

Leveraging Social Capital for Financial Security: The Role of Traditional Afar Clan Governance in Pastoral Saving and Credit Cooperatives (Pasaccos)

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Abstract—In the arid and semi-arid lands (ASALs) of the Afar Regional State, Ethiopia, formal Pastoral Saving and Credit Cooperatives (PASACCOs) serve as critical entry points for financial inclusion and climate resilience. However, these rigid, top-down institutions are built on Western or agrarian structural assumptions that rely heavily on written contracts, triggering severe operational bottlenecks such as low savings mobilization, high loan defaults, and institutional alienation within a highly collectivist, mobile society burdened by a 67.7% formal literacy deficit. This study investigates the strategic role of indigenous social capital (bonding, bridging, and linking) embedded within traditional Afar clan governance systems in enhancing the financial security, compliance, and institutional sustainability of formal PASACCOs. Utilizing a convergent parallel mixed-methods research design, quantitative data was gathered via structured household questionnaires from a validated sample of 322 registered PASACCO members (93.3% response rate), alongside multi-year financial archival metrics. Qualitative data was collected through 12 Key Informant Interviews (KIIs) and 5 structured Focus Group Discussions (FGDs) with traditional clan leaders (Keddo Abba), Fi'ma coordinators, and regulatory experts. Quantitative insights were modeled using Ordinary Least Squares (OLS) and Binary Logistic regressions. The study exposes a profound trust asymmetry: 89.1% of respondent's express deep trust in traditional clan governance, whereas only 25.5% trust formal PASACCO management. Econometric modeling shows that bonding social capital, mediated through the indigenous Fi'ma network integration, is the strongest positive predictor of monthly savings volume ($\beta=0.467$, $p<0.001$) by institutionalizing traditional resource-pooling customs. Concurrently, vertical bridging capital via clan leadership endorsement is the most dominant determinant of credit compliance, rendering a branch 3.4 times more likely to achieve total loan repayment

($\text{Exp}(\beta)=3.412$, $p<0.001$). The oral, customary law (Xeer) acts as an informal credit bureau where the threat of social exclusion completely supersedes material collateral or formal literacy, the latter of which proved statistically irrelevant to loan compliance ($p>0.05$). Formal micro financial frameworks in pastoral ecosystems will inevitably collapse if they remain isolated from indigenous socio-political tissues. Long-term financial inclusion and climate resilience require a transition from structural imposition to institutional hybridization. The study recommends that regional bureaus legally restructure cooperative bylaws to introduce co-management governance boards with traditional elders, institutionalize Fi'ma units as sub-savings groups, deploy flexible seasonal repayment calendars, and adopt oral, Afaraf-based financial literacy frameworks.

Index Terms—Social Capital, Afar Clan Governance, PASACCOs, Xeer Customary Law, Fi'ma; Financial Inclusion, New Institutional Economics.

I. INTRODUCTION

1.1. Background of the Study

In the arid and semi-arid lands (ASALs) of Sub-Saharan Africa, pastoralist communities navigate a complex landscape characterized by severe climate variability, ecological unpredictability, and institutional marginalization (Fratkin, 2014). For generations, these communities have relied on traditional, informal social safety nets rooted in kinship and communal solidarity to mitigate risks such as droughts, livestock diseases, and economic shocks (Little et al., 2001). However, the increasing frequency

of climate-induced disasters, coupled with standard market pressures, has strained these traditional coping mechanisms, necessitating a shift toward more formalized financial inclusion strategies (Admassu, 2020).

Among these strategies, Pastoral Saving and Credit Cooperatives (PASACCOs) have emerged as vital institutional mechanisms designed to promote financial security, mobilize savings, and provide affordable credit to marginalized pastoral groups (Emana, 2012). Unlike conventional financial institutions, which often fail in pastoral settings due to high transaction costs, lack of physical collateral, and geographical isolation, PASACCOs offer a localized, member-owned alternative (Woldenhadi & Tolossa, 2019). Despite their potential, the structural implementation of formal cooperative models in pastoral areas frequently faces operational hurdles, primarily because conventional cooperative legal frameworks often ignore pre-existing cultural paradigms and indigenous socio-political structures (Bernard et al., 2010).

The concept of social capital defined as the networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit (Putnam, 1993) is central to understanding the operational dynamics of pastoral communities. In pastoral societies, social capital is not merely an abstract concept but a tangible, structural asset mediated through traditional clan governance systems (Bassi, 2005). In the Afar region of Ethiopia, this is epitomized by the Mabla or Fi'ma systems and the overarching traditional clan leadership, which command immense legitimacy, enforce social accountability, and govern resource distribution (Amdissa et al., 2015). Traditional Afar clan governance regulates every facet of pastoral life, from conflict resolution and pasture management to informal credit and mutual-aid mechanisms like the Aussa or Haddoo (Reda, 2011).

Despite the undisputed authority of traditional governance and the institutional utility of PASACCOs, there remains a critical disconnect in the empirical literature regarding how these two distinct systems interact. While conventional development discourse often views traditional institutions as obstacles to modernization, emerging institutional theories argue that formal organizations can achieve greater sustainability by embedding themselves within existing informal frameworks (North, 1990; Ostrom,

1990). In the Afar context, leveraging the social capital inherent in traditional clan governance could hold the key to solving the persistent challenges faced by PASACCOs, such as high loan default rates, low member savings mobilization, and weak institutional trust (Tilahun & Bogale, 2021).

Therefore, understanding the exact role that traditional Afar clan governance plays in shaping the performance, compliance, and financial security of PASACCOs is highly crucial. This study seeks to address this gap by exploring how indigenous social capital can be strategically leveraged to reinforce formal cooperative frameworks, ultimately fostering sustainable financial security for pastoralist communities in the Afar region.

1.2. Statement of the Problem

In the arid and semi-arid lands (ASALs) of Ethiopia, particularly within the Afar regional state, Pastoral Saving and Credit Cooperatives (PASACCOs) have been implemented as vital institutional mechanisms to foster financial security, promote savings cultures, and provide accessible credit alternatives for marginalized pastoralists (Emana, 2012; Woldenhadi & Tolossa, 2019). Ideally, these formalized financial cooperatives should operate as self-sustaining, community-driven entities that leverage high levels of local trust to mitigate the high transaction costs and collateral constraints inherent to pastoral economies (Bernard et al., 2010). When functioning optimally, PASACCOs act as financial buffers, allowing pastoralists to smooth consumption, diversify livelihoods, and build resilience against severe climate-induced shocks (Admassu, 2020).

However, the operational reality of PASACCOs in the Afar region deviates drastically from this ideal framework. Despite substantial institutional backing and regulatory support, a significant majority of PASACCOs encounter severe operational bottlenecks characterized by exceptionally low member savings mobilization, high loan default rates, weak institutional governance, and an overarching lack of community ownership (Tilahun & Bogale, 2021). Conventional financial and cooperative models applied in these areas are fundamentally built on Western or agrarian structural assumptions that rely heavily on formal, written contractual enforcement and individualistic property rights (North, 1990). When these rigid, top-down structures are imposed on

the highly collectivist and mobile Afar pastoral society, they frequently fail because they ignore the pre-existing, deeply entrenched indigenous socio-political institutions that traditionally govern pastoral life (Amdissa et al., 2015).

The core of the problem lies in a profound institutional mismatch and a critical disconnect in empirical literature. While conventional development initiatives often view traditional clan institutions as archaic barriers to financial modernization, institutional economists argue that formal organizations can only achieve long-term sustainability if they are culturally embedded within existing informal networks (Ostrom, 1990; Ensminger, 1992). The Afar society possesses a rich reservoir of social capital manifested through traditional clan governance, customary laws (Xeer), and mutual-aid networks like the Fi'ma which commands immense cultural legitimacy and enforces strict moral and social accountability (Reda, 2011). Despite the undisputed authority of these traditional mechanisms in enforcing compliance and managing communal resources, there is a glaring lack of empirical research on how this indigenous social capital can be systematically integrated into the structural design and governance of formal PASACCOs.

If this problem is left unaddressed, PASACCOs in the Afar region will likely continue to suffer from institutional alienation, leading to widespread financial insolvency and premature collapse. This failure not only wastes scarce development resources but further marginalizes pastoralist households, leaving them highly vulnerable to predatory informal lenders and catastrophic climate shocks without sustainable financial safety nets. Therefore, this study directly addresses this gap by investigating the precise role of traditional Afar clan governance in pastoral financial cooperatives, offering a framework to strategically leverage indigenous social capital to ensure sustainable financial security.

1.3. Objectives of the study

1.3.1. General Objective

The overarching objective of this study is to investigate the role of traditional Afar clan governance in leveraging social capital to enhance the financial security, operational sustainability, and institutional performance of Pastoral Saving and Credit

Cooperatives (PASACCOs) in the Afar Regional State, Ethiopia.

1.3.2. Specific Objectives and Matrix

To maintain rigorous academic alignment, the specific objectives are paired directly with their corresponding research questions below.

1. To identify and map the key dimensions of indigenous social capital (bonding, bridging, and linking) embedded within traditional Afar clan governance structures.
2. To examine the nature of interaction, alignment, or conflict between traditional Afar customary laws (Xeer) and the formal regulatory frameworks governing PASACCOs.
3. To analyze how traditional clan leadership and community mutual-aid networks (such as Fi'ma) influence savings mobilization, loan repayment enforcement, and default mitigation in PASACCOs.
4. To evaluate the impact of integrating traditional governance mechanisms on the overall institutional sustainability of PASACCOs and the household financial security of pastoralists.

1.3.3. Research Questions

- ✓ What are the distinct dimensions of social capital inherent in traditional Afar clan governance, and how do they function within the pastoral community?
- ✓ How do traditional Afar customary laws (Xeer) interact with, align with, or contradict the formal regulatory and legal frameworks of PASACCOs?
- ✓ In what ways do traditional clan leaders and indigenous mutual-aid networks influence member savings habits and loan compliance behaviors within PASACCOs?
- ✓ What is the empirical impact of integrating traditional clan governance structures into PASACCOs on the financial security of pastoralist households and the long-term sustainability of the cooperatives?

1.4. Scope of the Study

Geographical Scope: This study is strictly delimited to the Afar Regional State, Ethiopia, focusing on specific zones characterized by dominant pastoral livelihoods and an active presence of functional PASACCOs (e.g., Zone 1/Awusi Rasu or Zone 3/Gabi Rasu).

Contextual & Institutional Scope: The research focuses exclusively on the intersection of two

institutional frameworks: informal indigenous structures (the Afar clan governance, customary laws known as Xeer, and mutual-aid networks like Fi'ma) and formal microfinancial cooperatives (PASACCOs).

Target Population: Data collection will be limited to registered members of PASACCOs, cooperative management committees, local cooperative promotion officers, and traditional Afar clan leaders/elders.

Temporal Scope: The empirical investigation will analyze the financial performance records of selected PASACCOs and household financial security trends over a specific recent timeframe (e.g., the last 3 to 5 years).

II. LITERATURE REVIEW

2.1. Theoretical Framework

This study is anchored on two complementary theoretical paradigms that explain the intersection of informal social structures and formal economic institutions: Social Capital Theory and New Institutional Economics (NIE).

➤ Social Capital Theory

Social Capital Theory, primarily pioneered by Bourdieu (1986), Coleman (1988), and Putnam (1993), posits that social networks, norms of reciprocity, and mutual trust constitute valuable collective assets that facilitate cooperative action for mutual benefit. Woolcock and Narayan (2000) further categorized social capital into three distinct dimensions:

Bonding Social Capital: Intra-community ties among homogenous groups (e.g., immediate family and close clan members).

Bridging Social Capital: Inter-community ties cutting across diverse social groups (e.g., inter-clan relations).

Linking Social Capital: Vertical ties connecting weak or marginalized groups to formal structural positions of authority (e.g., pastoralists connecting with state cooperative bureaus).

In pastoralist economies, social capital serves as an informal substitute for formal insurance markets (Little et al., 2001). For the Afar people, bonding and bridging social capital are structural resources embedded within clan governance and customary systems like Fi'ma. This study utilizes Social Capital Theory to understand how these indigenous horizontal and vertical trust networks can be mobilized to

improve member commitment, reduce monitoring costs, and encourage saving habits within formal PASACCOs.

➤ New Institutional Economics (NIE)

While social capital explains the norms of cooperation, New Institutional Economics (NIE) championed by North (1990) and Ostrom (1990) provides the structural framework for understanding how formal rules interact with informal customs. North (1990) famously distinguished between formal rules (constitutions, laws, property rights) and "informal constraints" (sanctions, taboos, customs, traditions). NIE argues that when formal institutions are introduced into an environment without considering pre-existing informal constraints, a severe institutional mismatch occurs, resulting in institutional failure, low enforcement, and high transaction costs (Ensminger, 1992).

Furthermore, Ostrom's (1990) *Governing the Commons* framework illustrates that local user groups can successfully manage collective resources when they design their own rules, enforce compliance through local accountability, and utilize graduated sanctions. In this study, NIE is applied to evaluate how the formal rules governing PASACCOs can be culturally embedded within the informal, highly legitimate customary laws (Xeer) of the Afar clan governance to eliminate institutional friction and lower loan default rates.

2.2. Conceptual Framework

The conceptual framework illustrates the hypothesized relationship between the independent variables (dimensions of traditional Afar clan governance and social capital) and the dependent variables (PASACCO institutional performance and household financial security), mediated by institutional alignment.

➤ Narrative Explanation of the Conceptual Framework

Independent Variables: Represent the core elements of the Afar traditional socio-political system. This includes Clan Leadership Enforcement (the authority of elders), Customary Laws (Xeer) (which mandate conflict resolution and property rules), and Mutual-Aid Networks (Fi'ma/Aussa) (which embody communal bonding and bridging social capital).

Mediating Variable (Institutional Alignment): This represents the degree to which formal PASACCO

operational bylaws are embedded within or supported by the informal traditional systems. High alignment lowers transaction costs and builds trust.

Dependent Variables: Look at the dual-layer outcomes. At the Institutional Level, it measures PASACCO performance via savings mobilization rates, loan repayment compliance, and membership retention. At the Household Level, it measures the ultimate goal: pastoral financial security (consumption smoothing, asset accumulation/livestock restock, and climate shock resilience).

2.3. Empirical Review

The empirical literature on the nexus between traditional governance, social capital, and formal micro financial institutions in pastoral settings reveals critical insights alongside distinct empirical gaps.

➤ Traditional Governance and Financial Compliance

Empirical studies across East Africa demonstrate that traditional authorities often possess greater compliance-enforcement capabilities than formal state judiciaries. In a study on pastoral communities in northern Kenya, Ensminger (1992) found that credit transactions and property rights are highly stable when backed by customary elders, as social exclusion serves as a severe deterrent against defaults. Similarly, in Ethiopia, Amdissa et al. (2015) observed that formal cooperatives operating in the Afar region that actively consulted clan elders achieved significantly lower loan delinquency rates compared to those that operated strictly on formal legalistic contracts. Clan leaders leverage high moral authority and the threat of customary sanctions to compel repayment, acting as an informal credit bureau.

➤ Social Capital and Savings Mobilization in Cooperatives

The literature heavily establishes that robust social capital directly influences savings behavior and institutional trust. Bernard et al. (2010), in their extensive evaluation of cooperative performance in rural Ethiopia, noted that bonding social capital within homogenous groups creates peer pressure that drives internal savings mobilization. However, they also warned that exclusive bonding capital, if not bridged with external networks, can cause insularity and limit capital growth.

In pastoral settings, Woldenhadi and Tolossa (2019) indicated that PASACCOs face structural constraints

in mobilizing savings due to the high mobility of pastoralists and their preference for saving in the form of live capital (livestock) rather than fiat currency. Nonetheless, Tilahun and Bogale (2021) empirically demonstrated that when PASACCOs leverage indigenous mutual-aid networks such as the Fi'ma system in Afar members show significantly higher propensities to participate in financial savings, as the formal cooperative is viewed as a trustworthy extension of their community rather than an alien state apparatus.

➤ Identification of the Empirical Gap

Despite these valuable contributions, a critical gap remains in the current literature. Most existing studies on PASACCOs focus heavily on standard econometric and financial determinants of cooperative success such as loan sizes, interest rates, and demographic characteristics of members (e.g., Emanu, 2012; Tilahun & Bogale, 2021). Conversely, anthropological studies on Afar clan governance (Xe'er, Fi'ma) tend to focus purely on conflict resolution and pasture management (Reda, 2011; Bassi, 2005). There is an acute shortage of empirical research that explicitly quantifies or structurally models how the social capital generated by these traditional governance frameworks can be strategically leveraged to solve the systemic operational vulnerabilities of formal micro financial cooperatives. This study directly addresses this empirical omission.

III. RESEARCH METHODOLOGY

3.1. Research Design

To comprehensively capture the socio-institutional dynamics within the Afar region, the study will deploy a cross-sectional, descriptive, and explanatory research design (Hair et al., 2019).

Descriptive Design: This aspect of the design will be utilized to systematically document and map the current state of PASACCOs (e.g., membership size, organizational structure, operational health) and to outline the existing traditional clan governance arrangements and mutual-aid practices active in the study area.

Explanatory Design: Going beyond mere description, the explanatory design will examine and explain the causal relationships between the variables. Specifically, it will investigate how and why variations in indigenous social capital (independent

variable) influence the operational efficiency, default rates, and sustainability of formal PASACCOs, as well as the financial security of pastoralist households (dependent variables) (Bhattacharjee, 2012).

Cross-Sectional Framework: Data will be collected from the target population at a single point in time. This is highly pragmatic and effective for analyzing the prevailing institutional alignment between formal and informal structures across multiple clans and cooperatives simultaneously within the region (Kothari, 2004).

3.2. Research Approach

This study will adopt a mixed-methods research approach, specifically utilizing a convergent parallel design (Creswell & Creswell, 2018). This approach allows for the simultaneous collection and analysis of both quantitative and qualitative data during the same phase of the research process, giving equal weight to both data types.

Quantitative Approach: This component will be used to measure numerical trends, such as member savings rates, loan repayment percentages, loan default frequencies, and household financial security metrics (asset indices and income stability scores) across selected PASACCOs. This provides a statistical foundation to evaluate institutional performance (Saunders et al., 2019).

Qualitative Approach: This component is critical for capturing the nuanced, culturally embedded realities of traditional Afar clan governance. It will be used to explore the depth of social capital, the operational mechanisms of customary laws (Xeer), and the social enforcement strategies of mutual-aid networks like the Fi'ma (Bryman, 2016).

The rationale for selecting a mixed-methods approach is grounded in the complexity of the research topic. Relying solely on quantitative metrics would obscure the rich, invisible cultural dynamics of clan governance, while a purely qualitative approach would fail to provide objective, generalizable proof of financial sustainability and cooperative performance. Integrating both approaches allows the qualitative insights to explain the mechanisms behind the quantitative trends (Johnson et al., 2007).

3.3. Target Population

The target population comprises the entire group of individuals or entities that possess the specific

characteristics required to answer the research questions (Hair et al., 2019). For this study, the target population is multi-layered to capture both formal and informal institutional perspectives:

PASACCO Members: Active registered pastoralist and agro-pastoralist members of selected PASACCOs within the Afar Regional State.

PASACCO Management: Board of directors, credit committee members, and supervisory committee members of these cooperatives.

Traditional Authorities: Customary Afar clan leaders, elders (Keddo Abba), and leaders of local Fi'ma mutual-aid networks operating within the catchment areas of the selected PASACCOs.

Government Experts: Woreda and Zonal Cooperative Promotion Bureau officers who oversee the formal regulatory enforcement of PASACCOs.

3.4. Sampling Frame

The sampling frame is the actual list of sampling units from which the sample will be drawn (Bhattacharjee, 2012). To maintain statistical and structural validity, this study utilizes two distinct sampling frames:

The Formal Frame: An up-to-date registry list of all legally recognized and active PASACCOs obtained from the Afar Regional Cooperative Promotion Bureau, alongside the comprehensive, audited member rosters maintained internally by each selected cooperative.

The Informal Frame: Because traditional clan structures lack written registries, a localized institutional mapping approach will be used. Working alongside local administration, the researcher will compile a list of traditional clans, lineage branches (Aynah), and active Fi'ma groups operating within the physical boundaries of the selected PASACCOs.

3.5. Sample Size Determination

To ensure the study balances statistical precision with field feasibility across a widely dispersed pastoral population, separate sample sizes are determined for quantitative and qualitative data.

➤ Quantitative Sample Size (Household Survey)

For the member household survey, the sample size is determined using Yamane's (1967) formula for finite populations, or Cochran's (1977) formula if the total population framework across selected zones is unknown/infinite. Assuming a finite aggregate

population (N) of registered PASACCO members in the target study districts, Yamane’s formula is applied:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

- n = Calculated sample size.
- N = Total population of registered members within the selected PASACCOs.
- e = Margin of error, strictly set at 5% (0.05) to ensure a 95% confidence level in the data.

(Note: During field survey the number a population is, N=2,500 will yield a strict sample size of n=345 respondents).

➤ Qualitative Sample Size (KIIs and FGDs)

Qualitative sample sizes are not determined by mathematical formulas but by the principle of data saturation the point during fieldwork where no new conceptual insights or themes emerge from additional interviews (Creswell & Creswell, 2018). Tentatively, the qualitative sample will consist of:

Key Informant Interviews (KIIs): Approximately 12 to 15 in-depth interviews with prominent clan elders, Fi'ma leaders, and Woreda cooperative experts. Focus Group Discussions (FGDs): 4 to 6 structured FGDs (homogenous groups separated by gender and age to respect traditional Afar communication dynamics), with each group containing 6 to 8 participants.

3.6. Data Collection Methods

To facilitate the convergent parallel mixed-methods design, data will be collected using primary and secondary sources. Primary data collection will occur concurrently in the field using a suite of quantitative and qualitative instruments (Creswell & Creswell, 2018).

➤ Quantitative Data Collection

Structured Household Questionnaire: A pre-tested, interviewer-administered questionnaire will be deployed to collect data from the sampled PASACCO members. The tool will capture demographic profiles, household asset indices, livestock ownership patterns, savings frequencies, loan access history, repayment timelines, and indicators of household shock resilience. Likert-scale questions will also be used to quantify members' perceived trust in both clan

governance and formal PASACCO leadership (Hair et al., 2019).

➤ Qualitative Data Collection

Key Informant Interviews (KIIs): Semi-structured interview guides will be conducted with purposefully selected actors who possess deep institutional or cultural knowledge. These include traditional clan leaders (Keddo Abba), customary judges, Fi'ma coordinators, and Woreda cooperative promotion officers. KIIs will explore the operational nuances of customary law (Xeer), dispute resolution mechanisms, and how social sanctions are enforced against loan defaulters (Bryman, 2016).

Focus Group Discussions (FGDs): Interactive FGDs will be organized to capture shared communal perspectives and historical narratives regarding informal social safety nets and cooperative trust. To respect traditional Afar cultural and communication norms, these discussions will be stratified by gender and age cohorts (Kothari, 2004).

➤ Secondary Data Collection

Institutional Audits and Reports: Financial metrics, archival data, and performance indicators will be extracted directly from the official records of the selected PASACCOs and Woreda cooperative offices. This includes tracking multi-year trends in aggregate savings mobilization, non-performing loan (NPL) ratios, portfolio at risk (PAR), and member dropout rates over the past 3 to 5 years (Saunders et al., 2019).

3.7. Data Analysis

Because this study generates both numerical and textual data, distinct but complementary data analysis pipelines will be utilized to interpret the findings.

➤ Quantitative Data Analysis

Quantitative data generated from the household surveys and financial audits will be cleaned, coded, and analyzed using statistical software such as SPSS or Stata. The analytical approach involves two layers: Descriptive Statistics: Frequencies, percentages, means, standard deviations, and variances will be used to profile the demographic features of pastoralists and summarize the financial health parameters of the PASACCOs (Bhattacharjee, 2012).

Inferential Statistics: To test hypotheses regarding the impact of traditional social capital on PASACCO performance and financial security, econometric modeling will be utilized. Depending on the distribution and scale of the variables, a Multiple

Linear Regression model or a Logit/Probit regression model will be applied. For instance, factors predicting loan repayment compliance or savings volume (Y) will be modeled against indices of bonding, bridging, and linking social capital (X_i) as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n + \epsilon$$

Where β_0 is the intercept, β_i represents the regression coefficients of the social capital dimensions, and ϵ is the error term.

➤ Qualitative Data Analysis

Qualitative data from the audio-recorded KIIs and FGDs will be translated from Afaraf into English and transcribed verbatim. The text will be analyzed using Thematic Analysis aided by qualitative software such as NVivo (Braun & Clarke, 2006).

The transcripts will undergo an iterative process of open coding to generate initial concepts.

These codes will be aggregated into broader categories representing dimensions of indigenous governance, institutional friction, and socio-cultural alignment mechanisms.

Finally, these categories will be distilled into overarching themes that directly answer the core qualitative research questions.

➤ Data Integration

Following the convergent parallel framework, the quantitative and qualitative findings will be integrated during the discussion phase. A side-by-side comparison technique will be used to observe whether the qualitative themes corroborate, expand upon, or contradict the statistical regression models, thereby providing a robust, triangulated conclusion (Creswell & Creswell, 2018).

IV. DATA ANALYSIS AND DISCUSSION

4.1. Response Rate

The data collection phase utilized a dual approach to gather both quantitative and qualitative insights from the sampled units across the selected districts of the Afar Regional State. For the quantitative component, a total of 345 structured household questionnaires were administered by trained field enumerators to registered members of Pastoral Saving and Credit Cooperatives (PASACCOs).

Out of the distributed questionnaires, 322 were fully completed, returned, and verified as valid for statistical analysis. This resulted in an overall survey response rate of 93.3%. According to Babbie (2020)

and Saunders et al. (2019), a response rate above 70% is deemed excellent for social science research and is highly sufficient to minimize non-response bias, thereby ensuring the statistical validity and generalizability of the inferential models.

For the qualitative component, the study achieved 100% saturation and participation, executing all 12 planned Key Informant Interviews (KIIs) 5 structured Focus Group Discussions (FGDs) with traditional clan leaders (Keddo Abba), Fi'ma representatives, and cooperative officers.

4.2. Characteristics of Respondents

Analyzing the demographic and socio-economic profiles of the respondents is critical for contextualizing the subsequent findings on social capital mobilization and micro financial behavior. Because this study evaluates traditional Afar clan systems and formal PASACCO operations, the characteristics are framed through both cultural and economic lenses.

➤ Socio-Demographic Profile

Gender Distribution: In line with traditional pastoral dynamics, the sample captures the gendered division of labor and financial access. While livestock ownership and major clan decision-making are historically dominated by male clan elders, tracking female participation rates within PASACCOs reveals how modern microfinance interacts with traditional gender roles (Fratkin, 2014).

Age Distribution: The age of the respondents is categorized to reflect experience and structural authority within the clan. Older respondents typically command higher traditional authority and possess deeper knowledge of customary laws (Xeer), whereas younger age cohorts often represent the more economically active or literate members driving formal PASACCO participation.

Marital Status and Household Size: Given that the Afar society operates on highly collectivist principles, household size serves as a proxy for labor availability and domestic consumption demands. Larger households often rely heavily on communal safety nets and cooperative credit to smooth consumption during severe climate shocks (Little et al., 2001).

➤ **Socio-Economic and Institutional Characteristics**
Educational Attainment: Literacy levels remain a critical institutional variable. Lower formal literacy rates common in remote pastoral setups often highlight

why rigid, written formal cooperative contracts fail, and underscores the necessity of relying on oral traditional governance networks and verbal social capital trust to enforce financial compliance (Amdissa et al., 2015).

Primary Livelihood Activity: Respondents are categorized based on their primary economic dependency, spanning pure nomadic pastoralism, agro-pastoralism, and small-scale petty trade. Livelihood mobility and cash-flow predictability directly dictate a member's capacity for regular monetary savings mobilization versus live-capital (livestock) accumulation (Woldenhadi & Tolossa, 2019).

Duration of PASACCO Membership: The number of years a respondent has spent as a registered cooperative member serves as an indicator of institutional trust and familiarity with formal credit structures. Long-term members provide essential insights into whether the cooperative has effectively integrated into their local clan network over time.

The table below synthesizes the demographic parameters collected from the 322 validated household surveys:

Table 1: Respondents demography and characteristics

Demographic Variable	Category	Frequency (N=322)	Percentage (%)
Gender	Male	209	64.9%
	Female	113	35.1%
Age Cohort	18-35 years	94	29.2%
	36-50 years	141	43.8%
	Above 50 years	87	27.0%
Formal Education	No Formal Education	218	67.7%
	Primary Education	76	23.6%
	Primary Education (1-8)	28	8.7%

Demographic Variable	Category	Frequency (N=322)	Percentage (%)
Household Size	Secondary & Above		
	1-4 members	42	13.0%
	5-8 members	193	59.9%
	Above 8 members	87	27.1%

Source: Researchers field survey 2026.

Table 2: Descriptive Statistics for Institutional Performance and Social Capital Variables

Operational Variables	Measurement Scale / Categories	Frequency (f)	Percentage (%)	Mean / Std. Dev.
Perceived Trust in Clan Governance	Low Trust (1-2)	11	3.4%	Mean Score: 4.65 / 5 SD: 0.48
	Moderate Trust (3)	24	7.5%	
	High Trust (4-5)	287	89.1%	
Perceived Trust in Formal PASACCOs	Low Trust (1-2)	142	44.1%	Mean Score: 2.61 / 5 SD: 1.12
	Moderate Trust (3)	98	30.4%	
	High Trust (4-5)	82	25.5%	

Operational Variables	Measurement Scale / Categories	Frequency (f)	Percentage (%)	Mean / Std. Dev.
Monthly Cash Savings Volume	No regular savings		37.0 %	Mean Savings: 185 ETB SD: 92 ETB
	100–300 ETB / month	119	45.6 %	
	> 300 ETB / month	147 56	17.4 %	
Loan Repayment Status (Past 24 Months)	Fully Compliant		41.6 %	—
	Delayed Repayment	134	37.6 %	
	In Chronic Default	121	20.8 %	
		67		
Primary Driver of Loan Compliance	Fear of formal legal court		7.5 %	—
	Moral/Social pressure from elders	24	65.5 %	
	Desire to access future loans	211	27.0 %	
		87		

Source: SPSS27 computation

The Trust Asymmetry: A profound institutional trust gap is evident in the descriptive metrics. While 89.1% of respondents express deep, unyielding trust in their

traditional clan governance system (Mean=4.65/5), only 25.5% view formal PASACCO management with high trust (Mean=2.61/5). This statistical asymmetry proves that PASACCOs operating in isolation suffer from an institutional legitimacy crisis; they are viewed as "state-imposed, alien instruments" rather than community assets.

Savings Vulnerability: Internal savings mobilization is chronically low, with 37.0% of members failing to save on a regular monthly basis and a modest sample mean of 185 Ethiopian Birr (ETB). Qualitative triangulation indicated that this is not due to an absolute lack of wealth, but rather a strong cultural preference for saving in the form of live capital (goats and camels) over cash, which steadily depreciates under local inflationary pressures.

Credit Compliance Dynamics: Over the past two years, only 41.6% of borrowers maintained perfect compliance, while 37.6% faced delayed payments, and 20.8% fell into chronic delinquency. Crucially, when respondents were asked what actually drives them to repay their loans, a clear majority of 65.5% cited moral and social pressure from clan elders, compared to a negligible 7.5% who feared formal state courts.

Descriptive Takeaway: The descriptive data demonstrates that state-backed legal mechanisms possess very weak enforcement power in the desert. True financial accountability within these cooperatives is structurally driven by the social capital and moral leverage wielded by traditional clan networks.

4.3. Dimensions of Indigenous Social Capital in Afar Clan Governance

In alignment with Woolcock and Narayan’s (2000) framework, qualitative and quantitative data mapping revealed three functional layers of social capital within the study areas:

Bonding Social Capital: This manifests as intense intra-clan loyalty. Survey respondents indicated that immediate extended family and lineage branches (Aynah) serve as the immediate safety net during localized shocks. Over 88% of respondents strongly agreed that they would prioritize financial assistance to a clan member over an external entity.

Bridging Social Capital: Inter-clan networks are mediated via the Xeer customary system. These horizontal ties allow pastoralists to negotiate grazing rights and cross-border resource sharing during severe

droughts, transforming potential regional conflicts into cooperative risk-sharing mechanisms.

Linking Social Capital: Vertical ties connecting pastoralists to formal state structures remain the weakest link. Respondents noted a historic distrust toward external financial systems, showing that PASACCOs succeed only when local clan elders act as structural intermediaries between the state cooperative bureaus and the community.

4.4. Institutional Alignment: Xeer vs. Formal PASACCO Bylaws

A significant finding of this study is the structural friction between formal cooperative legal requirements and the indigenous Xeer (customary law).

Formal PASACCO frameworks rely heavily on written contracts, fixed monthly savings deadlines, and individual legal liability. Conversely, the Afar Xeer functions on oral commitments, collective lineage responsibility, and flexible timelines adjusted to seasonal pastoral migration.

Key Qualitative Insight (FGD, Zone 3 Clan Elders): "A piece of paper signed with ink cannot track a man when the water dries up and the livestock must move. But the word given to the 'Keddo Abba' (Clan Father) travels across the desert. If a man runs from his debt, his lineage bears the shame and the financial burden." Where PASACCO bylaws were rigidly enforced without adapting to pastoral mobility, member dropouts escalated. However, cooperatives that incorporated flexible seasonal repayment windows aligned with livestock sales cycles demonstrated a 42% higher retention rate.

4.5. Influence of Traditional Leadership and Fi'ma on Financial Compliance

The Fi'ma (traditional mutual-aid and youth cohort network) acts as a highly effective informal enforcement mechanism for financial compliance. The table below presents the multiple linear regression model estimating the predictors of loan repayment compliance (Y) and annual household savings volume (Y2).

Econometric Predictors of PASACCO Performance

$$Y = \beta_0 + \beta_1 (\text{Clan Enforcement}) + \beta_2 (\text{Fi'ma Integration}) + \beta_3 (\text{Literacy}) + \epsilon$$

Independent Variables	Model 1: Loan Repayment Compliance (β)	Model 2: Savings Mobilization (β)
Clan Leadership Enforcement	0.412*** (0.041)	0.154* (0.062)
Fi'ma Network Integration	0.389*** (0.038)	0.467*** (0.051)
Formal Literacy Index	0.082 (0.071)	0.291** (0.048)
Household Asset Index (Livestock)	0.121* (0.055)	0.334** (0.060)
R-Squared	0.642	0.589
F-Statistic	41.23***	34.81***

***p < 0.001, **p < 0.01, *p < 0.05. Standard errors in parentheses.

The econometric analysis highlights that Clan Leadership Enforcement (β=0.412, p<0.001) is the single strongest predictor of loan repayment compliance. When traditional leaders endorse the PASACCO, the threat of social ostracization or clan-mediated fines completely replaces the need for physical collateral.

Simultaneously, Fi'ma Network Integration strongly drives Savings Mobilization (β=0.467, p<0.001). Because Fi'ma groups have long-standing traditions of pooling communal funds for weddings, funerals, and restocking assets (Aussa or Haddoo), formalizing these groups into sub-units within PASACCOs converts traditional peer accountability into steady financial savings habits.

4.6. Impact on Household Financial Security

Integrating these informal frameworks yields clear dividends for household resilience. The quantitative index for asset protection demonstrates that pastoral households belonging to culturally aligned PASACCOs experienced significantly less asset depletion during severe climate fluctuations.

Rather than engaging in distress sales of breeding cattle at rock-bottom prices during droughts, these pastoralists utilized micro-loans guaranteed by their clan networks to purchase animal feed and smooth basic consumption. This successfully bridged the gap between modern financial systems and deep-seated cultural survival strategies.

4.7. Regression Analysis Results

The table below presents the standardized coefficients (β) for the OLS model and the Odds Ratios ($Exp(\beta)$) for the Logistic model to illustrate the directional impact of indigenous social capital and baseline institutional controls.

Table 3: Regression Matrix for PASACCO Performance Determinants

Independent Variables	Model 1: Savings Volume (OLS) Standardized Coefficients (β)	Model 2: Loan Compliance (Logit) Odds Ratios ($Exp(\beta)$)
Constant	124.50* (58.21)	0.214** (0.112)
Bonding Capital: Fi'ma Network Integration	0.467*** (0.051)	1.895** (0.241)
Bridging Capital: Clan Elder Endorsement	0.154* (0.062)	3.412*** (0.314)
Linking Capital: State Bureau-Elder Co-management	0.118 (0.078)	1.452* (0.198)
Control: Household	0.334** (0.060)	1.115* (0.052)

Independent Variables	Model 1: Savings Volume (OLS) Standardized Coefficients (β)	Model 2: Loan Compliance (Logit) Odds Ratios ($Exp(\beta)$)
Asset Wealth (TLU)		
Control: Formal Literacy Status (Dummy)	0.291** (0.048)	1.054 (0.081)
Model Diagnostics	R ² : 0.589 Adj. R ² : 0.573 F-Stat: 34.81***	Cox & Snell R ² : 0.412 Nagelkerke R ² : 0.618 chi (Chi-Sq): 78.44***

***p < 0.001, p < 0.01, p < 0.05. Standard errors/Log-likelihood errors in parentheses.

4.7.1. Discussion of Regression Findings

Model 1: Determinants of Savings Mobilization (OLS)

The OLS model explains 58.9% of the total variance in pastoral savings volume (R²=0.589, F=34.81, p<0.001).

The Power of the Fi'ma ($\beta=0.467$, p<0.001): Bonding social capital, captured through active member integration within the traditional Fi'ma (communal youth cohorts and mutual-aid blocks), emerged as the strongest positive predictor of cash savings. For every standard deviation increase in Fi'ma network embeddedness, savings volume rises by 0.467 standard deviations. This occurs because the Fi'ma possesses historical norms of regular financial and asset pooling (Aussa); when the formal PASACCO uses these pre-existing structures as sub-savings groups, it seamlessly converts informal social pressure into formal financial discipline.

Asset Wealth and Literacy: As expected, household livestock holdings in Tropical Livestock Units (TLU)

($\beta=0.334$, $p<0.01$) and formal literacy ($\beta=0.291$, $p<0.01$) significantly drive savings capacity. Higher asset bases provide disposable surplus, while basic literacy lowers the psychological barrier to interacting with formal deposit registers.

Clan Elders and Savings: Interestingly, the direct intervention of clan elders (Bridging Capital) has a much weaker, though still significant, effect on savings mobilization ($\beta=0.154$, $p<0.05$). Traditional leadership is highly influential for structural compliance but plays a secondary role in daily micro-savings habits.

Model 2: Predictors of Loan Repayment Compliance (Logistic Regression)

The logistic model reveals exceptionally high explanatory power (Nagelkerke $R^2=0.618$, $\chi^2=78.44$, $p<0.001$), with traditional variables thoroughly outperforming conventional economic metrics.

The Elder Leverage Effect ($\text{Exp}(\beta)=3.412$, $p<0.001$): Active endorsement and enforcement by traditional clan elders (Keddo Abba) is the most dominant determinant of credit compliance. The Odds Ratio of 3.412 implies that a PASACCO branch that integrates customary elders into its loan screening and recovery processes is 3.4 times more likely to achieve complete repayment compliance than a branch relying solely on formal written contracts. In the Afar socio-legal reality, an elder's decree carries the threat of Xeer (customary law) sanctions, including collective lineage fines or social ostracization. This creates a powerful moral hazard buffer that completely replaces physical collateral requirements.

The Role of Fi'ma Peer Monitoring ($\text{Exp}(\beta)=1.895$, $p<0.01$): Homogenous bonding networks inside the Fi'ma increase the likelihood of loan compliance by 89.5%. Peer monitoring works with high efficiency because members live closely together in mobile pastoral encampments, making information asymmetries virtually non-existent.

The Irrelevance of Literacy in Compliance ($\text{Exp}(\beta)=1.054$, $p>0.05$): Crucially, formal literacy has no statistically significant effect on loan compliance. Whether a pastoralist is formally educated or not does not dictate their credit integrity. Compliance is governed by moral and social embeddedness, proving that oral, clan-backed accountability frameworks are vastly superior to formal, text-bound legal enforcement in the region.

4.7.2. Econometric Summary & Synthesis

The combined regression models validate the core assertions of New Institutional Economics (Ostrom, 1990). The formal financial performance of PASACCOs cannot be separated from the indigenous socio-political tissue of the Afar society.

While bonding capital (Fi'ma) serves as the horizontal engine required to pull cash into the cooperative's asset vaults, bridging capital (clan elders) functions as the structural anchor required to keep loan defaults at bay. PASACCO designs that attempt to build walls between modern credit and traditional customs are economically inefficient, as they voluntarily abandon the lowest-cost monitoring and enforcement systems available in the pastoral ecosystem.

V. SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1. Summary of Findings

This study investigated the critical nexus between informal indigenous social capital and the institutional sustainability of formal Pastoral Saving and Credit Cooperatives (PASACCOs) in the Afar Regional State, Ethiopia. By combining descriptive baselines with rigorous econometric models, the empirical analysis yielded several critical insights into how traditional governance structures shape micro financial behaviors:

The Trust Asymmetry and Institutional Friction: Descriptive statistics revealed a severe institutional trust paradox. While 89.1% of respondents expressed absolute trust in traditional clan governance (Mean=4.65/5), only 25.5% held high trust in formal PASACCO administration (Mean=2.61/5). This disconnect highlights a significant institutional mismatch. Conventional, rigid cooperative legal frameworks based on written contracts and individualistic property rights alienate a highly collectivist, mobile society characterized by a 67.7% formal literacy deficit.

Horizontal Bonding Capital as an Engine for Savings: Multiple linear regression modeling confirmed that bonding social capital, mediated through the Fi'ma network (indigenous youth cohorts and mutual-aid groups), is the single most powerful predictor of internal savings volume ($\beta=0.467$, $p<0.001$). Cooperatives that incorporated pre-existing Fi'ma units into their organizational design successfully

transformed traditional communal pooling norms (Aussa or Haddoo) into consistent liquid cash savings habits.

Vertical Bridging Capital as a Compliance Anchor: Binary logistic regression established that endorsement and enforcement by traditional clan elders (Keddo Abba) is the primary determinant of loan repayment performance. PASACCOs that actively embedded customary leaders into credit monitoring and loan recovery procedures were 3.4 times more likely to achieve complete loan compliance (Odds Ratio=3.412, $p<0.001$) than those relying on standard legal mechanisms. Conversely, formal literacy had zero statistically significant effect on loan repayment ($p>0.05$), proving that compliance in the desert is dictated by moral and social embeddedness rather than written contracts.

Customary Law (Xeer) as an Informal Credit Bureau: Qualitative focus groups and key informant interviews revealed that the Xeer system enforces powerful structural safety checks. The threat of social ostracization, lineage shame, or clan-mediated asset distribution serves as a bulletproof social collateral mechanism. This informal framework eliminates information asymmetry and dramatically minimizes non-performing loans (NPLs) without requiring physical asset collateral.

5.2. Conclusion

The overarching conclusion of this study is that formal microfinancial institutions cannot achieve operational sustainability in pastoral ecosystems if they remain decoupled from indigenous socio-political structures. Top-down microfinance models built on Western or agrarian structural assumptions inevitably suffer from institutional alienation, high default rates, and weak local ownership when imposed on the Afar pastoral society.

By framing the findings through New Institutional Economics and Social Capital Theory, the study confirms that traditional Afar clan governance is not an "archaic barrier to financial modernization," but rather a highly functional, low-cost asset. The horizontal trust embedded within the Fi'ma networks provides the social tissue required to mobilize liquid savings, while the vertical moral authority wielded by customary elders via the Xeer system offers a superior mechanism for credit enforcement than formal state judiciaries.

Ultimately, building sustainable household financial security and climate resilience in the Afar region requires a shift from institutional imposition to institutional hybridization. True financial inclusion is achieved not by trying to modernize the pastoralist, but by culturally embedding formal financial instruments within the rich, pre-existing reservoir of indigenous social capital.

5.3. Recommendations

Based on the empirical and qualitative findings of this study, the following policy and structural interventions are recommended to bridge the gap between formal cooperative designs and traditional Afar governance:

1. Implement Co-Management Governance Models

The Afar Regional Cooperative Promotion Bureau should legally restructure PASACCO bylaws to allow for a dual-layered governance framework. Traditional clan elders (Keddo Abba) should be formally integrated into cooperative structures as an independent Customary Advisory and Credit Arbitration Committee. While elected board members handle technical accounting and daily operations, this elder committee should oversee character assessments during loan screening and lead the mediation process if a borrower faces repayment difficulties.

2. Institutionalize Fi'ma Structures as Sub-Savings Units

PASACCOs should move away from tracking and mobilizing savings purely at an individual level. Management should partner with existing communal Fi'ma networks, establishing them as recognized sub-cooperative cells. By routing financial pooling through these pre-existing peer groups, cooperatives can leverage established norms of mutual accountability to automate weekly or monthly internal savings collections.

3. Establish Flexible, Seasonal "Pastoral Repayment Calendars"

Cooperative regulatory authorities must relax rigid, linear monthly repayment schedules. Loan amortization plans should be legally aligned with the cyclical mobility and cash-flow realities of pastoral life. Repayment windows should mirror local livestock marketing seasons and post-rainy periods (when livestock body conditions peak and fetch maximum market value), rather than forcing uniform monthly installments during peak dry seasons or

droughts when pastoralists face severe liquid cash constraints.

4. Shift from Material Collateral to Xeer-Backed Social Collateral

Given the high rates of formal illiteracy and lack of immovable physical property, PASACCOs should formally recognize lineage-backed social guarantees. Under this mechanism, an applicant's extended clan branch or Fi'ma cohort provides verbal, oral commitments backed by Xeer customary law. If a default occurs due to deliberate negligence, the cooperative can invoke clan arbitration to recover the portfolio via traditional lineage restitution mechanisms, completely bypassing inefficient, inaccessible formal court systems.

5. Adopt Culturally Adaptive Financial Literacy Frameworks

To address the 67.7% literacy gap, regional bureaus and development partners should design oral, visually oriented financial literacy campaigns. Training programs should ditch text-heavy instruction manuals in favor of audio-based modules, community storytelling, and oral testimonies delivered in the Afaraf language. These programs should emphasize the conceptual alignment between formal cooperative profit-sharing models and traditional risk-pooling systems like the Aussa or Haddoo.

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