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The Influence of Decision-Making Styles on Performance of Consumer Cooperatives: Evidence from Ethiopia

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Abstract
This study investigates the influence of decision-making styles on the performance of consumer cooperatives with heterogeneous backgrounds in Ethiopia. Despite cooperatives traditionally making decisions using the one-member, one-vote rule, our research examined the effect of various decision-making styles on performance. This involved surveying 293 managerial board members using hierarchical regression with $SPSS_{V23}$ for analysis. Our findings indicate that various decision-making styles hold a different significant influence on the performance of cooperative. Notably, we discovered that the interaction between rational and intuitive decision-making styles has a negative significant effect on performance. Surprisingly, our empirical findings uncovered a significant positive influence of the interaction among dependent, rational, and intuitive decision-making styles on performance. Controlled by organizational factors such as organizational years, organizational size, board size, and location, our study also provides valuable insights for diverse boards to understand the decision-making style choices and their impact on the performance of cooperatives with hybrid organizational structures.
Keywords: *Cooperatives, Consumer cooperative, Decision-making styles, Heterogeneity, Performance and Ethiopia*
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1.Introduction

1.1. Background and Justification

Although the International Cooperative Alliance (ICA) defined a cooperative as 'an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise (Guzzman et al., 2020, p.97) based on the seven guiding principles including voluntary and open membership principle, there is ambiguity and variation in the institutional structure, legal boundaries, and governance practices across countries (Develtere & Papoutsi, 2021). However, the voluntary and open membership principle opens the door for individuals with heterogeneous backgrounds to join cooperative membership. When making decisions in a democratic manner, Bijman (2005) argued that increasing member heterogeneity engenders a loss of effectiveness of the social mechanisms and cause inefficient or even inferior decisions. These inefficient decisions may not fully involve all members in the decision-making process, which could affect the activities of cooperatives (Cook & Iliopoulos, 2016). Additionally, Cechin et al. (2013) proposed that heterogeneity can lead to high costs for making collective decisions, and it may affect performance.

While the decision-making process in cooperatives was debated as less efficient or less effective (Pozzobon & Zylbersztajn, 2013), it was viewed from the high involvement of all members in approving the final decision. Yet, prior studies ignored the styles of decision-making related to the heterogeneity of membership within cooperatives and their impact on the performance of cooperatives. Thus, to answer the question of what types of decision-making styles influence the performance of cooperatives, this study intended to address the impact of heterogeneous board's decision-making styles on the performance of cooperatives with special attention paid to the hybrid organizational structure of the cooperative model in Ethiopia.

Viewed from a psychological perspective, decision-making style is defined as a cognitive process and learned response pattern exhibited by an individual when faced with a decision situation (Rowe & Boulgarides, 1983; and Scott & Bruce, 1995). The increasing complexity of the business environment, driven by changing institutional governance systems (Kakabadse & Kakabadse, 2007), has elevated the significance of the decision-making roles of management boards to the health, performance, and survival of organizations, including cooperatives. There are varying perspectives in the literature regarding the decision-making style that most effectively enhances workgroup and organizational performance. However, it is hypothesized that a one-size-fits-all solution does not exist, given the absence of a universally accepted categorization of decision-making style (Oyewobi et al., 2016). Additionally, Höhler & Kühl (2018) suggested further exploration of how different forms of heterogeneity influence decision-making. Despite theoretical studies emphasizing the importance of heterogeneity in cooperatives (Apparao et al., 2020), empirical studies on the decision-making styles of heterogeneous boards and the performance of cooperatives in Ethiopia are largely missing. Therefore, this study is designed to investigate the

influence of different decision-making styles of heterogeneous boards on the performance of consumer cooperatives in Ethiopia.

2. Literature Review and Hypotheses

2.1. Underpinning Theories

Numerous studies have delved into the heterogeneity within different organizations. However, the impact of heterogeneity on the decision-making process and performance outcomes of a group or organization still sparks theoretical debate among scholars (Yadav & Lenka, 2020). Existing academic theories have examined the decision-making process of heterogeneous teams through social categorization and information decision-making theories (Joshi & Roh, 2009). In a comprehensive review spanning 40 years of literature, Williams & O'Reilly (1998) identified competing theories of teamwork exploring the relationship between the decision-making process of heterogeneous teams and performance: (1) Information Decision-Making Theory (Cox & Blake, 1991) and (2) the Social Categorization Theory (Horwitz, 2005). While both theories predict performance based on team composition, their predictions are grounded in distinctively different assumptions (Horwitz, 2005). Information decision-making theory proposes that variance in group composition can have a direct positive impact through the increase in the skills, abilities, information, and knowledge that heterogeneity brings, independent of what happens in the group process (Horwitz, 2005). According to this theory, diverse individuals are expected to have a broader range of knowledge and experience than homogeneous individuals (Horwitz, 2005). Studies on knowledge heterogeneity show that the higher the knowledge heterogeneity of team members, the richer and more comprehensive information access channels will be available to the whole team, which will improve the effectiveness of the team in making relevant decisions (Bouncken, 2004). Thus, high levels of team heterogeneity lead to broader perspectives and a greater amount of information shared, consequently enhancing decision quality and performance (Homberg & Bui, 2013). Cooperatives as associations or organizations of individuals who come together to share their resources collectively to overcome problems that cannot be achieved individually (Tefera et al., 2016), heterogeneous boards are believed to improve the decision-making process and positively influence the performance of cooperatives.

On the other hand, the Social Categorization Theory posits that the demographic composition of work groups or teams can impact the group decision-making process and ultimately influence group performance (Williams & O'Reilly, 1998). According to this theory, individuals are motivated to maintain a high level of self-esteem and to define themselves in terms of social identity as a member of a social category compared to members of other groups (Tajfel & Turner, 1986). Research has shown that in heterogeneous groups, social categorization features can lead to decreased satisfaction with the group, lower levels of cohesiveness, reduced within-group communication, decreased cooperation, and high levels of conflict (Joshi & Roh, 2009). This suggests that individuals within a group may be drawn together by their similarities but this can have negative effects on group processes and outcomes, impacting the overall performance of the group or organization (Williams & O'Reilly, 1998), and influencing the decision-making process and cooperative performance negatively.

2.2. Decision-Making Styles and Organizational Performance

Much research has been conducted to explore decision-making styles from both practical and intellectual perspectives (Bavol'ár & Orosová, 2015). However, there is still a lack of consensus in the literature regarding which decision-making styles are most effective for improving workgroup and organizational performance. Rowe & Boulgarides (1983) approach decision-making styles from a psychological standpoint, defining it as a cognitive process that reflects how individuals solve problems and utilize available information to make decisions. Despite the diverse viewpoints in the literature, scholars argue that there is no universally accepted categorization of decision-making styles and that a one-size-fits-all solution does not exist (Dewberry et al., 2013).

In an attempt to understand, interpret, and identify different decision-making styles, Scott & Bruce (1995) defined decision-making style as "the learned, habitual response pattern displayed by an individual when faced with a decision situation" and put forward five distinct decision-making styles in their General Decision Making Styles (GDMS) model: rational, involving thorough information search and logical evaluation of alternatives; intuitive, relying on gut feelings and hunches; dependent, seeking advice and relying on others; avoidant, showing a tendency to evade decision-making situations; and spontaneous, making fast, rapid decisions (Siev et al., 2019). However, the model acknowledges that individuals may have one or more dominant styles with one or more backup styles. Previous research indicates that different decision-making styles have varying impacts on performance, which can be either positive or negative (Rehman et al., 2012). Although Russ et al (1996) argue that decision-making styles seem to be linked to performance, it remains unclear which style(s) are associated with enhancing organizational performance in both the short and long term (Shepherd et al., 2015). Due to the diverse nature of the different decision-making styles, empirical study results based on Scott & Bruce's (1995)general decision-making styles have yielded conflicting findings.

2.2.1. Rational Decision-Making Style and Organizational Performance

Rationality, as defined by Dean & Sharfm (1993), refers to the degree to which the decision-making process incorporates the gathering of pertinent information and relies on the analysis of this information to make a choice. A rational style signifies the careful planning of significant decisions and the logical and systematic approach to decision-making (Scott & Bruce, 1995). Rational decision-makers approach decision-making impartially, dispassionately, analytically, and comprehensively (Phillips et al., 1984). Numerous researchers have suggested that managers employ various decision-making styles associated with individual, group, and organizational outcomes (e.g., Yadav & Lenka, 2020; Riaz et al., 2014).

Although past studies have shown conflicting findings regarding different decision-making styles, most empirical results support the positive impact of rational decision-making on performance. For example, a study on Italian banks and insurance firms by Gambetti & Giusberti (2019) found that a rational decision-making style positively influences investment decisions. Similarly, Riaz (2015) discovered varied relationships between decision-making styles and organizational performance in non-profit service-providing organizations in Pakistan. Moreover, Ward (2016) investigated the relationship between entrepreneurs' decision-making styles and organizational performance across different countries and obtained positive results. Conversely, Russ et al. (1996) revealed through survey research in the USA that a rational decision-making style positively influences sales managers' performance.

Cooperatives are voluntary and open membership organizations. Their boards members come from diverse backgrounds, including education, experience, functional background, and other cognitive resources such as knowledge, skills, and information. According to decision-making theory (Williams & O'Reilly, 1998); Horwitz, 2005), a varied group composition can have a direct positive impact on the skills, information, and knowledge that heterogeneity brings. Thus, it is expected that the rational decision-making style of heterogeneous board members will enhance the efficiency of cooperatives. Therefore, we propose that a rational decision-making style among heterogeneous boards has a positive influence on the efficiency of cooperatives. From this, we have developed the following hypothesis:

***(H1)**: Rational decision-making style has a positive significant effect on the performance of consumer cooperatives.*

2.2.2. Intuitive Decision-Making Style and Organizational Performance

Intuitive decision-making style is one of the styles defined as a process in which an individual or group relies on personal instinct, intuition, and inner feelings to make a final decision (Verma & Rangnekar., 2015). According to Klaczynski (2001), this approach involves drawing upon one's feelings when completing a task. Although researchers have empirically investigated the impact of intuitive decision-making style on performance, their findings have been conflicting. For example, Ward (2016) conducted a study with 269 small business owners and found a positive effect of intuitive decision-making style on organizational performance. Similarly, Riaz (2015) discovered a positive impact of intuitive decision-making style on the job performance of leaders and the organizational performance of selected service-providing organizations in Pakistan. However, non-significant results were found in other studies. In a study investigating the decision-making styles of managers in bank and insurance firms in Italy, Gambetti & Giusberti (2019) found that the intuitive decision-making style had a non-significant influence on investment decisions. Similarly, Rehman et al. (2012) also found non-significant results for the intuitive decision-making style on the organizational performance of the banking sector in Pakistan using a structural equation model. Russ et al. (1996) also found non-significant results for the intuitive decision-making style on sales managers' performance in a survey conducted with 538 participants and superiors in the USA. The conflicting findings may result from the lack of consistent information (Shiloh & Shenhav-Sheffer, 2004), which may lead to the need for further studies in various organizational sectors in different contexts. Specifically regarding Ethiopian cooperatives, there is a lack of empirical studies investigating the effects of decision-making styles on cooperative performance. Despite the conflicting views on board perception of the effect of intuitive decision-making style, we have developed the following hypothesis:

***(H2)**: The use of an intuitive decision-making style has a significantly positive influence on the performance of consumer cooperatives.*

2.2.3. Dependent Decision-Making Style and Organizational Performance

Dependent decision-making style refers to reliance upon the direction and support of others (Scott & Bruce, 1995). Decision-makers in this style always search for advice and guidance from others before making important decisions (Thunholm, 2004). They find it easier to be guided by others in the right direction. As the dependent decision-maker transfers the responsibility of choice to external events or other people, such decision-makers are considered passive, compliant, and influenced by others' expectations (Verma & Rangnekar, 2015). While investigating the impact of decision-making styles, previous studies reported conflicting findings (Yadav & Lenka, 2020). Considering the positive impact, authors measure performance differently. Ward (2016) in her study on the relationship between the decision-making styles of entrepreneurs and organizational performance, she found positive results between dependent decision-making style and organizational performance. Riaz (2015) and Rehman et al. (2012) supported the same result based on their studies on bank sectors and service-providing sectors in Pakistan. However, Riaz (2015) in his thesis investigating the influence of leaders' decision-making styles, found a positive impact of dependent decision-making style on the job performance of leaders from the selected service-providing organizations in Pakistan. However, Russ et al. (1996) found that dependent decision-making style has non-significant results on sales managers' performance in their survey with a sample of 538 participants and superiors in the USA.

However, the combination of high complexity in the cooperative firm with a heterogeneous membership leads to paralysis in the board and thus to a de facto shift of decision-making power (Bijman et al., 2013). Few empirical studies confirm the challenges of the decision-making process in cooperatives. For example, in the study of Araya & Chung (2015) on the commercialization role of agricultural cooperatives in Ethiopia, the Agricultural Transformation Agency (ATA) data showed that only 17.8 percent of the members took part in most decision meetings, while more than 54 percent attended none of the cooperatives meeting in 2011.

Likewise, the extent of members' involvement in decision-making and their interest in engaging in decision-making within the cooperatives is found to be much lower (Araya & Chung, 2015). Near 50 percent of the participants felt excluded

from decision-making. In a survey of smallholder agricultural marketing cooperatives in Ethiopia using participation indicators (Bernard & Spielman., 2009), they found that member farmers are often excluded from decision-making processes where only 10 percent participate in all decisions. This suggested a relatively low level of member participation in decision-making processes in cooperatives. The interferences of the government and other development partners in decision-making on matters of cooperatives and the use of cooperatives for political purposes by local governments have been identified as serious threats to cooperative development in Ethiopia (Tefera et al., 2017). According to Bernard et al. (2008), most cooperatives in Ethiopia were initiated under the influence of an external partner: 63% were created by government institutions, 11% by donor agencies or NGOs, and only 26% by members themselves. However, the consumer cooperatives in Ethiopia rely on government subsidiaries on imported consumer goods to stabilize the market for their members. Therefore, due to the dual purpose of cooperatives such as social and economic, it is expected that depending on others to make better decisions that enhance the efficiency of the cooperative, and the following hypothesis was developed:

***(H3)**: Dependent decision-making style has a positive significant influence on the performance of consumer cooperatives.*

2.2.4. Avoidant Decision-Making Style and Organizational Performance

Avoidant decision-making style is defined as an attempt to avoid or postpone decisions as long as possible (Scott & Bruce, 1995). It involves indecisiveness, deferring, evading, postponing decisions, and keeping oneself from decision scenarios. Hablemitoglu & Yildirim (2008) argued that a person with an avoidant decision-making style would make every effort to avoid making a decision. In research investigating the decision-making styles of managers among bank and insurance firms in Italy, Gambetti & Giusberti (2019) found that avoidant decision-making style negatively influences investment decisions. Similarly, Riaz (2015) and Rehman et al. (2012) supported the same negative result based on their studies conducted on bank sectors and service-providing sectors in Pakistan. Riaz (2015) also found negative results on job performance in the same study. Moreover, while investigating the impact of decision-making styles on performance, Russ et al. (1996) found that avoidant decision-making style has a negative impact on sales managers' performance in their survey with a sample of 538 participants and superiors in the USA. However, a particularly surprising finding of Ward (2016) was that higher levels of avoidant decision-making style related to increases in profitability. One possible explanation for her finding was that it can be beneficial to wait to decide if the decision maker is particularly emotional or distressed (Maner et al., 2007).

In a large survey of smallholder agricultural marketing cooperatives in Ethiopia using participation indicators, Bernard & Spielman (2009) found that member farmers are often excluded from decision-making processes where only 10 percent participate in all decisions. This suggested a relatively low level of member participation in decision-making processes in cooperatives. When the decision-makers in cooperatives fall below 50+1 or 2/3 as prescribed in the proclamation, it directly leads to the avoidant of the decision. Therefore, avoiding important decisions because of the low level of attendants will harm the performance of the cooperative. Hence, we developed the following hypothesis:

***(H4):** The use of avoidant decision making style has negative significant influence on the performance of consumer cooperative.*

2.2.5. Spontaneous Decision-Making Style and Organizational Performance

The spontaneous decision-making style is defined in terms of emergency and aspiration to complete the decisional process speedily (Scott & Bruce, 1995). Spontaneous decision-makers often make decisions on the spur of the moment and based on what seems natural at the moment (Verma & Rangnekar, 2015). This style is characterized by a feeling of immediacy and a desire to come through as quickly as possible (Spicer & Sadler-Smith, 2005). A survey study conducted on the individual differences in adult decision-making competence of participants comprised 65.5% (white), African American (28.2%), and 6.3% (other racial groups) from social service organizations and community groups in the Pittsburgh metropolitan area of the USA, Parker et al (2007) found that spontaneous decision-making style negatively predicted decision outcomes for people that varied in their level of education and socio-economic status. Using a psychometric evaluation of Scott & Bruce (1995) measure of decision-making styles, Loo (2000) conducted in-class surveys with 223 management undergraduates; and the results of correlation analyses showed that the spontaneous decision-making style negatively correlated to final course percentages (r=-.16), indicating that high scores on spontaneous decision-making style related to lower course performance. Russ et al. (1996) also found that spontaneous decision-making style has a negative impact on sales managers' performance in their survey with a sample of 538 participants and superiors in the USA.

Although some studies reported negative findings, on the contrary, some found a positive impact on performance. For example, Riaz (2015) and Rehman et al. (2012) supported the same positive result of spontaneous decision-making styles on organizational performance based on their studies conducted on banking and service-providing sectors in Pakistan. Riaz (2015) also found positive findings from the same study on job performance. However, while investigating the influence of decision-making styles of managers among bank and insurance firms in Italy, Gambetti & Giusberti (2019) used 362 participants and their regression result found a non-significant impact of spontaneous decision-making style on investment decisions. On the contrary, some found a positive impact of spontaneous decision-making styles on performance. For instance, Riaz (2015) and Rehman et al. (2012) supported the same positive result of spontaneous decision-making styles on organizational performance based on their studies conducted on banking and service-providing sectors in Pakistan. According to the hybrid organizational structure of Ethiopian cooperatives, the interferences of the government and other development partners in decision-making on matters of cooperatives and the use of cooperatives for political purposes by local governments have been identified as serious threats to the development of cooperatives in Ethiopia (Tefera et al., 2017; Mojo et al., 2018).

According to a study conducted in three countries such as Hungary, Canada, and France, Kispál-Vitai et al. (2019) revealed that decisions were made slowly in the cooperative due to the difficulty of convincing large and diverse ownership when all owners follow the principle of one vote. Decisions related to increased quantity and quality of products as well as efficient use of budget required time to discuss the issue with the majority. However, an impulsive call to obtain consumer products from an external organization such as a Cooperative Agency or Bureau of Trade and Industry needs a snap or spontaneous decision to acquire what is demanded by the cooperative. Therefore, in cooperatives with such a hybrid organizational structure, we developed the following hypothesis:

***(H5)**: Spontaneous decision-making style has a negative significant influence on the performance of consumer cooperatives.*

2.2.6. The Interaction Terms of Decision-Making Styles and Performance of Cooperative

Even though scholars attempted to understand, interpret, and identify different decision-making styles (Adikaram & Kailasapathy, 2021), Tatum et al. (2003) stated that decision-makers are influenced by the unpredictable nature of the business and as such are saddled with the responsibility of making everyday decisions on issues that affect their organizations and provide solutions to problems. Therefore, the manner of arriving at decisions by the management of an organization – their decision-making style influences organizational performance (Russ et al., 1996). Cooperatives as democratic organizations controlled by their members, follow the principle of one member-one vote rule in their decision-making (Birchall, 2002; Mikami, 2016). For instance, according to the Ethiopian FDRE (2016) cooperative societies proclamation no.985/2016: Article 5(2): *"Cooperative societies shall be democratic organizations controlled by their members who actively participate in setting their policies and making decisions; each member having equal voting rights as well as one member having one vote."*

Although cooperatives are transparent in deciding based on their proclamations and bylaws, some cooperatives affiliated with the cooperative union are represented by people with heterogeneous backgrounds who can have less trust even though they share the objectives of forming cooperatives. Since no best decision-making style enhances the performance of cooperatives and the use of one decision to back up the other decisions, the interaction term among decision-making styles was created based on the feedback of the participants who dominantly use rational, intuitive, and dependent decision-making styles simultaneously. As DeCoster & Claypool (2004) stated, an interaction measures the extent to which the relationship between an independent variable and a dependent variable relies on the level of other independent variables in the model. Given that rational and intuitive are mostly used by the members within the boards of cooperatives, we created the interaction terms by multiplying the value of rational and intuitive (rational*intuitive) decision-making styles presented in the model specification designed for this study. In our study, we argued that the interaction between rational and intuitive decision-making styles among heterogeneous board members who live in different locations has a negative effect on the performance of cooperatives. Thus, we proposed the following hypothesis:

***(H6):** The interaction between rational and intuitive decision-making styles has a negative significant effect on the performance of consumer cooperatives.*

However, due to the changing external business environment including inflations and shortage of accessibility to obtain products specially processed products imported by the government, cooperatives in Ethiopia seek assistance or advice from external individuals and organizations such as the Regional Cooperative Agency and Bureau of Trade and Industry. FDRE (2016) cooperative society's proclamation no.985/2016: Article 43(1) stated "Without prejudice to incentives permitted under investment laws and other laws, any cooperative society is organized and registered by this proclamation shall be exempted from tax, obtain land from the region based on allocation to conduct their activity or to provide their service and to receive promotion service concerning cooperative movement and capacity building training". Besides the incentives permitted by the government, depending on assistance or support from external individuals with expertise or specialization can lead to better quality decisions that further enhance the performance of cooperatives. Therefore, we created an interaction among rational and intuitive with the dependent decision-making styles (rational*intuitive*dependent) and proposed the following hypothesis:

***(H7)**: Interacting dependent decision-making style with rational and intuitive decision-making styles to make better decisions has a positive significant effect on the performance of consumer cooperatives.*

2.3. Organizational Performance

Although the measurement of organizational performance traditionally uses financial metrics, businesses have recognized that a dynamic business environment requires a broader set of measures (Nandakumar et al., 2010). While performance defined as the 'progress toward achieving pre-determined objectives' (Bourne et al., 2003: p.6), is not an easy concept to grasp in cooperatives as the relationship between the 'firm' and its objectives is not accurately defined (Soboh et al., 2009). Since cooperatives are hybrid institutions characterized by member ownership, member control, and member benefits (Ménard, 2004), the benefits members get arguably depend on the performance at both collective and member levels. These particular cooperative features complicate the measurement of the performance of cooperatives. While commonly used measures of performance in empirical studies on cooperatives are financial (Sebhatu et al., 2021), few authors applied non-financial measurements using efficiency (Hailu et al., 2005) and overall satisfaction with cooperative (Akter et al., 2017). Though the term efficiency is generally used to describe the level of performance, it is commonly used in various settings (Hailu et al., 2005). In the context of cooperative as a service-oriented than profit, we operationalized efficiency using perceptual measures such as substantially improved quantity and quality of products and services provided, efficient use of

allocated budget, reduced operating cost of general management as well as cost of interacting and coordinating activities with suppliers, customers and business partners (Pollanen et al., 2017; Cavalluzzo & Ittner, 2004).

2.4. Control Variables

Organizational Years*:* It is the natural logarithm for the number of years since the organization was legally founded or established (Xu et al., 2017). In the case of this study, it was measured using the number of years since cooperatives were established and registered as legal entities and expected to influence the decision-making styles. ***Organizational Size****:* defined in terms of total assets, total investment, net worth of the organization, and number of employees (Ali et al., 2016). ***Board Size****:* It measures board size based on the number of individual members elected to the managerial board (Balta, 2009). ***Organizational Location****:* It is used as a control variable based on the distance between the organization and the individual employees and decision-makers (Pioch & Byrom, 2004). Hence, location is measured as a dummy variable.

2.5. Conceptual Frame of the Study

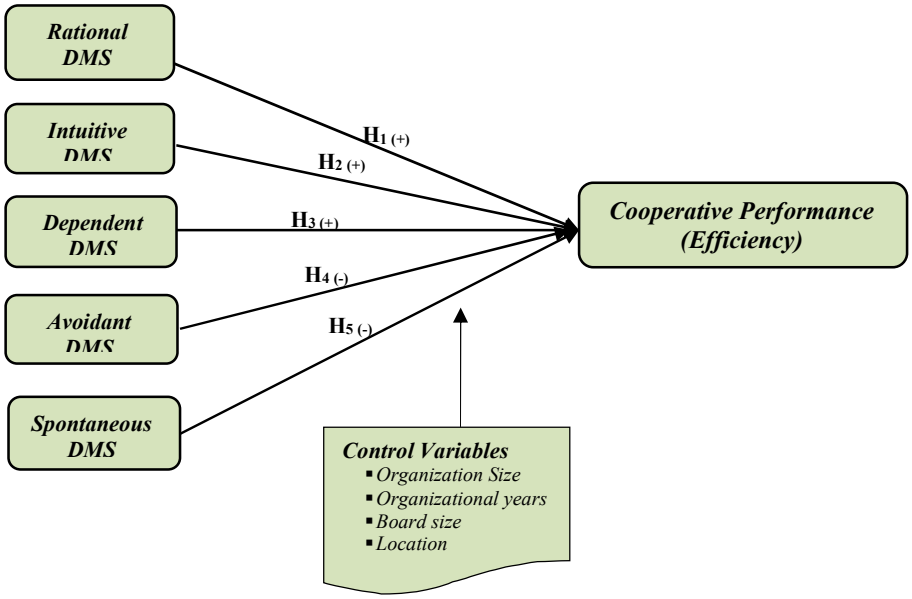


Figure 1: Conceptual Model of the Study

3. Research Methodology

As a research design, a cross-sectional descriptive survey was used in this study (Zikmund, 2013) to offer an opportunity to assess the effects of decision making styles on the performance of cooperative under study (Mkalama & Machuki, 2019). The study was also a correlational research conducted to help the research assess relationships between variables (Kinuu, 2014).

Gathering information on the current status of cooperatives in Ethiopia proved to be a challenge due to limited access to published data and the country's political insecurities. Consequently, this study focused on the Gambella region, where data collection was more convenience and feasible (Biernacki & Waldorf, 1981). Of the 31 consumer cooperative unions with 495 member primary cooperatives affiliated to them in a country based on the information obtained (Tefera et al., 2017), this study selected the largest union with more affiliated member primary cooperatives from the established 3 unions in Gambella region. The largest cooperative union in the region, comprising 32 member primary cooperatives with 8502 individual members and 298 board members (222 males and 76 females), was selected for this study. A census survey was conducted to include all managerial board members. With the exception of 5 board members, data was collected from 293 individuals (98.3% response rate) using questionnaires administered by research assistants who ensured a high response rate by personally delivering and collecting the questionnaires from participants.

In order to assess the reliability and validity of the data, we utilized Cronbach's alpha (Cronbach, 1951) and Average Variance Extracted (AVE) for all items related to each construct (Fornell & Larcker, 1981). We measured data reliability using the Cronbach's alpha method, with a threshold value of 0.7 set as a rule of thumb for items (Tenenhaus et al., 2005). Cronbach (1951) defined Cronbach's alpha as:

$$\text{Cronbach}\,\alpha = \frac{N}{N-1} * \left(1 - \frac{\sum \delta 2}{\delta 2}\right)$$

Where;

N *- the number of indicators, and*

δ *- Reflects indicators variance.*

The assessment of a construct's convergent validity with reflective indicators involves using the Average Variance Extracted (AVE) for all items on each construct. According to (Fornell & Larcker, 1981), the AVE should be 0.5 or higher to establish convergent validity. Lambert & Larcker (1987) provided the following definition for AVE:

$$\mathrm{AVE} = \frac{\sum \lambda 2}{\sum \lambda 2 \mathrm{I} + \sum \mathrm{VAR}(\varepsilon \mathrm{AR})}$$

Since the unit of analysis was a single cooperative union formed by affiliated member primary cooperatives, we obtained decision-making styles for board-level analysis. The data analysis was conducted using various statistical methods including descriptive statistics (Bryman, 2006), correlation analysis (Robson, 2002), tests of normality (Zikmund, 2013; Ghasemi & Zahediasl, 2012), multicollinearity tests (De Toni et al., 2017), and multiple regression (Hair et al., 2011) using the Statistical Package for Social Sciences (SPSS). The multiple regression equation model applied was based on the following formula in line with the regression line described algebraically that expresses the relationship between two or more variables (Xu et al., 2006; Hinds et al., 2000):

$Y_i=\beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_nX_n+\ldots+\varepsilon_i,$

Where,

Y_i *= is the dependent variable,* ***β_0*** *= y intercept/constant,* ***β_1-β_n*** *= regression coefficients, X_1-X_n= Independent Variables and $\mathcal{E}_i$ = error term/random variation due to other unmeasured variables* (Kelley & Bolin, 2013; Xu et al., 2017).

Therefore, the variables and model specification for the independent (rational, intuitive, dependent, avoidant, and spontaneous decision-making styles) and dependent (organizational performance) were measured using five-point Likert scales from 1 (Strongly disagree) to 5 (Strongly agree). Additionally, the log was used to measure organizational size, organizational years, and board size, while a dummy variable was used to measure the location as a control variable. The analytical model developed for the study is as follows:

$$Y= \beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\beta_6X_6+\beta_7X_7+\beta_8X_8+\beta_9X_9+\varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{Model-1}$$

$$Y= \beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+\beta_6X_1*X_2+\beta_7 X_1*X_2*X_3+\beta_8X_6+\beta_9X_7+\beta_{10}X_8+\beta_{11}X_9+\varepsilon \ldots\ldots\ldots\ldots\ldots\ldots \textbf{Model-2}$$

Where*,*

*Y= Dependent variable (Y=Efficiency), β_0 = y intercept/constant, β_1-β_{11} = regression coefficients, X_1-X_5 = Independent Variables (X_1=RDMS, X2=IDMS, X3=DDMS, X4=ADMS, X5=SDMS), X_6-X_9= Control Variable (X_6=Organizational Size, X_7=Organizational Years, X_8=Board Size, X_9=Location), X_1X_2 and $X_1X_2X_3$= Interaction Terms (X_1X_2=RDMS*IDMS, $X_1X_2X_3$=RDMS*IDMS*DDMS)and $\mathcal{E}$ = error term/ random variation due to other unmeasured variables.*

Thus, the Multiple Regression Analysis Models using variables of the study are:

$$OP = \beta_0+\beta_1RDMS+\beta_2IDMS+\beta_3DDMS+\beta_4ADMS+\beta_5SDMS+\beta_6\ log\_OrganSize+\beta_7log\_OrganYears+\beta_8log\_Board\ Size+\beta_9\ Dummy\_Location+\varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \textbf{Model-1}$$

$$OP = \beta_0+\beta_1RDMS+\beta_2IDMS+\beta_3DDMS+\beta_4ADMS+\beta_5SDMS+\beta_6RDMS*IDMS+\beta_7RDMS*IDMS*DDMS+\beta_8log\_OrganSize+\beta_9log\_OrganYears+\beta_{10}log\_Board\ Size+\beta_{11}Dummy\_Location+\varepsilon \ldots\ldots\ldots\ldots\ldots \textbf{Model-2}$$

Note: *RDMS=Rational Decision Making Style, IDMS=Intuitive Decision Making Style, DMS=Dependent Decision Making Style, ADMS=Avoidant Decision Making Style, SDMS=Spontaneous Decision Making Style, OrganSize=Organizational Size, OrganYears=Organizational Years, OP=Organizational Performance representing Efficiency.*

4. Results and Discussion

4.1. Descriptive Statistics

The study involved participants across a wide age range, from 21 to 68 years, with an average age of 39.23 years. The largest age group was 31-40 years, accounting for 41.6% of the participants, followed by the 18-30 years group at 20.8%. In terms of gender, 74.7% were male and 25.3% were female. On average, each cooperative had 6.94 individuals with diverse ethnic backgrounds in their managerial board. In relation to education, 45.1% had diplomas and 30.0% had bachelor's degrees, 11.9% held vocational certificates, while 7.2% had master's degrees. The remaining 5.5% and 0.3% held high school certificates and doctoral degrees respectively. In terms of functional expertise background, 4.1%, 9.9%, and 20.8% had backgrounds in accounting and finance, management, and cooperatives. Additionally, 3.1%, 26.6%, and 10.2% had backgrounds in business administration, marketing, and agricultural sciences. 7.2% had functional backgrounds in natural

sciences and other fields. Regarding positional tenure, participants had an average tenure of 4.09 years, with a minimum of 2 years and a maximum of 7 years. 37.9% of participants had tenure between 3 and 4 years, followed by 32.8% with tenure between 5 and 6 years. The remaining 20.5% and 8.9% had tenure of 2 years or less, and 7 years or more respectively.

Furthermore, the average organizational tenure of the participants is 13.44 years, with a range from 2 to 37 years. 31.7% had tenure of 5 years or less, followed by 22.5% with tenure between 6 and 10 years. 13% and 11.3% of participants had tenure between 11 and 15 years and 16 years or more, respectively. The remaining 9.2%, 7.5%, and 5.8% had tenures ranging from 16 to 20 years, 26 to 30 years, and 21 to 25 years respectively.

4.2. Reliability and Validity

Cronbach's alpha (Cronbach, 1951; Cronbach & Meehl, 1955) and convergent validity using AVE (Fornell & Larcker, 1981) used to measure the reliability and validity of variables. Using a recommended 0.7 threshold for an acceptable Cronbach's alpha value (Purwanto & Sudargini, 2021) and 0.5 for AVE, the Cronbach's alphas for all the variables ranged from 0.847 for efficiency to 0.924 for intuitive decision-making style. The spontaneous decision-making style scored the highest AVE of 0.790, while the AVE for all variables ranged from 0.517 for efficiency to 0.790 for spontaneous decision-making style. As both Cronbach's alpha and AVE exceeded the critical threshold values for all constructs, the model passed the construct reliability and validity test, and can be deemed suitable for further analysis. Please refer to table (a) in the appendix for the results of Cronbach's alpha and AVE.

4.3. Correlation Analysis

In order to analyze the relationships between variables and understand the strength of their correlations, a Pearson product-moment correlation coefficient was employed (Field (2005) utilizing SPSS software. The results indicated varying degrees of correlation, ranging from weak to very strong (>0.9), but not reaching a perfect level of correlation as presented in the table.

Table 1: Results of Correlations Analysis Matrix (N=293)

Variables	Rational DMS	Intuitive DMS	Dependent DMS	Avoidant DMS	Spontaneous DMS	Efficiency
Rational DMS	1					
Intuitive DMS	.777** (.000)	1				
Dependent DMS	.595** (.000)	.700** (.000)	1			
Avoidant DMS	.745** (.000)	.852** (.000)	.661** (.000)	1		
Spontaneous DMS	.437** (.000)	.481** (.000)	.836** (.000)	.423** (.000)	1	
Efficiency	.829** (.000)	.939** (.000)	.711** (.000)	.852** (.000)	.468** (.000)	1

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

***Note**: DMS=Decision Making Style*
Source: Field Data (2022)

4.4. Test of Normality

Testing for assumptions is crucial to ensure accurate analysis and avoid Type I and Type II errors (Osborne, 2001). Normality is important for drawing reliable conclusions (Bonett & Seier, 2002). Given that assumptions may not always hold true, a 5% significance level was used for decision criteria where the null hypothesis could be rejected if the p-value was less than 0.05 and accepted otherwise (Ghasemi & Zahediasl, 2012). Using the Shapiro-Wilk test, the results revealed significant deviations from normality for several variables, leading to the rejection of null hypotheses (Ruxton et al., 2015). For the normality test results, see table (b) in the appendix section for details.

4.5. Multicollinearity

As per Hair et al. (2012), the most commonly used methods for detecting multicollinearity are tolerance and variance inflation factor (VIF). In diagnosing multicollinearity, we used tolerance and VIF. Following the threshold rule that multicollinearity is identified if the tolerance is less than 0.1 (Lin, 2008) and VIF is at or exceeding 10 (Senaviratna & Cooray., 2019), the results found that the lowest tolerance value was 0.104 and the highest VIF value was 9.652. The multicollinearity results showed that all tolerance values were > 0.1 and VIF values were < 10, thus confirming the absence of multicollinearity. Detailed results are in the table (c) in the appendix.

4.6. Results of Hierarchical Regression Analysis

The study analyzed how decision-making styles of diverse boards impact cooperative efficiency. Hierarchical regression analyses were used to assess the significance of study variables. Decision-making styles (rational, intuitive, dependent, avoidant, and spontaneous) were independent variables, while organizational performance (efficiency) was the dependent variable, controlled by organizational years, size, board size, and location. The models were evaluated using the F-test and p-values with a significance level for the p-value set at 0.05 or the 95% confidence interval (Hair et al., 2019). Hierarchical regression modeling utilized to help determine the relationship and explain variance in the dependent variable after accounting for all other variables (Elbanna & Fadol, 2016) along with interaction terms and various control variables (Xu et al., 2017; Kelley & Bolin, 2013). In this research, we investigated the impact of decision-making styles on cooperative efficiency. We employed Scott & Bruce's (1995) general decision-making styles – rational, intuitive, dependent, avoidant, and spontaneous. With the premise that diverse cooperative boards would encompass multiple decision-making styles, resulting in enhanced decision quality and improved efficiency (Li & Chen, 2018; Ward, 2016), we considered that when individuals within the same cooperatives make rational and intuitive decisions, they may lack the necessary information, knowledge, or skills to make timely decisions, necessitating them to seek support from external individuals with expertise or specialized knowledge. Consequently, we introduced an interaction term among rational, intuitive, and dependent decision-making styles, which was controlled by organizational size, years in operation, board size, and location in the model to consider the influence of decision-making styles on efficiency.

The analysis results were obtained using a series of two hierarchical regression models to assess the impact of model changes as indicated in the table below. Model 1 incorporates independent variables (decision-making styles) and control variables to evaluate their effect on cooperative efficiency. In Model 2, interaction terms between the independent and control variables are included. According to Model 1, the results indicate that decision-making styles (rational, intuitive, dependent, avoidant, and spontaneous) along with control variables (organizational size, organizational years, board size, and location) accounted for 91.8% (R2=91.8) of cooperative efficiency, with the remaining 8.2% being attributed to other variables. Model 2, which incorporates interaction terms, explained 93.7% (R2=93.7) of cooperative efficiency, with the remaining 6.3% explained by other variables. Model 2 provided better explanatory power than Model 1. The F-values for all models were statistically significant at $p < 0.001$. For instance, the F-values for Model 1 and Model 2 were 352 and 377.6 with $p < 0.001$, respectively. After conducting the Shapiro-Wilk test for normality, the results indicated significance at $p<0.001$, leading to the rejection of the null hypotheses. This suggests that the independent variables, interaction terms, and control variables are expected to have a significant relationship with cooperative efficiency. The regression model demonstrated robustness in explaining the relationship between the explanatory and dependent variables. During the hierarchical regression analysis, Model 1 included only the main independent effects and control variables, whereas Model 2 expanded to include interaction terms with other variables. The analysis revealed statistically significant results for decision-making styles (rational, intuitive, dependent, avoidant, and spontaneous) and their interaction terms while showing non-significant effects for control variables such as organizational size, organizational years, board size, and location.

The results of our hierarchical regression analysis demonstrate the varying relationships between predictor variables and the decision-making styles of heterogeneous boards. These decision-making styles impact the quality, quantity of products, and efficient use of allocated budgets in cooperatives, ultimately influencing their efficiency. In Model 1, our study found a positive and statistically significant relationship between rational decision-making style and efficiency ($\beta=0.29$, $p<0.001$). Additionally, the analysis revealed a positive and statistically significant relationship between intuitive decision-making style and efficiency ($\beta=0.64$, $p<0.001$). Dependent decision-making style also showed a positive and statistically significant relationship with efficiency ($\beta=0.25$, $p<0.001$), as did avoidant decision-making style ($\beta=0.08$, $p<0.05$). However, the spontaneous decision-making style had a negative and statistically significant relationship with efficiency ($\beta=-0.15$, $p<0.001$) within the cooperative setting. These findings emphasize the importance of understanding decision-making styles in predicting their impact on cooperative efficiency.

The study's findings indicate that organizational size and organizational years have a negative and statistically non-significant impact on the efficiency of cooperatives ($\beta=-0.01$, $p>0.05$ for both). Conversely, board size was found to have a positive and non-significant effect on efficiency ($\beta=0.01$, $p>0.05$). Additionally, the study revealed that the geographical location of the cooperative has a positive and non-significant effect on its efficiency ($\beta=0.04$, $p>0.05$). In Model 2, we included an interaction term for decision-making styles along with other variables to assess their impact on cooperative efficiency. While the significant levels for decision-making styles in Model 2 were similar to those in Model 1, there were variations in their coefficients. The results revealed a positive and statistically significant relationship between rational decision-making style and efficiency ($\beta=0.34$, $p<0.001$). Similarly, the findings indicated a positive and statistically significant association between intuitive decision-making style and efficiency ($\beta=0.57$, $p<0.001$). Dependent decision-making style also showed a positive and statistically significant relationship with efficiency ($\beta=0.32$, $p<0.001$). Additionally, the results demonstrated a positive and statistically significant link between avoidant decision-making style and cooperative efficiency ($\beta=0.08$, $p<0.05$). However, the spontaneous decision-making style exhibited a negative and statistically significant impact on cooperative efficiency ($\beta=-0.11$, $p<0.01$). Regarding interaction terms, the results indicated that the interaction between rational and intuitive decision-making styles had a negative and statistically significant effect on cooperative efficiency ($\beta=-0.26$, $p<0.001$). In contrast, the interaction among rational, intuitive, and dependent decision-making styles was found to have a positive and statistically significant effect on cooperative efficiency ($\beta=0.14$, $p<0.001$). Analysis of control variables revealed that organizational size ($\beta=-0.01$, $p>0.05$), organizational years ($\beta=-0.02$, $p>0.05$), and board size ($\beta=-0.01$, $p>0.05$) had a negative and statistically non-significant effect on cooperative efficiency of cooperatives respectively. Interestingly, the location was found to have a positive and statistically non-significant effect ($\beta=0.03$, $p>0.05$)

on cooperative efficiency. For a detailed presentation of the results concerning decision-making styles and interaction terms with cooperative efficiency, please see the table below.

Table 2: Regression Results of the Decision-Making Styles and Efficiency

	Efficiency	
Variables	Model 1	Model 2
(Intercept)	-0.38**	-0.69***
	(0.14)	(0.15)
Rational DMS	0.29***	0.34***
	(0.04)	(0.04)
Intuitive DMS	0.64***	0.57***
	(0.04)	(0.04)
Dependent DMS	0.25***	0.32***
	(0.05)	(0.05)
Avoidant DMS	0.08*	0.08*
	(0.04)	(0.03)
Spontaneous DMS	-0.15***	-0.11**
	(0.04)	(0.04)
Rational*Intuitive DMS		-0.26***
		(0.03)
Rational*Intuitive*Dependent DMS		0.14***
		(0.02)
Organizational Size	-0.01	-0.01
	(0.00)	(0.00)
Organizational Years	-0.01	-0.02
	(0.01)	(0.01)
Board Size	0.01	-0.01
	(0.02)	(0.00)
Location	0.04	0.03
	(0.05)	(0.05)
R^2	0.918	0.937
Adjusted R^2	0.915	0.934
F-value	352***	377.6***
df	9, 283	11, 281
Number of obs.	293	293

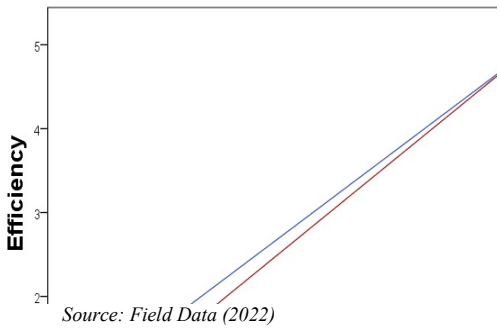
****p < 0.001; **p < 0.01; *p < 0.05*

Source: Field Data (2022)

To understand how the decision-making styles of heterogeneous boards affect the organizational performance of cooperatives, we included four organizational characteristics as control variables related to decision-making and performance. In order to analyze the impact of decision-making styles based on relationship strength on the performance of cooperatives, we segmented the organizational size into small and large categories using the median value. Our analysis showed that a threshold of 268 individuals registered by cooperatives best differentiated between small and large organizational sizes. Similarly, we categorized the age of cooperatives based on the number of years since their establishment, with 15 years being the threshold for categorization into older and younger cooperatives. Additionally, we divided the board size into small and large based on the number of individuals elected, using a median value of 9. Furthermore, we considered the location of decision-makers or board members in terms of proximity, given that not all representatives lived nearby. This strategy involved classifying the distance as a dummy using it as nearby or far away to address the location issue.

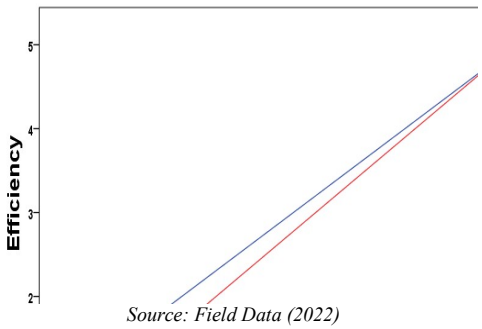
Using SPSS to analyze the effect of decision-making styles on the efficiency of cooperative in the context of organizational characteristics such as organizational size, organizational years, board size and location, we use interaction to explain the cooperative organizational contextual factors of the regression. Our analysis revealed that the positive effect of rational decision-making style on cooperative efficiency is stronger in larger organizations (R^2=69.7%) compared to smaller ones (R^2=76.8%). When considering organizational years, rational decision-making style had an almost identical influence on efficiency in younger cooperatives (R^2=69.2%) and older ones (R^2=69%). Regarding board size, we found that rational decision-making style had a stronger influence on the efficiency of cooperatives with smaller board sizes (R^2=69.6%) than those with larger board sizes (R^2=68.5%). However, the location had minimal impact, as rational decision-making style showed consistent influence on cooperative efficiency in both nearby (R^2=68.6%) and distant (R^2=68.8%) cooperatives. The higher R^2 percentages in our positive results indicate a strong potential for predictive models in how rational decision-making style predicts cooperative efficiency across different organizational contexts.

Figure 2: Effect of RDMS on Efficiency in the Context of Organizational Size



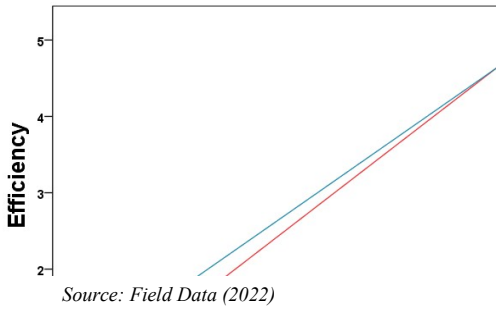
Source: Field Data (2022)

Figure 3: Effect of RDMS on Efficiency in the Context of Organizational Years



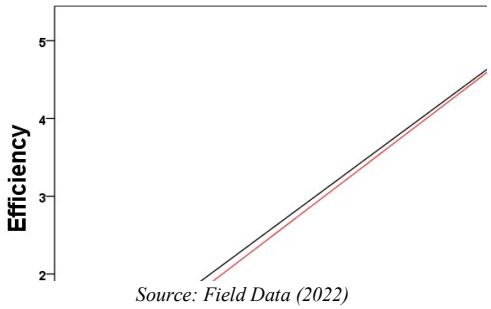
Source: Field Data (2022)

Figure 4: Effect of RDMS on Efficiency in the Context of Board Size



Source: Field Data (2022)

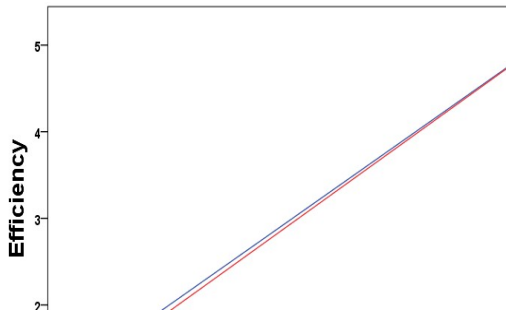
Figure 5: Effect of RDMS on Efficiency in the Context of Location



Source: Field Data (2022)

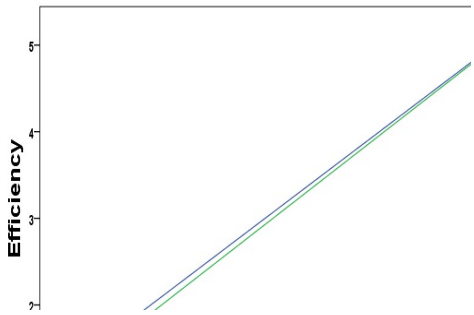
The study's analytical findings on the relationship between intuitive decision-making style and the efficiency of cooperatives in various organizational contexts are noteworthy. It was discovered that the positive impact of intuitive decision-making style on cooperative efficiency is nearly identical for both small (R^2=88.5%) and large (R^2=88.5%) organizations. Moreover, the influence of intuitive decision-making style is stronger in older cooperatives (R^2=88.9%) compared to younger ones (R^2=87.5%). Additionally, intuitive decision-making style was found to have a more significant effect on the efficiency of cooperatives with larger boards (R^2=88.5%) than those with smaller boards (R^2=87.4%). Interestingly, the study revealed that the location of the cooperative does not significantly affect the relationship. Whether nearby (R^2=88.7%) or far away (R^2=88.1%), the intuitive decision-making style had a consistent effect on cooperative efficiency. The high R^2 values indicate promising predictive potential for models examining how intuitive decision-making style influences cooperative efficiency across different organizational contexts.

Figure 6: Effect of IDMS on Efficiency in the Context of Organizational Size



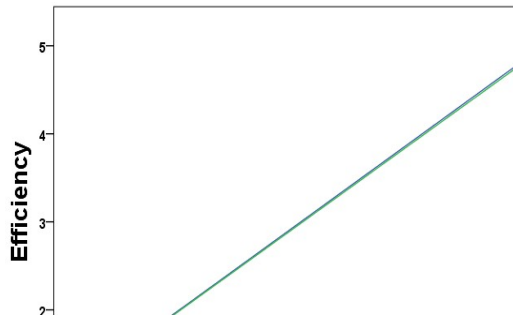
Source: Field Data (2022)

Figure 7: Effect of IDMS on Efficiency in the Context of Organizational Years



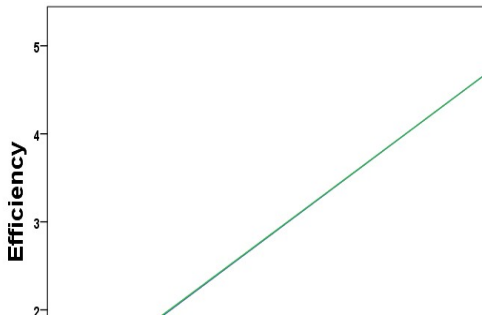
Source: Field Data (2022)

Figure 8: Effect of IDMS on Efficiency in the Context of Board Size



Source: Field Data (2022)

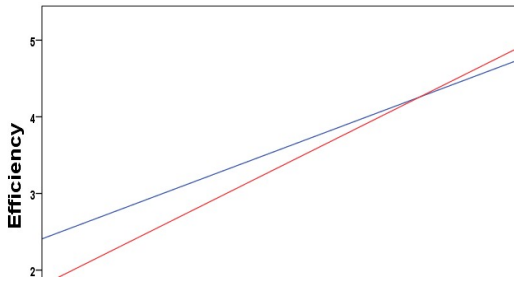
Figure 9: Effect of IDMS on Efficiency in the Context of Location



Source: Field Data (2022)

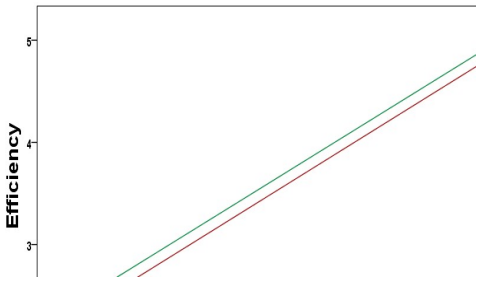
In our analysis of the relationship between dependent decision-making style and the efficiency of cooperatives, we found that the positive effect of dependent decision-making style on efficiency is stronger in larger organizations (R^2=54.5%) than in smaller organizations (R^2=48%). Additionally, we observed that dependent decision-making style has a greater impact on the efficiency of younger cooperatives (R^2=53.2%) than on older ones (R^2=49.1%). Furthermore, our findings indicate that dependent decision-making style has a stronger influence on the efficiency of cooperatives with larger board sizes (R^2=53.4%) compared to those with smaller board sizes (R^2=42.9%). Finally, we noted that dependent decision-making style has a greater effect on the efficiency of cooperatives located farther away (R^2=51.3%) than those located nearby (R^2=48.7%).

Figure 10: Effect of DDMS on Efficiency in the Context of Organizational Size



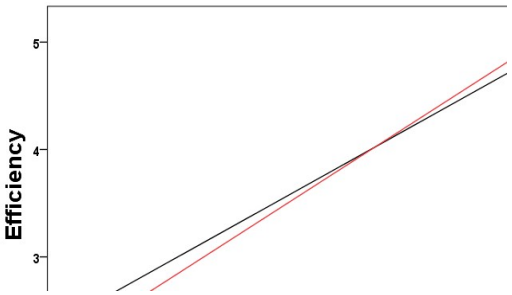
Source: Field Data (2022)

Figure 11: Effect of DDMS on Efficiency in the Context of Organizational Years



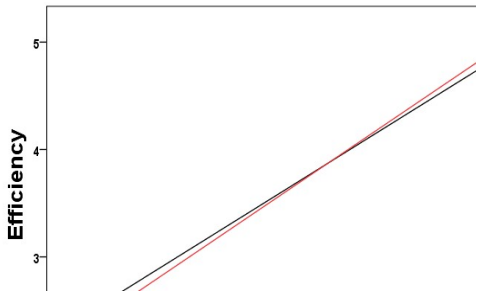
Source: Field Data (2022)

Figure 12: Effect of DDMS on Efficiency in the Context of Board Size



Source: Field Data (2022)

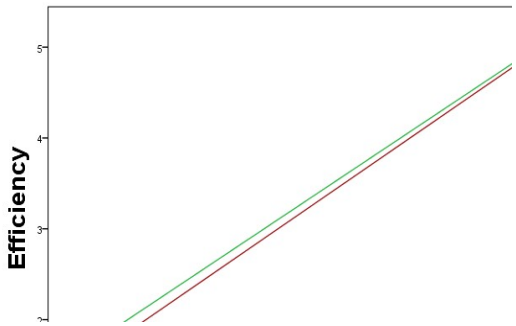
Figure 13: Effect of DDMS on Efficiency in the Context of Location



Source: Field Data (2022)

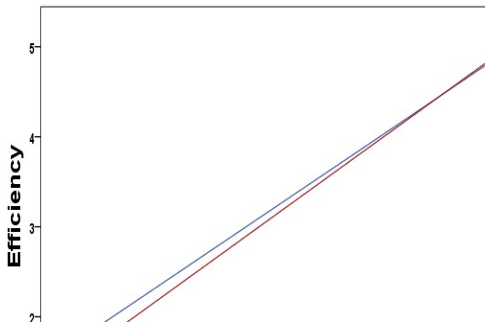
The relationship between the avoidant decision-making style and the efficiency of cooperatives in different organizational contexts revealed some interesting findings. It was shown that the positive impact of the avoidant decision-making style on cooperative efficiency is more pronounced in smaller organizations (R^2=76.9%) compared to larger ones (R^2=69.5%). Additionally, the research indicated that the influence of avoidant decision-making style on efficiency is stronger in older cooperatives (R^2=70.9%) than in younger ones (R^2=70%). Furthermore, the study found that in cooperatives with smaller board sizes, the impact of avoidant decision-making style on efficiency is more significant (R^2=76.9%) compared to those with larger board sizes (R^2=71.2%). Lastly, the results demonstrated that the effect of avoidant decision-making style on cooperative efficiency is more pronounced in cooperatives located far from urban centers (R^2=73.3%) than in those nearby (R^2=70.7%).

Figure 14: Effect of ADMS on Efficiency in the Context of Organizational Size



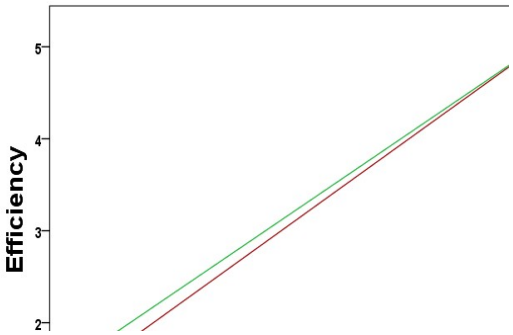
Source: Field Data (2022)

Figure 15: Effect of ADMS on Efficiency in the Context of Organizational Years



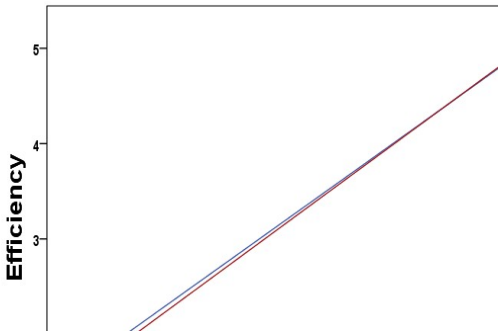
Source: Field Data (2022)

Figure 16: Effect of ADMS on Efficiency in the Context of Board Size



Source: Field Data (2022)

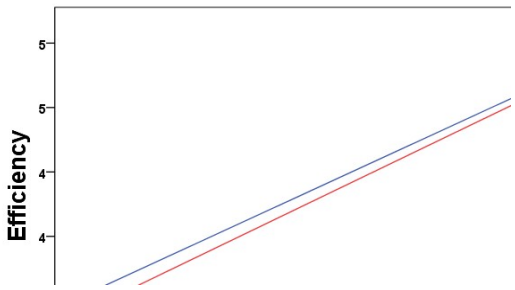
Figure 17: Effect of ADMS on Efficiency in the Context of Location



Source: Field Data (2022)

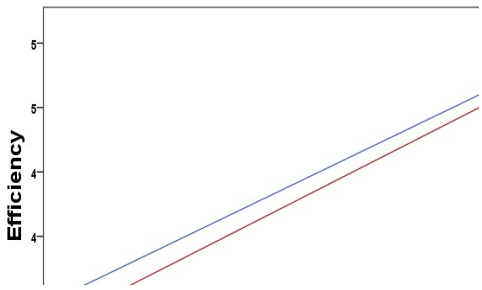
The research findings on the impact of spontaneous decision-making style on the efficiency of cooperatives indicate that the negative effect is more pronounced in smaller organizations (R^2=25.5%) compared to larger ones (R^2=19.2%). Furthermore, the study reveals that the influence of spontaneous decision-making style is stronger in older cooperatives (R^2=22.8%) than in younger ones (R^2=21.8%). Additionally, a significant impact is observed in cooperatives with larger board sizes (R^2=24.7%) compared to those with smaller board sizes (R^2=14.4%). Interestingly, the location of the cooperative does not seem to significantly affect the impact of spontaneous decision-making style on the efficiency of cooperatives. These results suggest that predictive models based on spontaneous decision-making style should be cautious when applied to different organizational contexts.

Figure 18: Effect of SDMS on Efficiency in the Context of Organizational Size



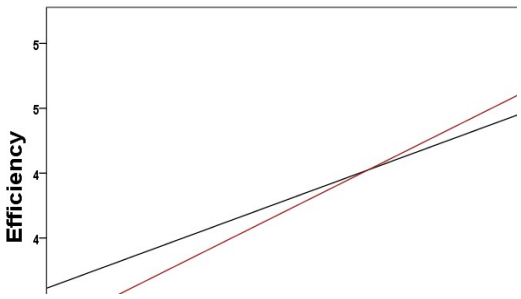
Source: Field Data (2022)

Figure 19: Effect of SDMS on Efficiency in the Context of Organizational Years



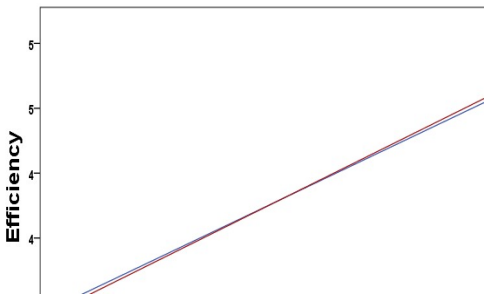
Source: Field Data (2022)

Figure 20: Effect of SDMS on Efficiency in the Context of Board Size



Source: Field Data (2022)

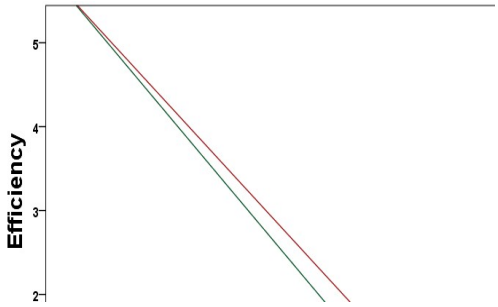
Figure 21: Effect of SDMS on Efficiency in the Context of Location



Source: Field Data (2022)

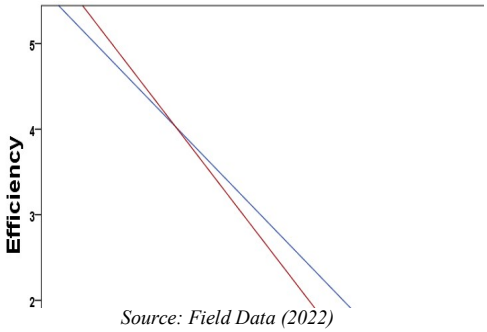
The impact regarding the interaction between rational and intuitive decision-making styles and their impact on the efficiency of cooperatives in varying organizational contexts revealed that the adverse effect of the interaction between rational and intuitive decision-making styles on cooperative efficiency is stronger in larger cooperatives (R^2=37.8%) compared to smaller ones (R^2=32.2%). When considering organizational age, the study indicated that the interaction between rational and intuitive decision-making styles has a greater influence on efficiency in younger cooperatives (R^2=36.7%) than in their older counterparts (R^2=34.2%). On the topic of board size, the study found that the interaction between rational and intuitive decision-making styles had a nearly equal influence on cooperative efficiency in both small (R^2=35.9%) and large (R^2=35%) boards. In terms of location, the research highlighted that the interaction between rational and intuitive decision-making styles has a stronger impact on cooperative efficiency in distant settings (R^2=36%) compared to nearby ones (R^2=31.9%).

Figure 22: Effect of RDMS*IDMS on Efficiency in the Context of Organizational Size



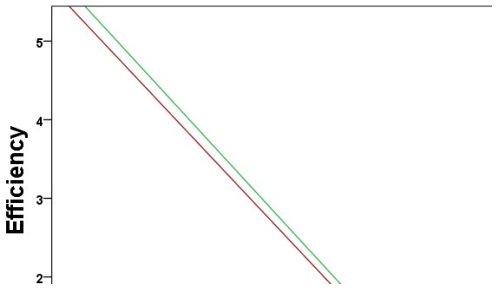
Source: Field Data (2022)

Figure 23: Effect of RDMS*IDMS on Efficiency in the Context of Organizational Years



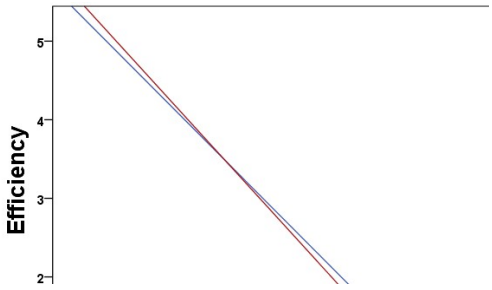
Source: Field Data (2022)

Figure 24: Effect of RDMS*IDMS on Efficiency in the Context of Board Size



Source: Field Data (2022)

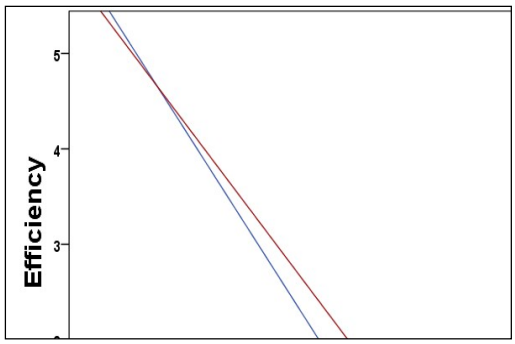
Figure 25: Effect of RDMS*IDMS on Efficiency in the Context of Location



Source: Field Data (2022)

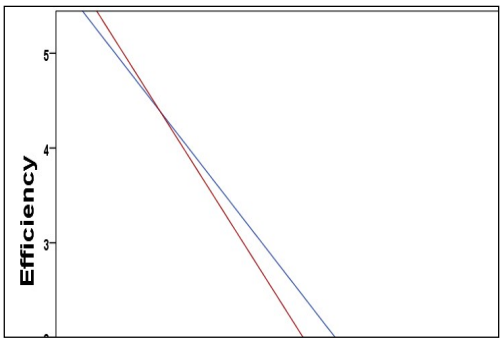
In terms of interacting dependent decision-making style with rational and intuitive decision-making styles and efficiency of cooperative in the context of organizational size, the results found a positive relationship and significant effect. Specifically, it was observed that the positive impact of an interacting dependent decision-making style with rational and intuitive decision-making styles on cooperative efficiency is stronger in larger organizations (R^2=38.2%) compared to smaller ones (R^2=31.2%). Additionally, in terms of organizational age, the results indicated that this interplay has a stronger influence on the efficiency of younger cooperatives (R^2=38.3%) than on older ones (R^2=32.8%). Furthermore, with board size, it was found that this interplay has a more pronounced impact on the efficiency of cooperatives with larger board sizes (R^2=37.8%) compared to those with smaller board sizes (R^2=27.2%). Lastly, concerning location, the study highlighted that the impact of an interacting dependent decision-making style with rational and intuitive decision-making styles is stronger on the efficiency of cooperatives located at a distance (R^2=36.2%) than on those nearby (R^2=30.8%).

Figure 26: Effect of RDMS*IDMS*DDMS on Efficiency in the Context of Organizational Size



Source: Field Data (2022)

Figure 27: Effect of RDMS*IDMS*DDMS on Efficiency in the Context of Organizational Years



Source: Field Data (2022)

Figure 28: Effect of RDMS*IDMS*DDMS on Efficiency in the Context of Board Size

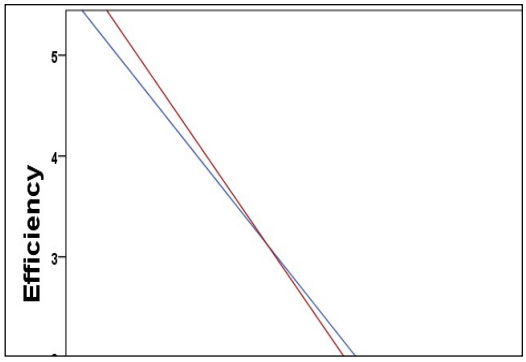
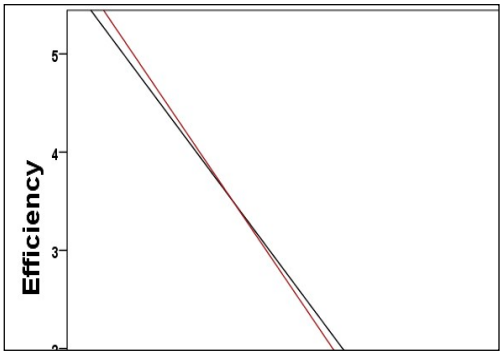


Figure 29: Effect of RDMS*IDMS*DDMS on Efficiency in the Context of Location



The study on decision-making styles in cooperative boards in Ethiopia showed that having diverse knowledge, skills, experiences, and information leads to better decision quality and improved cooperative performance. It was found that different decision-making styles positively impact cooperative efficiency, supporting previous research (e.g., Ward, 2016; Gambetti & Giusberti., 2019; Rehman et al., 2012; Riaz, 2015). On the other hand, negative outcomes were also consistent with prior studies (e.g., Loo, 2000; Galotti et al., 2006; de Bruin et al., 2007). Overall, the study confirms that various decision-making styles positively influence the efficiency of cooperatives, aligning with the theory of information decision-making (Cox & Blake, 1991). However, the negative effect on cooperative efficiency could be explained from the perspective of social categorization theory (Tajfel, 1981; Williams & O'Reilly, 1998).

5. Conclusion and Recommendations

The study focused on how different decision-making styles impact the performance of cooperatives. The findings showed that rational, intuitive, dependent, and avoidant decision-making styles had positive effects, while spontaneous decision-making had a negative effect. Although the interaction between rational and intuitive styles revealed a negative and significant effect on cooperative efficiency, combining dependent decision-making style with rational and intuitive styles had a positive significant effect on cooperative efficiency. Seeking advice from external sources and combining certain decision-making styles was found to improve cooperative efficiency. These results highlight the importance of diverse decision-making styles within heterogeneous boards of consumer cooperatives. With different possibilities and combinations of styles that would make a significant decision, the results provided heterogeneous managerial boards with information to consider the different pitfalls of using these various styles and combinations. Particularly, special attention should be paid to the organizational structure and characteristics of the cooperatives in terms of size, years, board size, and location. The findings also explained how the decision-making styles significantly influence the performance when the size of a cooperative is small while the board size is large. Furthermore, the age and location of the cooperatives also play significant roles in selecting the styles of decision-making.

The study has both theoretical and managerial implications. Theoretically, it provided evidence that the positive influence of decision-making styles on the efficiency of cooperatives supported the underpinning assumption of information decision-making theory (Cox & Blake, 1991; Williams & O'Reilly, 1998) that variation in group composition can have a direct positive impact through diverse cognitive resources that heterogeneity brings to enhance problem-solving as well as the quality of decisions. However, the negative results are supported by the underpinning assumption of social categorization

theory (Tajfel, 1981) since individual board members from affiliated primary cooperatives belong to certain specific areas restricted by the Ethiopian cooperative proclamation number 985/2016 that administratively classified based on ethnicities. The empirical findings also serve as responses to the call by the previous conceptual studies (Höhler & Kühl, 2018; Apparao et al., 2019; Yadav & Lenka, 2020). Presenting the significant influence of the various decision-making styles on the efficiency of cooperatives through the interaction terms to explain the degree of effect in the context of cooperative size, cooperative years, board size and location strengthens the theoretical and empirical argument of our study and advances the knowledge to understand how heterogeneous board improve the decision-making styles that further enhance the performance of cooperatives.

Though the response rate was so high, the research focused only on board-level analysis of a single cooperative union with affiliated primary cooperatives from the Gambella region in Ethiopia. While this enhances internal validity, it inhibits generalization since all the data were obtained through participants' perceptual responses. This study recommended a need to replicate this study in different contexts bearing in mind that it directly measured the effect of decision-making styles on the efficiency of cooperatives using conceptually validated constructs. Future work should consider the application of longitudinal study to explain findings as it may enable the examination of the existence and persistence of the relationships between the decision-making styles and performance of cooperatives over time. Further studies should consider the moderating effects of contextual factors of the environment and competition intensity.

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APPENDIX:

Table (a): Results of Cronbach's Alpha and AVE of the Study's Variables

Variables	Original Items	After Analysis	Cronbach's Alpha	AVE	Reliability
Rational DMS	5	4	0.891	0.643	Accepted
Intuitive DMS	5	5	0.924	0.729	Accepted
Dependent DMS	5	5	0.850	0.796	Accepted
Avoidant DMS	5	4	0.910	0.704	Accepted
Spontaneous DMS	5	5	0.851	0.790	Accepted
Efficiency	5	4	0.847	0.517	Accepted

Source: Field Data (2022)

Table (b): Test of Normality

	Shapiro-Wilk		
Variables	Statistic	df	Sig.
Rational DMS	.797	293	.000
Intuitive DMS	.837	293	.000
Dependent DMS	.783	293	.000
Avoidant DMS	.856	293	.000
Spontaneous DMS	.848	293	.000
Organizational Size	.929	293	.000
Organizational Years	.945	293	.000
Board Size	.898	293	.000
Location	.546	293	.000
Efficiency	.793	293	.000

a. Lilliefors Significance Correction

Source: Field Data (2022)

Table (c): Results of the Multicollinearity Test

Coefficients[a]

		Collinearity Statistics	
Model		Tolerance	VIF
1	(Constant)		
	Rational DMS	.366	2.733
	Intuitive DMS	.201	4.976
	Dependent DMS	.171	5.834
	Avoidant DMS	.233	4.299
	Spontaneous DMS	.260	3.848
	Organizational Size	.104	9.625
	Organizational Years	.851	1.176
	Board Size	.114	8.747
	Location	.691	1.447
2	(Constant)		
	Rational DMS	.302	3.311
	Intuitive DMS	.192	5.201
	Dependent DMS	.157	6.384
	Avoidant DMS	.232	4.315
	Spontaneous DMS	.250	4.001
	Rational*Intuitive DMS	.215	4.660
	Rational*Intuitive*Dependent DMS	.170	5.866
	Organizational Size	.104	9.652
	Organizational Years	.846	1.182
	Board Size	.113	8.811
	Location	.688	1.453

a. Dependent Variable: Efficiency

Source: Field Data (2022)

APPENDIX 2: Measurement Items

Table (d): Questionnaires

Variable	Items (Indicators)	Code	Sources
Rational Decision Making Style	Carefully plan important decisions	RDMS1	Scott & Bruce (1995), Verma & Rangnekar (2015), Adikaram & Kailasapathy (2021), Spicer & Sadler-Smith (2005), Riaz, (2015), Ward (2016), Hablemitoglu & Yildirim (2008)
	Double check information for right facts	RDMS2	
	Logical systematic way	RDMS3	
	Decision making requires careful thought	RDMS4	
	Consider options in terms of specific goal	RDMS5	
Intuitive Decision Making Style	Rely upon instincts while making decision	IDMS1	
	Tend to rely on intuition while deciding	IDMS2	
	Decide which feels right	IDMS3	
	Important to feel right rather than rational	IDMS4	
	Trust inner feelings and reactions	IDMS5	
Dependent Decision Making Style	Need assistant of others while deciding	DDMS1	
	Rarely make decisions without consulting	DDMS2	
	Support of others, makes decision easy	DDMS3	
	Use advice of others to make decisions	DDMS4	
	Like to have someone to steer in direction	DDMS5	
Avoidant Decision Making Style	Avoid important decision until	ADMS1	
	Postpone decision whenever possible	ADMS2	
	Often procrastinate when have to decide	ADMS3	
	Decide at last minute	ADMS4	
	Put off decisions because makes uneasy	ADMS5	
Spontaneous Decision Making Style	Generally make snap decisions	SDMS1	
	Often decide at spur of the moment	SDMS2	
	Make quick decisions	SDMS3	
	Often make impulsive	SDMS4	
	Decide what seems natural at the moment	SDMS5	
Efficiency	The quantity of products or services provided substantially improved	Efficiency1	Pollanen et al. (2017), Cavalluzzo & Ittner (2004), Wu et al. (2003) Sethi & King (1994)
	The quality of products or services provided substantially improved	Efficiency2	
	Efficient use of allocated budget	Efficiency3	
	The operating or cost of general management activities efficiency substantially improved	Efficiency4	
	Cost of interacting & coordinating activities with suppliers, customers and business partners have been substantially reduced	Efficiency5	
Organizational Size	Number of people or individual members in cooperative	OrganSize	Xu et al. (2017), Tarus & Aime (2014), García-Ramos & García-Olalla (2011), Kiel & Nicholson (2003), Cheng (2008), Rashid & Islam (2013)
Organizational Years	Number of years since the cooperative established	OrganYears	
Board Size	Number of people or individual members representing boards of cooperative	Board Size	
Location	The distance between the location of cooperative and the area an individual member of board lives	Location	