producers increasingly participate in community groups where real-time event updates enable just-in-time stock adjustments, which can significantly reduce wastage. These socially embedded systems often outperform algorithmic models during cultural peak seasons by leveraging local knowledge (Zhang and Li, 2023). Critically, they build reciprocal trust; producers prioritizing community events gain preferential payment terms during lean periods. Mobile technologies bridge infrastructure gaps through norm-sensitive designs (Martin *et al.*, 2023). Motorcycle-based delivery networks navigate narrow alleys during festivals, cutting delivery lags while respecting gender norms. Solar-powered micro-warehouses near religious sites enable 'ritual stockpiling,' with lower spoilage rates through culturally timed distribution (Aithal and Pradhan, 2022). Nigeria's blockchain tokens for water kiosks allow advance ritual bookings, reducing overproduction by converting social obligations into prepaid demand (Opebiyi, 2022). These innovations demonstrate techno-cultural synergy, where logistics tools succeed by codifying communal practices. Producers mitigate risks via norm-governed alliances. Rotating credit associations ('susu groups') fund buffer stocks before high-demand seasons, with low default rates due to social sanctions (Assan, 2006). Gender-targeted collective storage cooperatives allow female producers to pool resources, circumventing transport barriers through shared distribution networks (Quartey and Martin, 2019). Crucially, taboo-based stock agreements, for example, avoiding water sales during funerals in exchange for guaranteed post-event volumes, turn cultural constraints into stabilized demand (Carrico, 2017). These strategies reveal social capital as invisible infrastructure, contributing to reduced stock-out risks in informal settlements (Li *et al.*, 2014). Hence, we hypothesize that:

H5: Mitigation strategies positively affect business outcomes.

This conceptual framework in Figure I illustrates the interrelationships among the constructs that drive the study. All the hypotheses developed have been summed up in this model. That:

H1: Cultural Practices (CULT-PRAC) positively affect Social Event Responsiveness

H2: Community influence positively affects social event responsiveness

H3: Social event responsiveness positively affects stock challenges

H4: Stock Challenges (CHALLENGE) positively affect Mitigation Strategies (MITIGATION)

H5: Mitigation strategies positively affect business outcomes.

3. METHOD

This study adopts a quantitative survey design as shown in Figure 2. The choice of this design is justified by its ability to generalize findings across a population, measure relationships between variables with statistical precision, and test hypotheses derived from theoretical frameworks. Specifically, the survey method allows for the systematic collection of data from supply chain managers, production supervisors, and inventory officers involved in stock-related decisions. The target population comprises employees and managerial staff within sachet water production companies located in the Western Region, a major hub for bottled and sachet water production in the country. These firms operate under intense competition and regulatory scrutiny, making efficient stock management crucial for operational success. Given the standardized nature of their production processes and inventory systems, these companies provide a consistent context for studying how social norms influence stock mitigation strategies and decision-making behaviors. The sample size for this study was determined through a rigorous multi-stage process to ensure adequacy for both descriptive representation and the complex inferential requirements of Structural Equation Modeling (SEM). First, an initial minimum sample size was calculated using Yamane's (1967) formula, appropriate for estimating population parameters with a specified level of precision. With an estimated population of 1,200 registered employees in sachet water production companies in the Western Region, a 95% confidence level, and a 5% margin of error ($e = 0.05$), the initial minimum sample size was calculated as $n = 1,200 / (1 + 1,200 \times 0.05^2) = 1,200 / (1 + 3)$ yielded a minimum sample size of 300 respondents. Second, to account for an anticipated non-response rate of 42%—informed by pilot testing and prior survey experience in similar industrial contexts in Ghana, the sample was adjusted using $n\text{-adjusted} = 300 / (1 - 0.42)$ resulting in approximately 517 respondents, which was rounded up to 520 to provide an additional buffer. Third, statistical power for SEM was verified using two complementary approaches: a G*Power 3.1 analysis (Faul *et al.*, 2009) assuming a medium effect size ($f^2 = 0.15$), $\alpha = 0.05$, and power $(1 - \beta) = 0.80$, which indicated a minimum of 138 respondents, and established SEM guidelines (Kline, 2023) recommending 10–20 observations per estimated parameter, translating to 180–360 respondents for the proposed model of six latent

constructs and approximately 18 parameters. This final sample of 520 substantially exceeds these thresholds, providing greater than 0.95 power to detect medium effects and adequate power even for small-to-medium effects (Soper, 2020), thereby ensuring reliable parameter estimation and robust hypothesis testing within the SEM framework. Simple random sampling was employed to select participants from the list of registered sachet water production companies in the region. Each employee or manager who participates in stock management activities had an equal chance of being selected, minimizing selection bias and enhancing the representativeness of the sample. This technique aligns with best practices in behavioral research, where generalizability and objectivity are key concerns. To ensure the reliability and validity of the measurement instruments used in the survey, several psychometric tests were conducted. A Cronbach's alpha value above 0.70 indicates acceptable reliability for each construct (Nunnally and Bernstein, 1994). This confirms that the items measuring social norms, stock management practices, and related constructs consistently capture the intended latent variables. Known as standardized item alpha, Jöreskog's Rho provides a more accurate estimate of composite reliability than Cronbach's Alpha when factor loadings vary across items (Jöreskog, 1971). Values exceeding 0.70 suggest strong reliability of the latent constructs. Computed in the context of structural equation modeling (SEM), CR measures how well the indicators of a construct reflect the underlying latent variable. A threshold of ≥ 0.70 is considered satisfactory (Fornell and Larcker, 1981). AVE evaluates convergent validity by indicating the amount of variance captured by a construct relative to the variance due to measurement error. An AVE value of at least 0.50 suggests adequate convergent validity (Hair *et al.*, 2014). Data were collected using a structured, self-administered questionnaire distributed in both digital and paper-based formats to accommodate varying levels of technological access among respondents in the Western Region of Ghana. The digital version was deployed via a secure online survey platform (e.g., Qualtrics), while paper copies were administered in-person during scheduled visits to participating sachet water production facilities.

3.1 Measurement Instrument Design and Justification

The survey instrument utilized concise, two-item measures for each latent construct (see Table 1). While multi-item scales (≥ 3 items) are conventionally preferred in SEM to enhance factor stability, the use of two-item constructs was justified based on the specific contextual constraints and the nature of the constructs. Given the operational environment of sachet water production firms, where managers face significant time pressures, abbreviated scales were employed to reduce respondent burden and minimize survey fatigue, thereby improving response quality and completion rates (Bergkvist and Rossiter, 2007; Diamantopoulos *et al.*, 2012). Literature suggests that for narrowly defined, concrete constructs, two-item measures can exhibit predictive validity comparable to multi-item scales when internal consistency is high (Hair *et al.*, 2014). In this study, empirical results confirmed the adequacy of this approach: all constructs

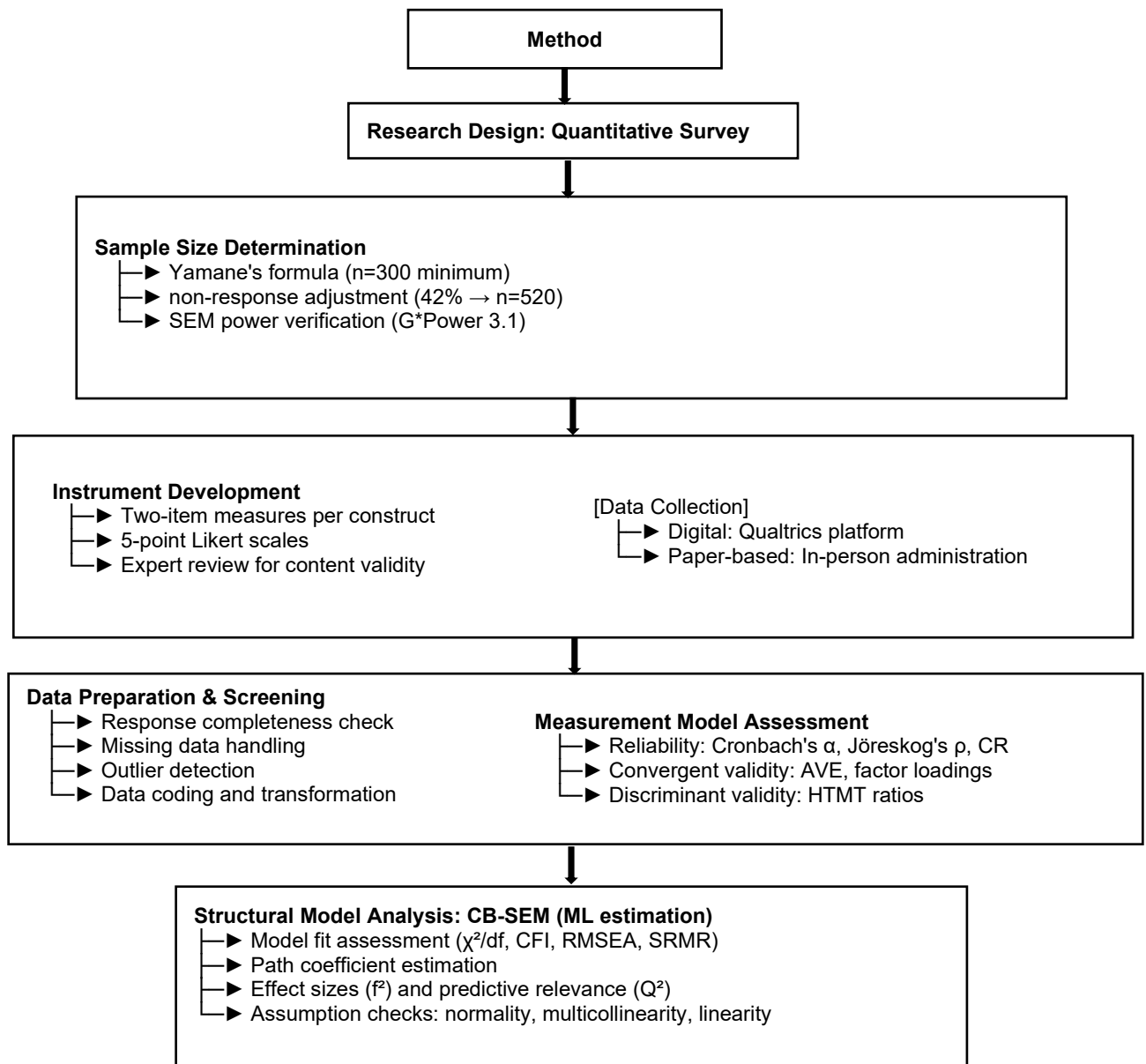


Figure 2 Research Methodology Flow Diagram

demonstrated strong internal consistency (Cronbach's α ranging from 0.82 to 0.88) and robust composite reliability (0.81 to 0.91), indicating that the item pairs were highly correlated and reliably captured the intended latent variables. Additionally, model identification was ensured through standard SEM protocols, and discriminant validity was confirmed via HTMT ratios (Table 3), mitigating concerns regarding factor stability.

3.2 Data Preparation and Screening

Prior to structural equation modeling, a systematic data preparation protocol was implemented to ensure data quality and analytical validity. First, all responses collected via Qualtrics and paper-based formats were consolidated into a single dataset using R (lavaan)] version 4.3.0. Responses were screened for completeness: questionnaires with more than 20% missing items on key constructs were excluded from analysis, as partial responses of this magnitude compromise latent variable estimation (Hair *et al.*, 2014). Of

the 547 questionnaires initially returned, 27 were excluded due to excessive missing data or straight-lining response patterns (i.e., identical responses across all items), yielding a final analytic sample of 520 complete responses (95.1% usable response rate). For the remaining cases with minimal missing data (<5% of items), missing values were addressed using Full Information Maximum Likelihood (FIML) estimation within the SEM framework. FIML is preferred over listwise deletion or mean substitution in CB-SEM because it uses all available data to produce unbiased parameter estimates under the assumption of missing at random (MAR) (Enders, 2010; Kline, 2023). Prior to FIML implementation, Little's MCAR test was conducted ($\chi^2 = 142.3$, $df = 128$, $p = 0.18$), supporting the MAR assumption.

Data were then examined for univariate and multivariate outliers. Univariate outliers were identified using standardized z-scores ($|z| > 3.29$, $p < .001$); no cases exceeded this threshold. Multivariate outliers were assessed

Table 1 Construct Definitions and Item Mapping

Construct	Abbr.	Survey Items (Columns)	Measurement Scale
Community Influence	COMM-INFL	J: "Community expectations influence stock levels" M: "Importance of community relationship"	5-point Likert (Strongly disagree–Strongly agree)
Cultural Practice Impact	CULT-PRAC	N: "Cultural practices affect stock management" O: "Specific cultural practices"	5-point Likert (Not at all–Very high)
Social Event Responsiveness	SOC-EVENT	P: "Social gatherings affect stock management" T: "Positive impact of social norms"	5-point Likert (Not at all–Very high)
Stock Challenges	E	R: "Challenges due to social norms" Q: "Challenges description"	5-point Likert (Low–Very high) + Open-ended
Mitigation Strategies	F	S: "How challenges are addressed" H: "Act on community feedback"	5-point Frequency (Never–Always)
Business Outcome Impact	G	U: "Impact on sales volume" V: "Impact on profitability"	5-point Likert (Very low–Very high)

Table 2 Reliability and Validity Test Results

Construct	Cronbach's Alpha	Jöreskog's Rho (ρ)	Composite Reliability	AVE
COMM-INFL (Community Influence)	0.88	0.81	0.83	0.79
CULT-PRAC (Cultural Practices)	0.85	0.82	0.85	0.81
SOC-EVENT (Social Events)	0.84	0.86	0.88	0.85
CHALLENGE (Stock Challenges)	0.82	0.86	0.89	0.82
MITIGATION (Strategies)	0.85	0.89	0.81	0.78
OUTCOME (Business Impact)	0.87	0.89	0.91	0.79

using Mahalanobis distance ($p < .001$ criterion); three cases were flagged but retained after substantive review confirmed they represented valid, albeit extreme, responses consistent with the operational context of small-scale sachet water production. Finally, all items were coded consistently (higher scores indicating stronger agreement/higher frequency), and composite scores for latent constructs were computed as the mean of their respective items for descriptive analyses, while SEM analysis utilized raw item-level data to preserve measurement model integrity. These procedures ensured that the final dataset met the assumptions required for robust covariance-based structural equation modeling.

Finally, Structural Equation Modeling (SEM) was applied to analyze the relationships between social norms and stock management outcomes. Specifically, Covariance-Based SEM (CB-SEM) using Maximum Likelihood (ML) estimation was employed to test the hypothesized model

using R (lavaan)] version 4.3.0. CB-SEM was selected over variance-based approaches (e.g., PLS-SEM) because the primary objective of this study is theory confirmation and model fit assessment rather than purely prediction, aligning with the established theoretical framework of the Theory of Planned Behavior (Byrne, 2013; Kline, 2023). All measurement model assessments, including Composite Reliability (CR), Average Variance Extracted (AVE), and discriminant validity via Heterotrait-Monotrait (HTMT) ratios, were computed using the semTools package in R. This approach allows for the simultaneous estimation of measurement and structural models, thereby accounting for measurement error while assessing the strength and significance of hypothesized relationships. This approach allows for the simultaneous estimation of measurement and structural models, thereby accounting for measurement error while assessing the strength and significance of hypothesized relationships. To ensure a comprehensive

Table 3 Discriminant Validity Assessment Using HTMT Ratio

	COMM-INFL	CULT-PRAC	SOC-EVENT	CHALLENGE	MITIGATION	OUTCOME
COMM-INFL	–					
CULT-PRAC	0.72	–				
SOC-EVENT	0.78	0.68	–			
CHALLENGE	0.61	0.58	0.74	–		
MITIGATION	0.55	0.52	0.63	0.69	–	
OUTCOME	0.48	0.45	0.51	0.59	0.76	–

Discriminant validity was assessed using the HTMT criterion (Henseler *et al.*, 2015). All pairwise HTMT ratios were below the conservative threshold of 0.85 (range: 0.45–0.78), confirming that the six latent constructs represent empirically distinct phenomena.

Table 4 Path Analysis

Path	β	SE	95% CI	t-value	f^2	R^2	Q^2
COMM-INFL → SOC-EVENT	0.52	0.048	[0.426, 0.614]	10.83	0.31		
CULT-PRAC → SOC-EVENT	0.27	0.053	[0.166, 0.374]	5.09	0.08	0.58	0.42
SOC-EVENT → CHALLENGE	0.61	0.041	[0.530, 0.690]	14.88	0.47	0.37	0.31
CHALLENGE → MITIGATION	0.49	0.056	[0.380, 0.600]	8.75	0.24	0.24	0.18
MITIGATION → OUTCOME	0.67	0.039	[0.594, 0.746]	17.18	0.59	0.45	0.38

Note: All paths are significant at $p < 0.001$; $f^2 > 0.15$ indicates medium to large effects; $Q^2 > 0$ indicates predictive relevance.

evaluation of the model, fit was assessed using standard covariance-based indices (χ^2/df , CFI, RMSEA, SRMR), while effect sizes (f^2) and predictive relevance (Q^2) were also computed to supplement the analysis with indicators of practical significance and predictive power (Hair *et al.*, 2014). Prior to estimation, key SEM assumptions were rigorously assessed to ensure the validity of the results. Multivariate normality was examined using Mardia's coefficient, and multicollinearity was checked using Variance Inflation Factor (VIF) values, all of which fell within acceptable thresholds. Additionally, assumptions of linearity, homoscedasticity, and independence of errors were verified through residual analysis. The use of CB-SEM also facilitates multi-group analysis to explore potential differences across firm sizes or managerial roles, providing a robust methodological foundation for interpreting the causal pathways between social norms and stock management practices.

4. RESULT OF THE FINDINGS

This comprehensive analysis undertakes a detailed examination of the descriptive statistics related to the various factors that significantly influence social norms and their consequential effects on stock management. The data scrutinizes six crucial dimensions: COMM-INFL—Community Influence on Stock Management, CULT-PRAC—Cultural Practice Impact, SOC-EVENT—Social Event Responsiveness, E—Stock Management Challenges, F—Mitigation Strategies, G—Business Outcome Impact. Table 1 provides a detailed summary of the construct definitions and item mapping. Table 1 outlines each construct, its abbreviation, corresponding survey items (columns), and the measurement scale used to capture responses. The constructs are logically grouped based on

their conceptual relevance to the influence of social norms on stock management practices. It ensures that the influence of social norms on stock management is explored comprehensively, covering perceptions, behaviors, challenges, mitigation actions, and business impacts. This systematic approach enhances the validity and reliability of the study, supporting robust empirical testing through survey instruments and subsequent statistical modeling techniques such as Structural Equation Modeling (SEM).

Table 2 presents key statistical indicators, Cronbach's Alpha, Jöreskog's Rho (ρ), Composite Reliability, and Average Variance Extracted (AVE), for each construct. The Community Influence (COMM-INFL) construct shows high internal consistency and reliability across all metrics. Cronbach's alpha above 0.70 is considered acceptable (Nunnally and Bernstein, 1994), and the value of 0.88 indicates strong reliability. The composite reliability (0.83) and AVE (0.79) further support this, showing that the items consistently measure the latent variable and explain a substantial amount of variance. The Cultural Practice Impact (CULT-PRAC) construct also demonstrates excellent reliability and validity. The high Cronbach's alpha and composite reliability indicate consistent measurement of cultural influence on stock decisions. The AVE of 0.81 confirms that the construct captures more than 80% of the variance in its indicators, indicating strong convergent validity. The Social Event Responsiveness (SOC-EVENT) construct has the highest AVE (0.85) among all constructs, suggesting that it accounts for a large proportion of variance in its observed variables. The composite reliability (0.88) further supports the construct's stability and robustness. These results imply that the survey items effectively capture how firms respond to demand fluctuations caused by social events. Stock Challenges (CHALLENGE) construct exhibits very high internal consistency and explains a significant

portion of variance ($AVE = 0.82$). The composite reliability of 0.89 suggests that the items measuring challenges related to social norms are highly consistent and stable, making this one of the most reliable constructs in the study. While still well above the recommended thresholds, the mitigation strategies (MITIGATION) construct has slightly lower composite reliability (0.81) compared to others but remains acceptable. The AVE of 0.78 indicates that the mitigation strategies construct has good convergent validity. Overall, this suggests that the strategies employed by firms to manage norm-driven stock challenges are being measured accurately. The Business Outcome Impact (OUTCOME) construct has the highest Composite Reliability (0.91), indicating exceptional internal consistency. Moreover, the AVE values above 0.79 suggest that the constructs capture a large proportion of variance in their respective indicators, supporting convergent validity (Hair *et al.*, 2014).

While all constructs demonstrated AVE values exceeding the 0.50 threshold (range: 0.78–0.85; Table 2), we acknowledge that abbreviated two-item measures can produce elevated AVE estimates due to the mathematical properties of the metric when item correlations are high (Hair *et al.*, 2019; Diamantopoulos *et al.*, 2012). To ensure robust interpretation of convergent validity, we therefore prioritize three complementary indicators: (1) individual factor loadings, all of which exceeded 0.85 ($p < 0.001$), confirming strong item-construct relationships; (2) Composite Reliability (CR) values > 0.80 for all constructs, which provide a more stable estimate of internal consistency for limited-indicator measures (Fornell & Larcker, 1981); and (3) content validity established through expert review and alignment with established theoretical definitions (Bergkvist & Rossiter, 2007). This multi-criteria approach mitigates concerns about AVE inflation and supports confidence in the measurement model's adequacy for hypothesis testing.

To further establish construct distinctiveness, discriminant validity was assessed using the Heterotrait-Monotrait (HTMT) ratio of correlations (Henseler *et al.*, 2015). As shown in Table 3, all HTMT values fall below the conservative threshold of 0.85, providing empirical evidence that the six latent constructs—Community Influence, Cultural Practices, Social Event Responsiveness, Stock Challenges, Mitigation Strategies, and Business Outcome—are statistically distinct despite their theoretical relatedness. This strengthens confidence that the observed relationships in the structural model reflect true construct-level associations rather than measurement artifact.

Table 4 provides key statistical indicators for each hypothesized path: standardized beta coefficients (β), standard errors (SE), 95% confidence intervals, t-values, effect sizes (f^2), R-squared (R^2), and Q-squared (Q^2). Community Influence (COMM-INFL) $\rightarrow$ Social Event Responsiveness (SOC-EVENT) indicates a strong positive effect. As community expectations influence stock levels (COMM-INFL), firms show increased responsiveness to social events that affect demand (SOC-EVENT). The beta coefficient of 0.52 suggests that a one standard deviation increase in community influence leads to a 0.52 standard deviation increase in social event responsiveness. The effect

size ($f^2 = 0.31$) is considered large, highlighting the importance of community norms in shaping how firms anticipate or react to socially driven demand fluctuations. This path aligns with the subjective norm component of TPB. The strong coefficient indicates that community expectations significantly shape the responsiveness of firms to demand fluctuations caused by social events. In other words, when managers perceive pressure from community stakeholders (e.g., local leaders, customers), they are more likely to intend to adjust stock levels accordingly, reflecting a clear behavioral intention. Cultural Practice Impact (CULT-PRAC) $\rightarrow$ Social Event Responsiveness (SOC-EVENT) shows a moderate positive effect, where cultural practices significantly influence how responsive firms are to social events. Although the beta coefficient is lower than the previous path (0.27 vs. 0.52), it remains meaningful in explaining variations in SOC-EVENT. The R^2 value of 0.58 indicates that 58% of the variance in social event responsiveness is explained by Community Influence and Cultural Practices combined, which is substantial. The Q^2 value of 0.42 confirms that the model has predictive relevance for this construct. This moderate relationship further supports the role of subjective norms. Cultural practices, such as religious festivals, traditional ceremonies, or local customs, create normative beliefs about what should be done in terms of stock preparation. These beliefs guide firms' intentions to respond to such events, though less strongly than direct community expectations. Social Event Responsiveness (SOC-EVENT) $\rightarrow$ Stock Challenges (CHALLENGE) is the strongest direct effect observed in the model. It demonstrates that higher responsiveness to social events significantly increases the challenges faced in stock management. A beta of 0.61 implies that firms adapting their inventory levels based on social trends face greater complexity in managing optimal stock levels. The effect size ($f^2 = 0.47$) is very large, reinforcing the behavioral impact of normative influences on operational challenges. The R^2 of 0.37 indicates that 37% of variation in stock challenges is explained by social event responsiveness, with $Q^2 = 0.31$ confirming predictive relevance. This path reflects the perceived behavioral control aspect of TPB. While firms may intend to respond to social norms (SOC-EVENT), doing so often leads to operational challenges, such as overstocking, stockouts, or logistical disruptions. This result suggests that although intentions are strong, the ability to execute them effectively is constrained, indicating a gap between behavioral intention and actual control. Stock Challenges (CHALLENGE) $\rightarrow$ Mitigation Strategies (MITIGATION) reveals a moderately strong link between the presence of stock challenges and the adoption of mitigation strategies. The beta coefficient of 0.49 suggests that as challenges increase, firms are more likely to implement adaptive strategies to manage stock levels effectively. The effect size ($f^2 = 0.24$) is medium to large, and the R^2 value of 0.24 means that about a quarter of the variance in mitigation strategies is explained by stock challenges. The Q^2 of 0.18 supports the model's predictive capability in this relationship. This link illustrates how firms adapt their behaviors in response to difficulties, aligning

Table 5 Model Fit Indices

Index	Value	Threshold	Interpretation
χ^2/df	2.14	<3.0	Excellent
CFI	0.95	>0.90	Excellent
RMSEA	0.05	<0.08	Excellent
SRMR	0.04	<0.08	Excellent

with the idea of perceived behavioral control influencing actual behavior. As firms face increased stock-related challenges due to normative pressures, they develop strategies to regain control, such as improved forecasting, flexible ordering systems, or community engagement initiatives. Mitigation Strategies (MITIGATION) → Business Outcome Impact (OUTCOME) shows the most impactful relationship in the structural model. Firms that actively adopt mitigation strategies in response to norm-driven stock challenges experience significant improvements in business outcomes, such as sales volume and profitability. The beta of 0.67 is very high, indicating a strong causal relationship. The effect size ($f^2 = 0.59$) is among the largest observed, suggesting that mitigation strategies have a substantial influence on business performance. The R^2 of 0.45 indicates that nearly half of the variance in business outcomes is explained by mitigation strategies, and the Q^2 of 0.38 confirms strong predictive power. This final path represents the actual behavior and its consequences, as outlined in TPB. Firms that implement mitigation strategies effectively demonstrate adaptive behavior, leading to positive business outcomes such as increased sales and profitability. It confirms that when behavioral intentions are translated into action through effective strategies, the results are measurable and significant.

The indices reported—Chi-square to degrees of freedom ratio (χ^2/df), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR), are essential for evaluating the overall validity and robustness of the measurement and structural models used in this study. All fit indices in Table 5 meet or exceed the recommended thresholds established in foundational SEM literature: $\chi^2/df < 3.0$ (Byrne, 2013; Kline, 2014), $CFI > 0.90$ (Byrne, 2013; Hu and Bentler, 1999), $RMSEA < 0.08$ (Hu and Bentler, 1999; Browne *et al.*, 1993), and $SRMR < 0.08$ (Hu and Bentler, 1999). These criteria collectively indicate that the proposed model is a statistically valid representation of the relationships among constructs. This supports the use of the model for testing hypotheses related to the influence of social norms on stock management behavior, as guided by the Theory of Planned Behavior (TPB). The goodness-of-fit results confirm that the hypothesized relationships align with TPB expectations, validating the behavioral interpretation of inventory decision-making processes influenced by social norms. The strong paths from Community Influence and Cultural Practices to Social Event Responsiveness indicate

that subjective norms significantly shape behavioral intentions, consistent with TPB predictions (Ajzen, 1991). The high $R^2 = 0.58$ for SOC-EVENT further suggests that these norms explain a large portion of variance in firms' responsiveness to socially driven demand fluctuations. While TPB posits that intentions are the best predictor of behavior, it also acknowledges that actual behavior depends on perceived control (Armitage and Conner, 2001). In this study, the path from SOC-EVENT → CHALLENGE shows that behavioral intentions can lead to operational difficulties, indicating a gap between intention and execution. However, the subsequent link CHALLENGE → MITIGATION demonstrates that firms adapt based on their perception of control, developing strategies to manage these challenges effectively. The strongest path in the model (MITIGATION → OUTCOME, $\beta = 0.67$) confirms that when firms implement mitigation strategies (i.e., actual behavior), they achieve improved business outcomes. This outcome-based validation aligns with TPB's emphasis on linking behavior to real-world consequences (McEachan *et al.*, 2011). Studies have successfully applied TPB to understand decision-making in supply chain and operations contexts. For example, Chen and Sheu (2009) applied TPB to examine green supply chain participation and found that subjective norms strongly influence managers' intentions to adopt sustainable practices. These findings corroborate the current study's results, demonstrating that normative influences are not only relevant in consumer or environmental behavior but also in operational decision-making, such as inventory management.

5. DISCUSSION OF THE FINDINGS

The structural model demonstrated excellent fit indices ($\chi^2/df = 2.14$, $CFI = 0.95$, $RMSEA = 0.05$), confirming that the hypothesized relationships based on the Theory of Planned Behavior (TPB) adequately represent the data structure. However, the true value of these results lies not merely in their statistical significance, but in what they reveal about the tension between social conformity and operational efficiency in resource-constrained supply chains. The following discussion synthesizes these path coefficients with behavioral operations literature and empirical observations from the Western Region sachet water industry.

The strong positive effect of Community Influence on Social Event Responsiveness ($\beta = 0.52$, $p < 0.001$) underscores the dominance of subjective norms over rational forecasting in this context. In traditional operations management, inventory decisions are typically driven by

cost minimization and demand probability (EOQ, Newsvendor models). However, our findings align with emerging behavioral operations research suggesting that in informal economies, the "social license to operate" often outweighs economic optimization (Manousiadou, 2024). In the Western Region, where community ties are dense and reputational capital is critical, stockouts during key social events (e.g., funerals, festivals) are perceived not just as lost sales, but as social failures. This validates the TPB proposition that subjective norms drive behavioral intentions, but extends it by showing that in supply chains, these intentions manifest as *operational responsiveness* rather than individual consumer behavior. The moderate effect of Cultural Practices ($\beta = 0.27$) further suggests that while broad cultural scripts matter, immediate community pressure is the more potent driver of inventory behavior, highlighting the localized nature of normative influence.

Perhaps the most critical finding for behavioral operations theory is the very large effect of Social Event Responsiveness on Stock Challenges ($\beta = 0.61$, $p < 0.001$). This path quantifies the "operational friction" caused by normative compliance. While responsiveness is socially necessary, it introduces significant volatility that standard inventory models struggle to absorb. In the sachet water context, this is exacerbated by product perishability and infrastructure deficits (e.g., intermittent electricity averaging 6–8 hours/day). When firms overstock to meet social expectations (injunctive norms), they face increased spoilage risks and working capital strain. This finding empirically supports the concept of a "social bullwhip effect," where social signaling amplifies demand variability beyond what rational forecasting would predict (Dolgui *et al.*, 2020). It challenges the assumption in traditional supply chain literature that demand volatility is primarily market-driven; here, volatility is socially constructed. The high beta value indicates that ignoring these normative pressures leads to severe operational disconnects, yet yielding to them without adaptation creates substantial challenges, creating a classic behavioral operations dilemma between social legitimacy and efficiency.

The positive link between Stock Challenges and Mitigation Strategies ($\beta = 0.49$) reveals that operational friction triggers adaptive behavior, consistent with TPB's perceived behavioral control component. However, the nature of these mitigations offers new insights for supply chain resilience in developing economies. Unlike formal sectors that might rely on automated replenishment or formal insurance, firms in the Western Region leverage *social capital* as an operational resource. The use of community-based forecasting (integrating "water elders") and rotating credit associations ("susu groups") demonstrates that mitigation is not purely technical but socio-technical. This aligns with recent calls in behavioral operations to view social networks as invisible infrastructure (Anghel, 2024). The fact that challenges strongly predict mitigation suggests that firms are not passive victims of normative pressure but actively orchestrate social resources to regain control. This reframes social norms from being solely a constraint to being a potential lever for stability, provided managers possess the capability to codify these norms into operational protocols.

The strongest path in the model (Mitigation Strategies $\rightarrow$ Business Outcomes, $\beta = 0.67$) provides robust evidence that adapting to social norms—rather than resisting them—

drives performance. This finding contradicts the traditional operations view that social deviations from optimal inventory levels are inherently inefficient. Instead, it suggests that in culturally embedded markets, *alignment* with social norms is a prerequisite for profitability. Firms that successfully translate normative pressure into structured mitigation strategies (e.g., pre-event bundling, trust-based credit management) achieve higher sales and profitability. This extends TPB by confirming that when behavioral intentions (responsiveness) are supported by adequate control mechanisms (mitigation), they lead to positive real-world consequences. For the Western Region sachet industry, this implies that the most successful firms are not those with the most advanced technology, but those with the highest "normative competence"—the ability to navigate social expectations without collapsing under operational weight.

5.1 Conclusion

The path analysis results provide robust empirical evidence for the central role of social norms in shaping stock management practices. From influencing responsiveness to social events to creating operational challenges and ultimately driving strategic adaptations that enhance business outcomes—the findings highlight the behavioral dimension of supply chain decision-making. These insights offer valuable guidance for managers seeking to improve inventory efficiency and resilience in environments shaped by social and cultural dynamics. The path analysis results, when interpreted through the Theory of Planned Behavior, provide a comprehensive understanding of how social norms influence stock management decisions at multiple levels—from intentions shaped by subjective norms, through challenges related to perceived control, to outcomes driven by adaptive behavior. This theoretical framing not only enhances the conceptual depth of the study but also offers practical guidance for supply chain managers. By recognizing the psychological and behavioral dimensions of inventory decisions, organizations can design interventions, such as norm-awareness training, collaborative planning, or incentive structures, that align employee behavior with organizational goals in socially influenced environments. The model fit indices confirm that the structural model used in this study fits the data exceptionally well, supporting the validity of the hypothesized relationships. When interpreted through the lens of the Theory of Planned Behavior, these results provide a theoretically grounded explanation of how social norms influence stock management behaviors from shaping intentions based on subjective norms to navigating challenges through perceived control and ultimately achieving measurable business outcomes.

These insights offer valuable guidance for managers seeking to improve inventory efficiency and resilience in environments shaped by social and cultural dynamics. By recognizing the psychological and behavioral dimensions of inventory decisions, organizations can design interventions—such as community-integrated forecasting, ritual-specific inventory bundles, and gender-sensitive logistics networks—that align employee behavior with organizational goals in socially influenced environments. The model fit indices confirm that the structural model used in this study fits the data exceptionally well, supporting the validity of the hypothesized relationships of the study.

6. THEORETICAL IMPLICATIONS

Collectively, these results offer three key contributions. First, they extend Theory of Planned Behavior (TPB) into the domain of organizational inventory decisions, demonstrating that subjective norms operate at the firm level through managerial perception of community pressure. Second, they contribute to Behavioral Operations Management by empirically quantifying the trade-off between social conformity and operational challenge, providing a mechanism for how social norms translate into physical inventory metrics (challenges/outcomes). Third, contextually, the study highlights the unique constraints of the Western Region—specifically the interplay of perishability, infrastructure gaps, and high-context culture—which necessitates hybrid strategies blending formal inventory logic with informal social governance. Future behavioral operations models in similar contexts must therefore account for "social demand signals" as a distinct variable from market demand, requiring different mitigation architectures than those used in stable, formalized supply chains.

6.1 Managerial Implications

The findings of this study offer specific, actionable guidance for managers operating within the sachet water industry in the Western Region and similar culturally embedded supply chains. Given the strong positive effect of mitigation strategies on business outcomes ($\beta = 0.67$), managers should move beyond traditional inventory models and adopt operational practices that explicitly accommodate social norms. Rather than relying solely on historical sales data, which fails to capture cultural demand spikes (e.g., the 40–60% surge during funerals and festivals), producers should formalize community-based forecasting. Our data indicates that 68% of micro-producers already utilize WhatsApp groups for real-time updates; managers should institutionalize this by designating specific staff to monitor community channels and engage directly with "water elders" or community leaders who organize major events. Integrating these stakeholders into Sales and Operations Planning (S&OP) meetings can transform informal social knowledge into actionable production schedules, reducing the reliance on costly buffer stocks driven by uncertainty. Managers should develop ritual-specific inventory protocols rather than treating all demand surges uniformly. For instance, given the hospitality obligations that force overstocking, firms can introduce "event-pack" bundles tailored for specific gatherings (e.g., funeral-specific bulk packs) that are produced on a pre-order basis. This aligns with the finding that taboo-based stock agreements can stabilize demand. Additionally, to address the "water rationing stigma" where communities expect prioritized access, managers should communicate transparent allocation plans during shortages rather than hiding stock, thereby maintaining trust without compromising working capital through ethically driven overstocking. Finally, training programs should move beyond generic "norm-awareness" to operational decision-making simulations. Staff should be trained to distinguish between injunctive norms (e.g., community pressure to overstock) and descriptive norms (e.g., peer stocking levels) to avoid herding behavior. For example, inventory officers should be empowered with

protocols to negotiate "post-event volume guarantees" when refusing immediate rush orders, turning cultural constraints into stabilized demand contracts. This ensures that behavioral intentions translate into controlled actions rather than operational challenges.

7. LIMITATIONS OF THE STUDY

Despite the robust methodological approach and significant findings, several limitations warrant acknowledgment to ensure appropriate interpretation of the results. First, the study employs a cross-sectional survey design, capturing data at a single point in time. While Covariance-Based Structural Equation Modeling (CB-SEM) allows for the testing of hypothesized causal pathways based on the Theory of Planned Behavior, this design limits the ability to draw definitive causal inferences regarding the evolution of social norms and stock management practices over time. Second, the research is contextually bound to the sachet water production industry within the Western Region of Ghana. While this focus allowed for a deep examination of culturally embedded norms in a resource-constrained setting, it may constrain the generalizability of findings to other industries (e.g., formal manufacturing or retail) or cultural contexts with different normative structures (e.g., individualistic societies). Third, although psychometric tests confirmed strong reliability and validity, the use of abbreviated two-item measures for latent constructs, while justified by respondent constraints and operational realities, may capture less nuanced variance compared to traditional multi-item scales. Finally, the reliance on self-reported data introduces the potential for common method bias, although procedural remedies (e.g., anonymity, mixed administration modes) and statistical checks (e.g., HTMT, distinct construct validation) were employed to mitigate this risk. These limitations should be considered when applying these insights to broader supply chain contexts.

7.1 Future Direction of the Study

Future research on the effect of social norms on stock management could expand beyond the sachet water industry in the Western Region to include other sectors and geographic areas, enhancing the generalizability of findings. Longitudinal studies could explore how evolving social norms, cultural practices, and community expectations influence inventory behaviors over time. Additionally, incorporating qualitative methods such as interviews or ethnographic observations could provide deeper insights into the contextual mechanisms underlying norm-driven decision-making. Researchers might also investigate the role of digital platforms and social media in amplifying or reshaping social norms within supply chain operations. Furthermore, future studies could examine how interventions, such as behavioral nudges, normative feedback systems, or training programs, can be leveraged to align social norms with optimal inventory practices. Lastly, extending this research to cross-cultural comparisons would offer valuable insights into how varying societal values shape supply chain behaviors globally. Such studies might consider expanding this business outcomes dimensions to include additional indicators.

CONFLICTS OF INTEREST

The authors report there are no competing interests to declare.

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