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of Benguet and Daegu**



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Evaluating Agricultural Wholesale Markets: A Comparative Study of Benguet and Daegu

^{1,2}Novy L. Canggal, ³Hwa -Seok Hwang, ^{4*}Byung Wook Yun 

¹Department of Food Security and Agricultural Development, Kyungpook National University, Daegu 41566, Republic of Korea.

²Local Government Unit of Mankayan, Benguet, Cordillera Administrative Region, Philippines

³Department of Food Security and Agricultural Development, Institute of International Research and Development, Kyungpook National University, Daegu, Republic of Korea.

⁴College of Agriculture and Life Sciences, Kyungpook National University, Daegu 41566, Republic of Korea.



<https://orcid.org/0000-0002-5451-2365>

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Abstract

Purpose: The purpose of this study is to compare the La Trinidad Vegetable Trading Post (LTVTP) and the Macheon Agricultural and Fishery Wholesale Market (MAFWM) to generate insights for agricultural development planning.

Methodology: The study used mixed-methods design integrating the quantitative and qualitative techniques combining descriptive research with thematic analysis. The data were collected from 225 respondents (150 from LTVTP & 75 from MAFWM) from February to June 2025 using a face to face and online methods. The survey employed a 4-point likert scale across the nine key indicators which were verbally translated to Hangul and Iloco to ensure cultural appropriateness and full comprehension. Data were analyzed using t-tests and one-way ANOVA for the quantitative data and thematic analysis for qualitative feedback.

Findings: Analysis on the demographic profiles of stakeholders revealed no significant differences in satisfaction based on gender, age, education, experience and working hours in both markets. Systemic condition matter more than individual characteristics. LTVTP performed better in market location, infrastructure, and localized marketing promotion, reflecting its proximity to production zones and long-standing trading networks, while MAFWM excelled in product quality and technological integration through advanced cold-chain systems, digital innovations, and traceability mechanisms. These differences highlight the need for context-specific modernization, developing markets like LTVTP in Benguet, Philippines can learn from technological integration, while advanced markets like MAFWM in Daegu, South Korea can adopt participatory and inclusive approaches.

Unique Contribution to Theory, Practice and Policy: Creating sustainable wholesale markets demands a context-specific blend of innovation and participation. LTVTP in Benguet can adopt advanced tech while preserving community trust, and MAFWM in Daegu can learn from localized, human-centered practices. Prioritizing participatory governance, transparency, infrastructure, and sustainability enhances food security, fosters equitable agricultural growth, and offers replicable models for market modernization across diverse economies.

Keywords: *Agricultural Wholesale Market, La Trinidad Vegetables Trading Post, Maecheon Agricultural & Fisheries, Stakeholders' Satisfaction, Market Performance*

1. INTRODUCTION

The agricultural landscapes of Benguet in the Philippines and Daegu in South Korea represent distinct yet comparable models of agricultural development, reflecting the interplay between traditional practices and modern innovations shaped by environmental, cultural, social, and economic conditions. Benguet, situated in the Cordillera Administrative Region, benefits from fertile soils and a temperate climate that enable the production of high-value crops such as vegetables and flowers. Often referred to as the “Salad Bowl of the Philippines,” Benguet supplies about 80% of Metro Manila’s vegetable requirements (Reyes et al, 2017). Despite this strategic role, Benguet’s agricultural sector remains constrained by inadequate transport infrastructure and recurrent weather-related disruptions, particularly typhoons, which contribute to post-harvest losses estimated at up to 20%. These challenges undermine farmer incomes and destabilize market performance. Wholesale facilities such as the La Trinidad Vegetable Trading Post (LTVTP) exemplify these complex dynamics, where farmers confront price volatility, reliance on intermediaries, and infrastructural bottlenecks that impede efficient distribution and storage.

In contrast, the Maecheon Agricultural & Fishery Wholesale Market (MAFWM) in Daegu ranks among the largest of South Korea’s thirty-three public wholesale markets, serving as a vital hub for agricultural distribution in Gyeongsangbuk-do (Gonzaga et al, 2020). Anchored in a technologically advanced system, Daegu integrates organized wholesale networks with digital platforms that ensure price transparency and trading efficiency. Oversight by the Korea Agro-Fisheries & Food Trade Corporation (aT) strengthens supply chain management through price monitoring and logistical coordination, while innovations such as smart farming, digitalized trading, and cold-chain logistics minimize post-harvest losses and preserve product quality. Together, these advancements highlight South Korea’s broader commitment to agricultural modernization, resilience, and global competitiveness.

Wholesale markets occupy a critical position in agricultural value chains by connecting producers, wholesalers, retailers, and consumers, thereby improving efficiency, enhancing product quality (through better infrastructure, storage, etc.), and helping preserve food safety (Kuzman & Prdić, 2017).

Evaluating wholesale markets in comparative contexts such as Benguet and Daegu is therefore critical for development planning. The present study provides important implications for policymakers in both the Philippines and South Korea. Findings are expected to inform strategies for modernizing wholesale market infrastructure in the Philippines while offering lessons for South Korea in fostering broader inclusion and farmer engagement. Improving market access, promoting transparency, and addressing systemic inefficiencies can elevate farmer livelihoods, strengthen food security, and stabilize supply chains at the national level.

2. LITERATURE REVIEW

2.1 Theoretical Frameworks of Agricultural Marketing

The study of agricultural marketing is guided by multiple theoretical perspectives that explain how products move from producers to consumers, how institutions mediate interactions, and how efficiency and equity are distributed across systems. Four frameworks are particularly useful for examining wholesale markets in Benguet, Philippines, and Daegu, South Korea: the Structure, Conduct, Performance (SCP) paradigm, Value Chain Analysis (VCA), Transaction Cost Economics (TCE), and Regional Development Theories. Together, these approaches provide a multidimensional foundation for analyzing agricultural markets by linking competition, value creation, exchange relationships, and regional conditions.

The Structure-Conduct-Performance (SCP) framework provides a foundational analytical model for examining agricultural marketing systems by exploring the interrelationships among market structure, firm behavior, and industry performance. It emphasizes how the organization of an industry, particularly the number and size distribution of firms, shapes competitive dynamics and behavioral patterns such as cooperation, competition, or collusion (Goetz, 2016). The framework posits a cyclical relationship in which structural characteristics influence firm conduct, leading to performance outcomes that, in turn, reshape market structure over time. In agricultural marketing, the SCP framework facilitates analysis of how marketing activities contribute to market formation through structural, functional, and organizational dimensions (Waridin et al., 2021). Market structure analysis elucidates farmers' bargaining positions and institutional competition, while market conduct focuses on the execution of exchange, physical, and facilitating functions. Market performance, in turn, assesses profitability and system efficiency. The SCP model has been further advanced through the integration of value chain analysis, which broadens the scope to include the entire production to consumption. The value chain framework encompasses all stages from product design and production to marketing, consumption, and disposal (Malhotra et al., 2023). By highlighting the roles of marketing institutions and supporting actors in value creation, it extends traditional market analysis to address sustainability and organizational competitiveness. Overall, the integration of SCP and value chain frameworks provides a comprehensive analytical foundation for understanding agricultural market systems and enhancing value delivery across the agribusiness sector (Waridin et al., 2021; Malhotra et al., 2023). Transaction Cost Economics (TCE) adds another dimension by examining the hidden costs of exchange, such as information search, contract negotiation, and enforcement (Splinter & Dries, 2023). Regional Development Theories situate agricultural marketing within broader spatial and socio-economic contexts. From early location models to current concepts of territorial marketing and endogenous growth, these theories highlight how infrastructure, institutions, and human capital shape participation and competitiveness (Ariffin, 1977). Recent applications include territorial marketing in Ukraine during martial law, which enabled enterprise relocation, partnership formation, and investment attraction (Bezpartochnyi & Bezpartochna, 2023).

These frameworks offer complementary insights into agricultural marketing systems. The SCP paradigm explains structural determinants of competition and performance; VCA highlights efficiency and value creation along the supply chain; TCE demonstrates how information, trust, and coordination reduce the costs of exchange; and Regional Development Theories contextualize markets within spatial and socio-economic environments. Applied to Benguet and Daegu, these approaches enable a holistic analysis that moves beyond price signals to incorporate institutional design, supply chain integration, and regional disparities, providing richer insights into the challenges and opportunities of agricultural marketing in both developing and advanced contexts.

2.2 Literature on Agricultural Wholesale Markets: Global and Regional Perspectives

Agricultural wholesale markets are widely recognized as vital nodes in food systems, enabling the aggregation, storage, and distribution of produce while facilitating price discovery and stabilizing farm incomes. In developing economies, particularly across Southeast Asia, these markets are indispensable for smallholder farmers who face geographic and financial constraints. Centralization of transactions through trading posts or “palengkes” not only reduces post-harvest losses but also enhances transparency through centralized price reporting, thereby strengthening decision-making for both farmers and traders (Food and Agriculture Organization [FAO], 2003, 2020). In this way, wholesale markets function as institutional infrastructures that shape efficiency, equity, and competitiveness within agricultural supply chains.

The defining characteristics of wholesale markets underscore their complexity and importance. They operate as high-volume, time-sensitive environments involving multiple actors such as farmers, traders, middlemen, regulators, and transporters whose interactions determine market outcomes (Aujla et al., 2007; FAO, 2003). Infrastructure such as cold storage, auction halls, and transport facilities plays a crucial role in ensuring efficiency, while informal credit systems and trust-based relationships remain pervasive in many contexts. Comparative studies highlight disparities in performance: South Korea’s Daegu wholesale market exemplifies advanced integration of cold-chain systems, digital auctions, and logistics coordination (WUWM, 2022), whereas the La Trinidad Vegetable Trading Post (LTVTP) in the Philippines continues to rely on manual processes that constrain aggregation, storage, and real-time price setting (Padilla & Domingo, 2023). These contrasts illustrate how institutional design and infrastructure shape market efficiency and transparency.

In developing economies, wholesale markets often face infrastructure deficits, informal trading practices, and structural vulnerabilities of smallholders. Philippine trading centers such as the Benguet Agri-Pinoy Trading Center (BAPTC) have received significant public investment yet remain hampered by bureaucratic inefficiencies and insufficient cold-chain capacity (DA, 2015; Lopez & Balabag, 2022). Farmers commonly depend on commission agents, frequently without written contracts, while credit buying and “hakot” systems introduce uncertainty and weaken price transparency (Padilla & Domingo, 2023). These dynamics reinforce weak bargaining power,

forcing farmers to sell quickly at low prices to avoid spoilage (Bacani et al., 2021). Middlemen provide critical services such as credit and consolidation but also capture disproportionate value through opaque mechanisms (Mukherjee & Zhang, 2021). Although traded volumes at BAPTC have expanded substantially since its establishment, governance and capacity challenges persist (Department of Agriculture [DA], 2021).

By contrast, wholesale markets in developed economies such as South Korea demonstrate greater efficiency, transparency, and technological sophistication. Facilities such as Garak, Gimhae, and Daegu markets employ computerized grading, automated inventory systems, and extensive cold storage that reduce post-harvest losses and stabilize supply (Cho, 2003; FFTC-AP, 2021). Trading is largely conducted through regulated auctions, ensuring fairness and supported by real-time dissemination of market data via digital platforms managed by the Korea Agro-Fisheries & Food Trade Corporation (aT, 2020). Public-private partnerships (PPPs) have facilitated investment in infrastructure and ICT integration, making these markets hubs of efficiency, quality assurance, and consumer responsiveness (Korea Rural Economic Institute [KREI], 2018). These features contrast sharply with the fragmented, infrastructure-limited conditions prevalent in the Philippines, underscoring the developmental divide between wholesale systems in developed and developing contexts.

Beyond logistics and economics, wholesale markets play broader roles in food security and rural development. Efficient systems stabilize farm incomes, strengthen food security, and contribute directly to Sustainable Development Goals on Zero Hunger and Decent Work (ADB, 2022). They also serve as regional growth poles, stimulating investment in transport and storage sectors (Seo & Lee, 2023). At the same time, stakeholder satisfaction, shaped by factors such as transaction efficiency, price transparency, infrastructure quality, timely payments, and responsive management, emerges as a crucial determinant of market sustainability (Mwendwa et al., 2019; Reddy & Suresh, 2021; Rahman et al., 2022). Comparative evidence across Asia, Africa, and Latin America suggests that markets which deliver both financial returns and relational value, through fairness, trust, and inclusivity, are more likely to sustain participation and foster resilient food systems.

3. METHODOLOGY

This study employed a mixed-methods approach, integrating quantitative and qualitative techniques to compare stakeholder satisfaction in two Agricultural Products Wholesale Markets (APWMs): the La Trinidad Vegetable Trading Post (LTVTP) in the Philippines and the Maecheon Agricultural & Fisheries Wholesale Market (MAFWM) in South Korea. A descriptive research design was adopted to systematically measure satisfaction levels, while thematic analysis provided deeper insights into stakeholder perceptions and lived experiences.

Data were gathered using a researcher-designed survey questionnaire composed of two parts. The first part employed a 4-point Likert scale (4 = Fully Agree, 3 = Mostly Agree, 2 = Mildly

Disagree, 1 = Completely Disagree) to evaluate satisfaction across nine dimensions: governance, operations, infrastructure, economic and social factors, product quality and accessibility, location, technology and innovation, marketing and promotion, and sustainability. The second part included open-ended questions, allowing respondents to provide qualitative feedback.

A total of 225 respondents participated in the study: 150 stakeholders from LTVTP in Benguet and 75 stakeholders from MAFWM in Daegu. Respondents included farmers, traders, transporters, and market administrators. Data collection was conducted over a five-month period from February 03, 2025 to June 28, 2025 using two modes: (1) face-to-face surveys, administered directly to stakeholders by hired enumerators in the Philippines and a translator with the researcher in South Korea; and (2) online distribution via Google Forms, which enhanced accessibility for participants who were unable to attend in person. This dual approach improved inclusivity, increased response rates, and reduced geographic and time-related barriers. To further support the primary findings, secondary data from government reports, industry publications, and academic studies were reviewed.

Quantitative data were analyzed using t-tests and one-way ANOVA to identify stakeholder satisfaction levels across the nine dimensions. Qualitative data from open-ended responses were examined through thematic analysis, enabling the identification of recurring issues and stakeholder perspectives. Triangulation was applied by integrating survey results with secondary sources, thereby enhancing validity and ensuring a comprehensive understanding of market performance and stakeholder satisfaction.

4. DISCUSSION

4.1 Difference in the Level of Satisfaction of Market Stakeholders in LTVTP and in MAFWM in terms of Stakeholders' Profile

This section examines whether market stakeholders' satisfaction in LTVTP and MAFWM differs according to demographic profiles, including age, years of experience, educational attainment, gender, and hours worked in the market. Using Student's t-test for independent means, ANOVA, or their non-parametric equivalents at a 5% level of significance in Jamovi, the null hypothesis of no significant difference was tested for each profile variable.

Table 1 presents the results of independent samples t-tests comparing the level of satisfaction between male and female stakeholders in both the LTVTP and the MAFWM. Across both markets, the analysis revealed no statistically significant differences in satisfaction levels based on gender. At LTVTP, female stakeholders had a mean satisfaction score of 2.83 (SD = 0.32) while males had 2.85 (SD = 0.36), with a t-value of 0.42 and a p-value of 0.68. Similarly, at MAFWM, females scored 2.81 (SD = 0.42) and males 2.78 (SD = 0.29), with a t-value of 0.22 and a p-value of 0.82, both results indicating no significant difference. This finding suggests that gender does not meaningfully influence how stakeholders evaluate market systems, as both male and female respondents reported comparable levels of satisfaction.

Table 1. Difference in the Level of Satisfaction of Market Stakeholders in LTVTP and in MAFWM in Terms of Stakeholders' Gender

Sex	Mean Satisfaction	Standard Deviation	t-value	p-value	Interpretation
LTVTP					
Female	2.83	0.32	0.42	0.68	Not Significantly Different
Male	2.85	0.36			
MAFWM					
Female	2.81	0.42	0.22	0.82	Not Significantly Different
Male	2.78	0.29			

The results also mirror the broader agricultural context in both South Korea and the Philippines, where women are active participants in trade and where policies generally discourage gender discrimination. Equal access to market infrastructure, stalls, and governance mechanisms reinforces inclusivity and reduces the likelihood of gender-based disparities in satisfaction. These findings suggest that gender-specific interventions may not be necessary to improve satisfaction unless deeper barriers (e.g., access to credit, safety concerns) emerge. Nonetheless, inclusivity should remain a guiding principle, with measures such as grievance hotlines, empowerment seminars, and leadership training designed to remain accessible to all stakeholders regardless of gender.

Table 2 shows the comparison of satisfaction levels among stakeholders across different age groups in both the LTVTP and the MAFWM. Using one-way ANOVA, results showed no statistically significant differences in satisfaction scores among the various age groups in either market. At LTVTP, mean satisfaction scores were almost identical across age groups, 2.84 (SD = 0.31) for ages 15–24, 2.84 (SD = 0.36) for 25–54, 2.86 (SD = 0.29) for 55–64, and 2.86 (SD = 0.21) for 65 and older with an F-value of 0.05 and $p = 0.99$. Similarly, at MAFWM, the overall mean was 2.81 (SD = 0.39), and the F-value of 0.21 with $p = 0.81$ confirmed that there were no significant differences between the age groups. These findings suggest that age does not meaningfully influence how stakeholders perceive or evaluate market performance.

This outcome is consistent with the design of the questionnaire, which measured satisfaction across structural and operational domains such as market infrastructure and logistics, market operations, product quality and accessibility, technology and innovation, marketing and promotion, market location, governance, socio-economic factors, and sustainability. These domains assess the market systems rather than personal demographic attributes, which explains the uniformity of perceptions across age groups. FAO (2017) has emphasized that stakeholder satisfaction in wholesale markets is shaped primarily by institutional, operational, and logistical conditions rather than demographic characteristics like age. Likewise, Dlamini et al. (2019) similarly found that user

satisfaction in agricultural markets was more strongly predicted by service reliability, transaction efficiency, and infrastructure adequacy than by age. In Thailand, Pimpa et al. (2021) also observed that cleanliness, timely transactions, and physical accessibility had greater influence on satisfaction than demographic factors.

The absence of significant variation across age groups reinforces that stakeholder satisfaction is driven more by shared structural conditions than by generational perspectives. This implies that market improvement strategies can be designed to be broadly inclusive, addressing systemic challenges like infrastructure upgrades, fair pricing systems, and improved governance without needing to differentiate by age cohort. Ensuring that reforms focus on enhancing overall functionality and efficiency will likely benefit all age groups simultaneously, promoting equitable satisfaction across the stakeholder base.

Table 2. Difference in the Level of Satisfaction of Market Stakeholders in LTVTP and in MAFWM in Terms of Stakeholders' Age

Age Groups	Mean Satisfaction	Standard Deviation	F-value	p-value	Interpretation
LTVTP					
15-24 y/o	2.84	0.31	0.05	0.99	Not Significantly Different
25-54 y/o	2.84	0.36			
55-64 y/o	2.86	0.29			
65 y/o and above	2.86	0.21			
MAFWM					
25-54 y/o	2.81	0.39	0.21	0.81	Not Significantly Different
55-64 y/o	2.83	0.32			
65 y/o and above	2.73	0.42			

Table 3 presents the analysis of stakeholders' satisfaction levels across different educational attainment groups in both the LTVTP and the MAFWM. Results show no statistically significant differences in satisfaction scores across educational levels for either market. At LTVTP, mean satisfaction scores were 2.76 (SD = 0.20) for Elementary, 2.92 (SD = 0.26) for High School, 2.95 (SD = 0.34) for Vocational, 2.77 (SD = 0.41) for Tertiary/College, and 2.95 (SD = 0.18) for Postgraduate, with a one-way ANOVA yielding an F-value of 2.67 and a p-value of 0.06. Likewise, at MAFWM, mean scores ranged from 2.67 (SD = 0.38) for Elementary, 2.86 (SD = 0.48) for High School, 2.59 (SD = 0.43) for Vocational, 2.82 (SD = 0.32) for Tertiary/College, and 2.71 for Postgraduate, with an F-value of 3.82 and a p-value of 0.58.

These results indicate that educational attainment does not significantly influence how stakeholders evaluate market performance. This uniformity in satisfaction scores suggests that

stakeholder perceptions are shaped more by shared structural conditions than by educational attainment. Wholesale markets operate in highly practical and experience-based environments where satisfaction depends less on academic background and more on consistent service delivery, reliable infrastructure, fair pricing, and product quality. Both LTVTP and MAFWM offer inclusive access to facilities and services, while market interactions are often verbal or informal, reducing any potential advantage of higher schooling. This is consistent with Tsai (2019), who noted that while education may improve comprehension of product information, satisfaction is more closely tied to direct market experiences, and with Pham and Le (2020), who found that education influenced awareness of grading norms but not overall satisfaction practical exposure and perceived fairness were stronger determinants.

Table 3. Difference in the Level of Satisfaction of Market Stakeholders in LTVTP and in MAFWM in Terms of Stakeholders' Highest Educational Attainment

Highest Educational Attainment	Mean Satisfaction	Standard Deviation	F-value/ chi-square	p-value	Interpretation
LTVTP					
Elementary	2.76	0.2	2.67	0.06	Not Significantly Different
High School	2.92	0.26			
Vocational	2.95	0.34			
Tertiary/College	2.77	0.41			
Post Grad	2.95	0.18			
MAFWM					
No Formal Education	2.71	0.06	3.82	0.58	Not Significantly Different
Elementary	2.67	0.38			
High School	2.86	0.48			
Vocational	2.59	0.43			
Tertiary/College	2.82	0.32			
Post Grad	2.71	N/A			

Table 4 presents the comparison of stakeholder satisfaction levels based on their years of experience participating in the La Trinidad Vegetable Trading Post (LTVTP) and the Maecheon Agricultural and Fishery Wholesale Market (MAFWM). Results showed no statistically significant differences in satisfaction scores across experience groups in either market. At LTVTP, mean satisfaction scores were 2.87 (SD = 0.39) for 0–5 years, 2.89 (SD = 0.31) for 6–10 years,

2.87 (SD = 0.23) for 11–15 years, 2.71 (SD = 0.37) for 16–20 years, and 2.88 (SD = 0.37) for above 20 years, with a one-way ANOVA yielding an F-value of 1.12 and a p-value of 0.35. Likewise, at MAFWM, mean scores ranged from 2.84 (SD = 0.29) for 6–10 years, 2.59 (SD = 0.57) for 11–15 years, 2.96 (SD = 0.54) for 16–20 years, and 2.73 (SD = 0.36) for above 20 years, with an F-value of 0.73 and a p-value of 0.58.

These results indicate that the length of stakeholders' market experience does not substantially influence their satisfaction ratings. The questionnaire focused on structural and operational domains such as infrastructure and logistics, market operations, product quality and accessibility, technology and innovation, marketing and promotion, market location, governance, socio-economic contributions, and sustainability factors that are experienced similarly by all users regardless of tenure.

The consistent satisfaction scores across all tenure groups suggest that both new and seasoned participants encounter similar service quality, governance structures, and operational environments. For newcomers, initial optimism and lower expectations may offset early adjustment challenges, while long-time participants may rely on established networks and familiarity to maintain satisfaction. Community norms, predictable operational routines, and the collective experience of market constraints appear to produce uniform perceptions regardless of years of involvement. This pattern supports findings from Tsai (2019), who emphasized that relational trust and cooperation play a greater role than tenure in shaping positive market experiences, and Pham and Le (2020), who reported that veteran vendors are not automatically more satisfied satisfaction depends more on transparent and fair governance systems. These results underscore that improving stakeholder satisfaction requires systemic market reforms that benefit all actors equally, rather than interventions targeted based on years of experience.

Table 4. Difference in the Level of Satisfaction of Market Stakeholders in LTVTP and in MAFWM in Terms of Stakeholders' Years of Experience

Years of Experience	Mean Satisfaction	Standard Deviation	F-value	p-value	Interpretation
LTVTP					
0-5	2.87	0.39	1.12	0.35	Not Significantly Different
6-10	2.89	0.31			
11-15	2.87	0.23			
16-20	2.71	0.37			
Above 20	2.88	0.37			
MAFWM					
0-5	2.84	0.34	0.73	0.58	Not Significantly Different
6-10	2.84	0.29			
11-15	2.59	0.57			
16-20	2.96	0.54			
Above 20	2.73	0.36			

Table 5 shows the comparison of stakeholder satisfaction levels based on the number of hours stakeholders spend working in the LTVTP and the MAFWM. Results revealed no statistically significant differences in satisfaction levels across the different working-hour groups in either market. At LTVTP, mean satisfaction scores were 2.69 (SD = 0.30) for 1–2 hours, 2.88 (SD = 0.36) for 3–4 hours, 2.85 (SD = 0.27) for 5–6 hours, and 2.67 (SD = 0.46) for 7–8 hours, with a one-way ANOVA producing an F-value of 1.22 and a p-value of 0.34. Similarly, at MAFWM, stakeholders reported mean satisfaction scores of 2.80 (SD = 0.29) for 5–6 hours, 2.79 (SD = 0.34) for 7–8 hours, and 2.79 (SD = 0.42) for more than 8 hours, with an F-value of 0.00 and p-value of 1.00.

These results indicate that the length of daily working hours does not meaningfully influence how stakeholders perceive or evaluate market performance. This aligns with FAO (2017), which observed that satisfaction in traditional wholesale markets is shaped more by the reliability and quality of systems than by the amount of time participants spend in them. Similarly, ADB (2021) emphasized that operational satisfaction depends primarily on efficiency and fairness of processes rather than on hours of exposure.

Table 5. Difference in the Level of Satisfaction of Market Stakeholders in LTVTP and in MAFWM in Terms of Stakeholders' Number of Hours Working

Number of Hours Working	Mean Satisfaction	Standard Deviation	F-value	p-value	Interpretation
LTVTP					
1-2	2.69	0.30	1.22	0.34	Not Significantly Different
3-4	2.88	0.36			
5-6	2.85	0.27			
7-8	2.67	0.46			
MAFWM					
5-6	2.80	0.29	0.00	1.00	Not Significantly Different
7-8	2.79	0.34			
Above 8	2.79	0.42			

The uniformity in satisfaction across both short-hour and long-hour stakeholders suggests that they share similar perceptions of service quality, cleanliness, governance, and overall market environment. Long-hour workers may normalize existing challenges as part of their daily routine, while short-hour users may not remain long enough to experience deeper inefficiencies yet both groups ultimately respond to the same systemic conditions. This observation is consistent with Ryu and Park (2021), who found that while long-hour vendors valued supportive infrastructure such as rest areas and storage, their overall satisfaction was similar to short-hour vendors when basic operational needs were met. These findings highlight the importance of focusing policy efforts on universal improvements such as cleaner facilities, efficient logistics, and fair governance, while providing time-sensitive amenities like rest areas for long-hour workers and streamlined services for short-hour users to reinforce inclusive and consistent satisfaction across all groups.

4.2 Difference in the Level of Satisfaction of Market Stakeholders in LTVTP and in Maecheon along different Wholesale Market Indicators

The succeeding tables present the differences in the level of satisfaction of market stakeholders in LTVTP and in MAFWM along market indicators- market governance, market operations, market infrastructure and logistics, economic and social factors, product quality and accessibility, market location, technology and innovation, marketing and promotion and sustainability and environmental factors with their associated mean and standard deviation, obtained t-value, p-value and interpretation. Using Student's t-test on independent means at 5% level of significance on Jamovi, the null hypothesis that there is no significant difference in the level of satisfaction of market stakeholders in LTVTP and in Maecheon along the different wholesale market indicators are tested.

Table 6 presents the results on Market Governance, Market Operations, Economic and Social Factors, and Sustainability and Environmental Factors, showing no significant difference in the level of satisfaction between participants from the LTVTP and the MAFWM. This indicates that stakeholders perceive both markets to function at comparable levels across these dimensions.

Table 6. Indicators with No Significant Difference in Stakeholder Satisfaction between LTVTP and MAFWM

Indicator	LTVTP Mean (SD)	MAFWM Mean (SD)	t-value	p-value	Interpretation
Market Governance	2.93 (0.90)	2.83 (0.48)	0.92	0.36	Not Significantly Different
Market Operations	3.01 (0.64)	2.97 (0.48)	0.53	0.6	Not Significantly Different
Economic & Social Factors	2.87 (0.61)	2.83 (0.51)	0.56	0.58	Not Significantly Different
Sustainability & Environmental	2.77 (0.75)	2.84 (0.56)	0.76	0.45	Not Significantly Different

In terms of Market Governance, LTVTP recorded a mean score of 2.93 (SD = 0.90), closely aligned with MAFWM's 2.83 (SD = 0.48). The similarity suggests that governance structures in both markets, while formally distinct, are implemented in ways that produce comparable participant experiences. This may be attributed to shared priorities such as transparency, fairness, and efficiency in addressing stakeholder concerns. As Zhang and Lu (2011) observed, governance frameworks alone do not always directly influence customer satisfaction; instead, operational responsiveness and service quality often play a greater role. Thus, both LTVTP and MAFWM may converge on governance practices that meet stakeholder expectations without yielding significant differences in satisfaction.

For Market Operations, the mean satisfaction levels were again close: 2.93 (SD = 0.90) for LTVTP and 2.83 (SD = 0.48) for MAFWM. This indicates that both markets demonstrate similar strengths and challenges in managing day-to-day operations, including pricing, market coordination, and service delivery. The convergence in ratings may also point to comparable regulatory conditions or foundational management approaches. Operational effectiveness, as highlighted by prior studies, is often more critical to satisfaction than structural differences in governance (Zhang & Lu, 2011).

Regarding economic and social factors, LTVTP achieved a mean score of 3.01 (with a standard deviation of 0.64), while MAFWM scored 2.97 (with a standard deviation of 0.48), suggesting that stakeholders in both markets perceive comparable economic and social conditions and influences on satisfaction. According to Bouckaert and Van De Walle (2003), such comparable satisfaction

levels related to economic and social factors could indicate that both markets operate within similar macro-economic conditions or cater to participant demographics with analogous economic and social priorities. Economic growth, for example, has been shown to positively affect customer satisfaction, suggesting that if both markets are influenced by similar economic trajectories, their satisfaction levels might align. Further, socio-economic factors such as consumer confidence, inflation, and interest rates significantly impact consumer satisfaction and pricing perceptions across markets. If both LTVTP and MAFWM exist within a similar socio-economic landscape, it is plausible that these external factors exert a uniform influence, resulting in undifferentiated satisfaction levels. Research also distinguishes between economic satisfaction (evaluation of economic outcomes) and social satisfaction (evaluation of personal interactions), both of which are crucial in channel relationships. The similarity in overall satisfaction suggests that both markets are either equally effective (or ineffective) in fostering both types of satisfaction or that a balance between them is similarly achieved in both contexts.

Furthermore, in terms of sustainability and environmental factors, LTVTP received a mean score of 2.87 (with a standard deviation of 0.61), which is not significantly different from MAFWM's score of 2.83 (with a standard deviation of 0.51), implying similar approaches and outcomes in environmental practices and sustainability efforts in both markets. The lack of significant difference in satisfaction concerning sustainability and environmental factors might imply that both markets either equally embrace or equally neglect environmental practices, or that consumers in these markets have similar expectations or awareness levels regarding sustainability. While consumer preference for eco-friendly products and ethical brand practices is growing, the direct link between sustainability perceptions and customer satisfaction is often mediated by perceived value, including emotional and social dimensions. If both markets offer products and services that are perceived similarly in terms of their environmental attributes and the value they provide, the satisfaction levels would naturally be comparable. De Mendonca and Zhou (2019) have found that while companies are increasingly focusing on environmental performance, customers are not always directly satisfied with these efforts, suggesting a potential disconnect or a need for more effective communication of these initiatives to consumers. If both markets face similar challenges in effectively communicating their sustainability efforts or if consumers are not yet prioritizing these aspects strongly enough to create a discernible difference in satisfaction, the observed similarity would be expected. This indicates that simply implementing sustainable practices might not be enough; the practices must also resonate emotionally and socially with consumers to significantly influence their satisfaction.

These findings indicate that LTVTP and MAFWM, despite being located in different economic and cultural contexts, demonstrate strikingly similar patterns of satisfaction across governance, operations, socio-economic impact, and sustainability. This underscores the presence of shared structural and operational issues, suggesting that strategies for improvement in both markets may

follow similar pathways, particularly in enhancing governance responsiveness, stabilizing operations, and strengthening sustainability practices.

Table 7 presents the areas where participants reported differences in their level of satisfaction between the LTVTP and the MAFWM. These areas include Market Infrastructure and Logistics, Product Quality and Accessibility, Technology and Innovation, Marketing and Promotion, and Market Location.

Table 7. Indicators with Significant Difference in Stakeholder Satisfaction between LTVTP and MAFWM

Indicator		LTVTP Mean (SD)	MAFWM Mean (SD)	t-value	P- value	Interpretation
Market Infrastructure & Logistics		2.80 (0.73)	2.47 (0.57)	3.40	0.00	Significantly Different
Product Quality		3.19 (0.17)	3.33 (0.09)	2.61	0.01	Significantly Different
Technology & Innovation		2.13 (0.78)	2.54 (0.71)	3.59	0.00	Significantly Different
Marketing Promotion		2.82 (0.66)	2.58 (0.51)	2.75	0.01	Significantly Different
Market Location		3.08 (0.40)	2.84 (0.49)	3.89	0.00	Significantly Different

In terms of Market Infrastructure and Logistics, LTVTP obtained a mean score of 2.80 (SD = 0.73), compared to MAFWM's 2.47 (SD = 0.57). This indicates that participants were more satisfied with the infrastructure and logistical support in LTVTP than in MAFWM. Interestingly, this finding suggests that advanced technological infrastructure, often presumed to enhance efficiency and satisfaction, does not always guarantee higher participant approval. Despite MAFWM's relatively more modern facilities, the results highlight that participant satisfaction may depend less on technological sophistication and more on factors such as functionality, accessibility, and the perceived responsiveness of infrastructure to stakeholder needs. The higher satisfaction rating for LTVTP emphasizes that user experience in market settings is shaped by practical and context-specific factors, such as ease of access, efficiency of logistics, and adequacy of physical facilities, rather than by technological advancement alone.

One primary factor contributing to this difference in satisfaction levels may lie in the disparity between perceived value and initial expectations. Participants engaging with a less technologically advanced system like the LTVTP might hold lower initial expectations regarding service quality, efficiency, or features. Conversely, participants interacting with an advanced system like the MAFWM, particularly within a technologically progressive nation such as South Korea, are likely

to harbor elevated expectations. When these heightened expectations are not met, even minor service imperfections or inconveniences can result in pronounced dissatisfaction, irrespective of the system's objective capabilities. This phenomenon is supported by studies indicating that individuals with low base-level expectations are more easily satisfied than those with high expectations, a concept termed "exchange trust norm" versus "communal trust norm". For instance, the study of Adewole et al. (2022) on health services in Nigeria found that those working in the private sector, who might have higher expectations, were less satisfied compared to those with lower expectations. Similarly, individuals who did not seek information about quality of care before choosing a facility were less satisfied, implying that their expectations might have been misaligned with the reality of services. Cultural factors also exert a profound influence on how satisfaction is perceived and reported. South Korea, being a highly developed and often individualistic society, might emphasize efficiency, speed, and cutting-edge technology as primary indicators of quality and satisfaction. Conversely, a community-oriented culture, potentially characteristic of the LTVTP's operating environment, might prioritize interpersonal relationships, trust, and a sense of belonging. Jones (2018) affirms that culture is a significant factor in participant satisfaction, influencing how learners assimilate knowledge and their overall experience.

In terms of Product Quality, the data indicate that LTVTP received a mean satisfaction score of 3.19 (SD = 0.17), while MAFWM recorded a slightly higher score of 3.33 (SD = 0.09). Although the numerical difference appears small, it highlights that participants perceive MAFWM as more effectively meeting consumer expectations in terms of both product quality and ease of access. In competitive agricultural markets, even marginal differences in satisfaction can be meaningful, as they reflect alignment with consumer needs and market dynamics.

The higher satisfaction with product quality in MAFWM suggests that consumers perceive its products as superior, whether due to essential attributes, perceptions of freshness and safety, or both. Agricultural product quality is shaped not only by production practices and food safety standards but also by consumer perceptions of value. In South Korea, agencies such as the National Agricultural Products Quality Management Service (NAQS) play a critical role in ensuring food safety, standardization, and country-of-origin labelling factors that significantly shape consumer confidence. MAFWM's integration of these assurances into its operations could explain its advantage in this dimension. Consumer perception of quality extends beyond tangible attributes like freshness, appearance, taste, and nutrition to include intangible factors such as production methods and ethical considerations. MAFWM's stronger performance may therefore stem from its ability to deliver products that align with these expectations, perhaps through trusted certifications or transparent quality assurance processes. Certification systems such as Good Agricultural Practices (GAP), environment-friendly labels, and low-carbon certificates (Park et al, 2014) are widely recognized in South Korea and often enhance consumer trust and willingness to pay. If MAFWM leverages such certifications more effectively than LTVTP, it could explain its

higher satisfaction ratings, especially since consumers of eco-friendly products typically value freshness and safety while being sensitive to packaging and pricing.

In terms of technology and innovation, the statistical finding indicating that the La Trinidad Vegetable Trading Center (LTVTP) received a lower mean score of 2.13 (with a standard deviation of 0.78) for technology and innovation compared to MAFWM, which scored 2.54 (with a standard deviation of 0.71), suggests a discernible difference in participant satisfaction. This outcome implies that participants generally reported higher satisfaction levels with the technology and innovation aspects at MAFWM than at LTVTP. MAFWM's higher satisfaction in technology and innovation likely reflects its effective deployment of solutions that optimize service operations and communication. Tai et al. (2021) reported that technology-related service innovations (TRSI) significantly improve operational efficiency and communication quality, leading to increased customer satisfaction. Thus, if MAFWM utilizes advanced IT-enabled customer service systems (CSS) that simplify the process of selecting and customizing services, this directly contributes to higher satisfaction by better aligning offerings with customer needs. Similarly, self-service technologies (SSTs) at MAFWM may provide more reliable and consistent service standards, thereby reducing common issues of variability and impermanence often associated with service delivery and consequently boosting customer satisfaction. The ability to streamline processes and reduce wait times through efficient technology is a direct contributor to customer satisfaction.

The higher satisfaction at MAFWM can also be attributed to its provision of superior convenience and accessibility through technology. Modern consumers increasingly rely on universal technology for convenience, easy use, hassle-free service, and immediate access to accurate information. Digital innovations, such as user-friendly mobile applications, robust online platforms, and innovative features like live chat or chatbots, remove traditional barriers of time and location, making services more available and efficient. If MAFWM provides more seamless and intuitive digital touchpoints that integrate across various stages of the customer journey, it would inherently lead to greater satisfaction than an entity with less developed or less accessible technological offerings like LTVTP. The mere presence of advanced technologies that improve performance and quality, along with offering greater convenience and personalization capabilities, can create a sense of delight and positive perception that MAFWM is a leader in its field, surpassing the offerings of LTVTP.

In terms of Marketing and Promotion, the LTVTP recorded a higher satisfaction level with a mean score of 2.82 (SD = 0.66), compared to 2.58 (SD = 0.51) for MAFWM. This indicates that the marketing and promotional strategies adopted by LTVTP are perceived as more effective and engaging by the participants than those implemented in MAFWM. The difference may be explained by several factors, including the localization of marketing initiatives, the characteristics of the products being promoted, and the extent of community involvement. LTVTP's marketing practices may resonate more with local stakeholders because they are tailored to the cultural

context and rely on direct producer–consumer interactions, while MAFWM’s promotional strategies may be more standardized and less personalized. For example, LTVTP might be excelling in direct marketing methods such as farmers' markets and farm stands, which foster personal connections and word-of-mouth promotion. These direct interactions can build trust and loyalty within the local community, which is often a strong driver of satisfaction. The success of LTVTP's marketing and promotion could also be linked to stronger community ties and efforts to build lasting relationships with consumers. Strategies like Community Supported Agriculture (CSA) programs, which involve customers paying upfront for a season's worth of produce, can create a highly loyal customer base and a sense of belonging.

In terms of Market Location, the La Trinidad Vegetable Trading Post (LTVTP) obtained a higher satisfaction rating with a mean score of 3.08 (SD = 0.40), compared to 2.84 (SD = 0.49) for the Maecheon Agricultural and Fishery Wholesale Market (MAFWM). This difference suggests that LTVTP’s location is perceived as more advantageous and convenient by its stakeholders. Several strategic aspects of its placement appear to contribute to this higher satisfaction. The LTVTP is strategically situated on a 9,168 square meter municipal-owned lot located behind the Municipal Hall of La Trinidad. Its accessibility through principal transportation routes and a well-connected road system facilitates the movement of both people and goods. This accessibility is critical, as the municipality serves as the primary conduit for produce from Benguet’s vegetable-producing municipalities. Most of these vegetables are transported through La Trinidad before being distributed to major consumption centers, including Baguio City and Metro Manila. Thus, the market’s geographic position not only enhances convenience but also strengthens its role as a vital hub in the regional and national food supply chain. The design and layout of the trading post further enhance its accessibility.

4.3 Factors Influencing Stakeholder Satisfaction in LTVTP and MAFWM

This section identifies the factors that influence stakeholder satisfaction in the La Trinidad Vegetable Trading Post (LTVTP) and the Maecheon Agricultural and Fishery Wholesale Market (MAFWM). Using thematic analysis, the findings are organized into key performance dimensions: governance, operations, infrastructure and logistics, economic and social factors, product quality, market location, technology and innovation, marketing and promotion, and sustainability. These themes provide a framework for comparing market strengths and weaknesses and for understanding how they shape perceptions of fairness, inclusivity, and efficiency. The consistency of these themes across both markets indicates that the challenges are systemic rather than isolated.

4.3.1 Stakeholder’s Satisfaction in terms of Market Governance

Stakeholder participation in decision-making is marginalized in both markets due to top down, hierarchical governance arrangements. Respondents from MAFWM and LTVTP complained about the lack of participatory discourse, inadequate feedback systems, and their restricted involvement. Policies were frequently publicized only after they were put into effect, and poor information

transmission and a lack of openness were common themes. These governance flaws weaken collaboration, undermine trust, and sustain feelings of injustice and exclusion.

4.3.2 Stakeholder's Satisfaction in terms of Market Operations

Price inconsistency and a lack of transparency were cited by stakeholders in both markets as the main causes of discontent. Unstandardized and buyer-driven pricing led to unfair circumstances in LTVTP, while the auction-based system in MAFWM resulted in variable margins and unpredictable operations. Additionally, respondents said that pricing information was frequently hidden or revealed only after transactions, highlighting the necessity of transparent and consistent procedures to guarantee accountability and fairness.

4.3.3 Stakeholder's Satisfaction in terms of Market Infrastructures and Logistics

Inadequate parking, small roadways, and poor facility upkeep plague both marketplaces, causing traffic jams, inefficiencies, and increased operational expenses. Participants reported structural deterioration at LTVTP, including leaking roofs, obstructed drains, and flooding, as well as crowded parking and inadequate unloading sites. Similar problems were noted at MAFWM, where there were further grievances over antiquated infrastructure and inadequate handling and storage capacity. Both locations had significant sanitation issues, which were a result of poor environmental management and insufficient safety regulations.

4.3.4 Stakeholder's Satisfaction in terms of Economic and Social Factors

Stakeholders emphasized ongoing pricing volatility and power imbalances. Due to overstock and price fluctuations, LTVTP participants reported being vulnerable to income shocks, with middlemen having considerable control over pricing. On the other hand, MAFWM stakeholders observed that some protection against unfair commercial practices was offered by municipal regulation. These results demonstrate structural disparities in market involvement, with the informal system of LTVTP increasing farmer vulnerability in contrast to the more regulated setting of MAFWM.

4.3.5 Stakeholder's Satisfaction in terms of Product Quality

Traceability, post-harvest treatment, and product freshness were found to be important factors in determining customer satisfaction. Produce frequently deteriorated, according to LTVTP respondents, as a result of lengthy transit times, careless handling, and inadequate storage facilities. Participants in MAFWM saw quality variation that was within acceptable auction norms but related to producers' capacity. Seasonality presents difficulties for both markets, with LTVTP being especially impacted by waste and excess supplies. In contrast to MAFWM's established quality assurance processes, LTVTP lacks traceability systems, underscoring the need for better cold-chain systems and monitoring procedures.

4.3.6 Stakeholder's Satisfaction in terms of Market Location

Congestion and accessibility had conflicting effects on satisfaction. Although visibility was improved by LTVTP's central location, parking and traffic were severely limited. Similar but milder difficulties were documented with MAFWM. Due to poor infrastructure and spatial

planning, safety concerns were observed in both markets, including small-time theft and a lack of weather protection.

4.3.7 Stakeholder's Satisfaction in terms of Technology and Innovations

In LTVTP, where transactions are still primarily cash-based and human, technological integration was noticeably restricted. The lack of quality control technology, low digital literacy, and restricted use of digital systems were mentioned by stakeholders. Competitiveness and efficiency are hampered by these limitations. Through organized auction mechanisms, MAFWM demonstrated comparatively stronger technical integration; nonetheless, system review and upgrading were still requested.

4.3.8 Stakeholder's Satisfaction in terms of Marketing and Promotions

Both markets exhibited weak marketing strategies and underutilization of digital and traditional promotional tools. Participants noted minimal online presence, scarce advertising materials, and reliance on established reputations. Stakeholders emphasized that infrastructure and service improvements should precede promotional efforts to ensure credibility and long-term competitiveness.

4.3.9 Stakeholder's Satisfaction in terms of Sustainability and Environmental Factors

Environmental concerns centered on ineffective waste management and the continued use of plastic packaging. At LTVTP, poor sanitation and foul odors were frequently reported, while MAFWM stakeholders called for improved waste-handling facilities. The pervasive use of plastics in both markets underscores the need for sustainable material alternatives and integrated waste management systems to align with environmental and public health goals.

5. Conclusions

The results show that stakeholder's satisfaction in both LTVTP and MAFWM is shaped more by structural governance, operational efficiency, and institutional transparency than by demographic characteristics, showing that market performance depends on how systems are managed and regulated rather than on who participates. LTVTP performed better in market location, infrastructure, and marketing promotion because of its proximity to production zones and long-standing trading networks. Meanwhile, MAFWM excelled in product quality and technological integration through advanced cold-chain systems, digital innovations, and traceability mechanisms. These variations emphasize that modernization must be context-specific, as developing markets like LTVTP in Benguet, Philippines, can learn from technological integration, while advanced markets like MAFWM in Daegu, South Korea, can adopt participatory and inclusive approaches. Modernization must also go hand-in-hand with structural reforms in governance, accountability, and sustainability. Building competitive and transparent wholesale markets therefore requires balancing innovation and inclusivity to ensure fair, efficient, and resilient agri-food systems that benefit both producers and consumers.

5.1 Future Directions

This study advances multi-level recommendations to enhance the efficiency, competitiveness, and stakeholder satisfaction of the La Trinidad Vegetable Trading Post (LTVTP) in the Philippines and the Maecheon Agricultural & Fishery Wholesale Market (MAFWM) in South Korea. At the policy level, inclusive governance mechanisms, investment in cold-chain and eco-friendly systems, and regulatory reforms are essential to promote transparency, sustainability, and equitable participation. A bilateral cooperation framework between the Philippines and South Korea is proposed to strengthen knowledge-sharing on digital innovation, logistics, and sustainable practices. Institutionally, LTVTP should prioritize infrastructure upgrades, price transparency, and cooperative linkages, while MAFWM should refine auction systems, expand traceability technologies, and foster research partnerships. Joint institutional collaborations and academic exchanges are recommended to improve governance and innovation capacities in both markets. At the stakeholder level, capacity-building in digital literacy, cooperative management, and environmental stewardship is vital to enhance empowerment and inclusivity. Overall, the study emphasizes that integrating governance reform, technological modernization, and cross-country collaboration is key to building equitable, efficient, and sustainable agricultural wholesale markets.

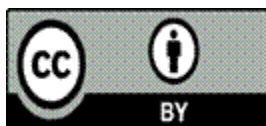
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