Comparative Marketing Decisions among Contact and Non-Contact Smallholder Coffee Growers in Morobe Province, Papua New Guinea

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Abstract: Coffee remains a fundamental component of Papua New Guinea's agricultural economy, generating over K510 million in foreign exchange earnings in the past decade. This study examines the marketing decisions of smallholder coffee growers associated with the Nakama Agribusiness Cooperative in Quepunung village, Morobe Province. By contrasting contact growers (cooperative members) with non-contact growers (independent farmers), the research investigates how personal and socio-economic characteristics influence marketing strategies. Utilizing a sample of 50 growers and employing a mixed-methods approach, the study reveals that, despite demographic similarities between the two groups, contact growers tend to favour rapid sales and bargaining strategies, whereas non-contact growers are more inclined to utilize delay techniques. The findings provide valuable insights for policymakers, cooperatives, and extension services seeking to enhance market participation and income stability for smallholder farmers.

Keywords: Smallholder coffee growers, marketing decisions, cooperatives, agribusiness, socio-economic characteristics

1. INTRODUCTION

Coffee constitutes a fundamental component of Papua New Guinea's agricultural economy, ranking second only to oil palm in terms of export value. With more than 450,000 households involved in coffee cultivation across 18 provinces, the sector serves as a significant source of foreign exchange, generating approximately K510 million over the past decade. Furthermore, it plays a crucial role in supporting rural livelihoods, infrastructure development, and cultural practices (Daviron & Ponte, 2005). Smallholder farmers, who account for over 80% of the country's coffee production, remain pivotal to this industry; however, they encounter ongoing challenges regarding the effective marketing of their produce (Curry et al., 2017b).

This study examines the marketing decisions of smallholder coffee growers in Morobe Province, comparing contact farmers affiliated with the Nakama Agribusiness Cooperative to non-contact farmers in Quepunung village. It investigates how personal and socioeconomic characteristics—such as education, farming experience, and sources of income—influence decision-making in critical areas such as bargaining, delayed sales, and cash exchange. These decisions are influenced by fluctuating prices, logistical costs, and quality control pressures, all of which affect farmers' capacity to benefit from government price support schemes and opportunities in specialty markets.

By analyzing the relationship between farmer profiles and marketing choices, this research seeks to inform targeted interventions aimed at strengthening cooperative participation, enhancing market access, and improving the economic resilience of Papua New Guinea's smallholder coffee sector. The findings are both timely and relevant, providing insights for policymakers, agricultural trainers, and development practitioners who aim to align grassroots realities with national agribusiness strategies.

2. METHODOLOGY

2.1 Study Location and Population

This study was conducted in Boana, located within the Nawaeb District of Morobe Province, Papua New Guinea. The site was selected due to its suitability for both Arabica and Robusta coffee varieties, the high concentration of smallholder coffee farmers, and the presence of both cooperative-affiliated (contact) and conventional (non-contact) growers. Specifically, Ward 12—locally referred to as Quepunung—was chosen for its accessibility and its representation of diverse smallholder farming practices. The region is characterized by a tropical highland climate, with an annual rainfall of approximately 4313 mm.

The study population consisted of 103 smallholder coffee growers, including 47 registered members of the Nakama Agribusiness Cooperative (contact farmers) and 56 non-contact farmers. A total sample of 50 respondents was selected, with an equal distribution between the two groups.

2.2 Sampling Techniques

A mixed sampling approach was employed to ensure both representativeness and feasibility. Purposive sampling was utilized to select contact farmers based on their cooperative membership and production history. Convenience sampling was implemented to address logistical constraints encountered during fieldwork. Simple random sampling was applied to the non-contact farmer group to guarantee unbiased selection. The inclusion criteria mandated that participants possess a minimum of five years of coffee farming experience and have sold coffee within the preceding two years.

Three villages—Drida, Imiks, and Sokam—were selected from Ward 12 due to their proximity and the concentration of coffee growers. Drida functioned as the central hub for data collection activities.

2.3 Research Design

A cross-sectional survey design was employed to gather quantitative data on personal and socioeconomic characteristics, marketing decisions, and their interrelationships. Structured questionnaires were formulated in alignment with the study objectives and were pretested for contextual relevance. The survey design was informed by analogous studies conducted both in Papua New Guinea and internationally, including the works of Ngango and Kim (2019), MacWilliam (2020), and Chingala et al. (2017).

2.4 Data Collection Methods

Primary data were collected through face-to-face interviews utilizing structured questionnaires, which were verbally translated into Tok Pisin to ensure comprehension among respondents. The data encompassed demographic variables (e.g., age, gender, education), farming characteristics (e.g., number of coffee trees, sources of income), and marketing decisions (e.g., bargaining strategies, timing of sales, cash exchange practices) in response to market challenges such as price fluctuations and logistical costs.

To enhance the validity of the findings, naturalistic observations and audio recordings were conducted in conjunction with the survey. These observations documented field practices and marketing behaviors, while the audio recordings enabled respondents to elaborate on closed-ended questions, providing richer qualitative insights.

Secondary data were obtained from published reports and literature regarding the coffee sector in Papua New Guinea, including analyses of marketing trends, challenges faced by farmers, and levels of cooperative participation.

2.5 Data Analysis

Quantitative data was systematically coded and subsequently entered into Microsoft Excel, followed by analysis utilizing SPSS Version 27. Descriptive statistics were employed to summarize demographic and marketing

decision data. Additionally, Pearson correlation analysis was performed to investigate the relationships between personal and socioeconomic characteristics and marketing decisions.

Further analysis of marketing decisions was conducted using the Marketing Decision Index (MDI), which was adapted from Hossain and Miah's (2011) Problem Confrontation Index.
The formula for the MDI is as follows:

$$MDI = (Ab \times 4) + (c \times 3) + (d \times 2) + (E \times 1) \quad (1)$$

Where:

- (Aa) = number of respondents with "very high" decision frequency
- (c) = "high"
- (d) = "medium"
- (E) = "low"

This index quantified the intensity of marketing decisions across different scenarios.

3 RESULTS

The results are presented in three parts which represent the three objectives of this study. The study compared 25 contact and 25 non-contact smallholder coffee growers in Quepunung village.

Part 1: Comparative Personal and Socio-economic Characteristics

Table 1. Comparative Demographic and Educational Profile of Contact and Non-contact Coffee Growers

Variables	Categories	Contact Growers (%)	Non-contact Growers (%) _
Age	Less than 25 years old	32	24
	25 to 40 years old	44	32
	Above 40 years old	24	44
Gender	Male	88	72
	Female	12	28
Education Level	No schooling	4	4
	Primary (Grade 1-8)	60	44
	Secondary (Grade 9 -12)	32	28
	Tertiary and Colleges	4	24

Table 2. Comparative Socio-economic variables of Contact and Non-contact Coffee Growers

Variables	Categories	Contact Growers (%)	Non-contact Growers (%)
Experience	Less than 5 years	8	8
	Between 5 and 20 years	48	24
	More than 20 years	44	68
Tree Count	Less than 100	12	8
	Between 100 and 200	56	40
	More than 200	32	52
Weekly Town Visits	No visit	8	16
	Once per week	44	52
	More than once per week	48	32
Annual Income from Coffee	Less than K1000	28	16
	Between K1000 and K5000	60	48
	Above K5000	12	36

Part 2: Marketing Decisions in Response to Situational Challenges

Marketing decisions—quick sales, bargaining, and delay technique—were analyzed under four common challenges: price fluctuation, logistic costs, quality, and operational costs.

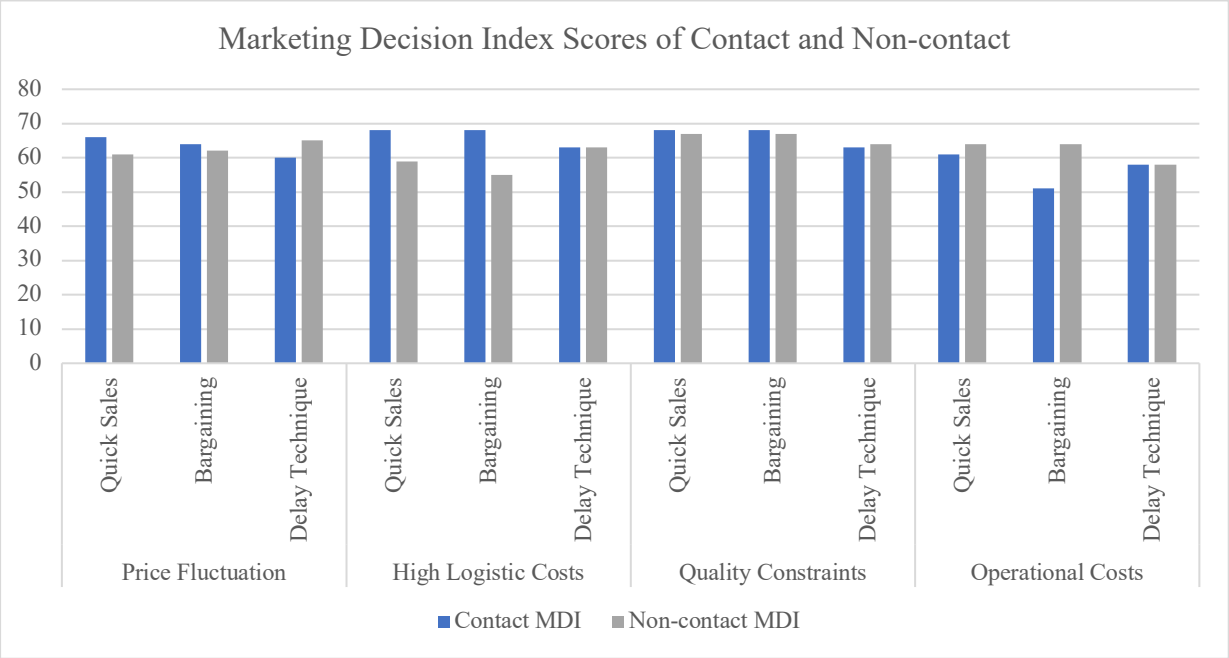

Figure 1: Comparative Marketing Decision Index Scores of Contact and Non-contact Coffee Growers (N=50)

Part 3: Correlation Between Socioeconomic Characteristics and Marketing Decisions

Pearson correlation analysis revealed significant negative relationships between growers' characteristics and their marketing decisions.

Table 3. Correlation Matrix – Contact Growers

Variable	Quick Sales	Bargaining	Delay Technique
Years of Experience	–.722**	–.712**	–.717**
Town Visits	–.804**	–.819**	–.863**
Number of Coffee Trees	–.878**	–.872**	–.806**
Annual Income	–.817**	–.826**	–.873**
Decision Makers	–.725**	–.722**	–.825**

Note: Correlation is significant at the 0.01 level (2-tailed)

Table 4. Correlation Matrix – Non-contact Growers

Years of Experience	–.773**	–.773**	–.791**
Town Visits	–.903**	–.903**	–.823**
Number of Coffee Trees	–.863**	–.863**	–.846**
Annual Income	–.899**	–.899**	–.832**
Decision Makers	–.853**	–.853**	–.890**

Note: Correlation is significant at the 0.01 level (2-tailed)

4 DISCUSSION

This study investigates the personal and socio-economic characteristics of contact and non-contact smallholder coffee growers in Quepunung village, Papua New Guinea, and explores how these characteristics influence their marketing decisions in four critical contexts: price fluctuation, high logistic costs, coffee quality, and operational costs. The comparative analysis reveals nuanced differences in demographic profiles, resource access, and decision-making strategies between the two groups.

Personal Characteristics and Implications

The age distribution of growers indicates that contact farmers were predominantly middle-aged (44%), whereas non-contact growers were more likely to be older (44%) (Table 1). This observation aligns with the findings of Negash (2016), who noted that younger farmers tend to exhibit a greater openness to innovation and certification programs. Despite age disparities, all household members participated in coffee production, underscoring the central role of coffee in rural livelihoods (Bailey, 2009).

Gender disparities were evident, with males predominating in coffee farming within both groups—88% among contact growers and 72% among non-contact growers (Table 1). This trend reflects the patrilineal land ownership structure in Quepunung (Ngeywo et al., 2015) and corroborates the findings of Overfield and Fleming (2001) regarding gendered access to technical knowledge. Female growers encounter obstacles in adapting to new practices due to limited access to extension services and decision-making platforms (Inu, 2015; Eves, 2020).

Educational attainment was modest across both groups, with contact growers showing a higher concentration in primary education (60%) and non-contact growers displaying a slightly greater representation in tertiary education (24%) (Table 1). This suggests that while education is a significant enabler of market adaptation (Wollni & Fischer, 2015), its advancement remains gradual among smallholders in Papua New Guinea (Prior, 2009; Sengere et al., 2019).

Socio-economic Characteristics and Market Engagement

The experience in coffee farming was significantly greater among non-contact growers, with 68% reporting over 20 years of involvement (Table 2). However, this generational knowledge did not necessarily result in proactive market engagement. In contrast, contact growers, although slightly less experienced, demonstrated greater activity in town visits and cooperative activities, indicating stronger market linkages and improved access to information (Fafchamps & Hill, 2005).

Analysis of tree ownership patterns revealed that contact growers managed more compact plots (56% with 100–200 trees), facilitating effective quality control and labor efficiency (Imbun, 2014) (Table 2). Conversely, non-contact growers, who often inherited larger plots, exhibited less consistent attention to tree management, primarily engaging during harvest seasons (Giovannucci & Hunt, 2009).

Income levels were generally moderate, with the majority of growers earning between K1000 and K5000 annually (Table 2). Notably, a higher proportion of non-contact growers (36%) earned above K5000 compared to their contact counterparts (12%), which can be attributed to larger farm sizes and multiple gardens (Lubega & Owino, 2016). However, income alone did not ensure strategic marketing decisions, as evidenced by the correlation analysis.

Marketing Decisions Under Key Situations

In the context of price fluctuations, contact growers preferred rapid sales (MDI 66) and bargaining (MDI 64), utilizing cooperative networks to enhance stability and negotiation power (Newman, 2009; Imbun, 2014). In contrast, non-contact growers tended to adopt delay strategies (MDI 65), awaiting favorable prices but lacking structured support.

High logistical costs presented significant challenges for non-contact growers, who postponed sales due to transport constraints (McKillop, 2010). Supported by the Nakama Agribusiness Cooperative, contact growers

maintained elevated MDI scores for quick sales and bargaining (both 68), reflecting resilience through collective infrastructure (Powae, 2009).

Quality considerations indicated that contact growers prioritized rapid sales and bargaining (MDI 68), which reflects their access to export markets and adherence to quality assurance protocols (Degema & Fleming, 2009). Non-contact growers, lacking such systems, delayed sales due to inconsistent bean quality.

Operational costs elicited divergent responses: non-contact growers favored quick sales and bargaining (MDI 64), motivated by immediate financial needs and limited support. Conversely, contact growers, bolstered by cooperative assistance, opted to delay sales to preserve quality and strategically manage costs (Temu, 1991).

Correlation Between Socio-economic Variables and Marketing Decisions

A strong negative correlation was observed between socio-economic variables and marketing decisions across both groups. For contact growers, increased experience, town visits, tree ownership, and income were correlated with more cautious and selective marketing behaviors. This suggests that informed growers, particularly those embedded within cooperatives, tend to be less reactive and more strategic (Tolera & Gebermedin, 2015; Saragih, 2013).

Despite possessing greater experience and tree ownership, non-contact growers exhibited minimal strategic decision-making. Limited access to market information and cooperative support constrained their ability to respond effectively to market dynamics (Sinaga et al., 2022; Andreatta & Wickliffe, 2002). Their decisions were frequently reactive, driven by immediate needs rather than long-term strategic planning.

5. CONCLUSION

This study investigated the socio-economic characteristics and marketing decisions of contact and non-contact smallholder coffee growers in Quepunung village, Papua New Guinea. The comparative analysis revealed that, while both groups exhibited similar demographic profiles—predominantly male, middle-aged, and possessing primary-level education—distinct differences emerged in their market engagement and decision-making strategies.

Contact growers, frequently associated with the Nakama Agribusiness Cooperative, demonstrated higher Marketing Decision Index (MDI) scores in terms of quick sales and negotiation across various marketing scenarios. Their regular visits to town, support from the cooperative, and access to market information facilitated more strategic responses to price fluctuations, logistical challenges, and quality demands. In contrast, non-contact growers, despite having more experience and larger coffee plots, tended to rely on delay tactics and reactive sales, often hindered by limited access to market networks and extension services.

Statistical analysis confirmed strong negative correlations between marketing decisions and socio-economic variables, including years of experience, number of coffee trees, frequency of town visits, and income levels. These findings suggest that increased experience or resource ownership alone does not ensure improved marketing outcomes without institutional support and market literacy.

The study effectively addressed its core objectives and upheld the null hypothesis, indicating no significant positive relationship between socio-economic characteristics and marketing decisions. Instead, it underscored the nuanced interplay among access, agency, and adaptive capacity in the marketing of smallholder coffee.

6. RECOMMENDATIONS

1. **Expand Cooperative Membership and Support**
   Encourage non-contact growers to register with cooperatives such as Nakama Agribusiness to gain access to structured marketing channels, bargaining platforms, and logistical support. This initiative has the potential to enhance their market reach and stabilize income.

2. **Strengthen Financial Literacy Programs**

Implement targeted financial literacy training for growers to improve skills in budgeting, savings, and income diversification. Such training will empower households to more effectively manage seasonal income fluctuations and make investments in farm improvements.

3. **Enhance Extension Services and Impact Monitoring**
   Develop comprehensive extension service models that incorporate impact tracking systems to evaluate the adoption of marketing strategies and policy changes at the farm level. This approach should encompass both physical outreach and digital engagement tools.

4. **Integrate Climate and Policy Variables in Future Research**
   Broaden the scope of future research to encompass external factors such as climate variability, government regulations, and global market trends. These variables are essential in influencing long-term marketing decisions and farm sustainability.

5. **Promote Inclusive Decision-Making and Gender Equity**
   Support initiatives that encourage shared household decision-making and enhance women's access to technical training and market information. This will contribute to more equitable and efficient farm management practices.

6. **Facilitate Longitudinal Studies on Market Adaptation**
   Conduct longitudinal research to monitor changes in marketing behavior over time, particularly as growers transition between contact and non-contact status. This will yield deeper insights into the evolution of smallholder strategies.

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