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THE ROLE OF COFFEE COOPERATIVES IN THE SOCIO-ECONOMIC TRANSITION OF REBEL RETURNEES IN SULU, SOUTHERN PHILIPPINES

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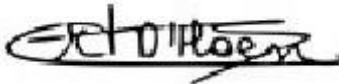
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As I try to reflect on both my academic and personal life journeys in writing this section of my master's dissertation, there is only one beautiful verse that comes to mind: *'For indeed, with hardship comes ease. Indeed, with hardship comes ease'* (Ash-Sharh 94:5-6). My journey was not smooth sailing, nor was it exactly as difficult or as easy as I had imagined. Yet, with the guidance of the Almighty and the support of the people around me, I was able to make it through. And for that, I am immensely grateful.

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DEDICATION

This humble work is dedicated to all those who dream of achieving excellence but may doubt themselves. The success of this thesis, and of my master's journey as a whole, stands as a testament that we are capable of achieving great things. So, please remember to be kind to yourself along the way.

Dedication is also given to our farmer heroes who continue to feed the world.

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LIST OF ACRONYMS

ACLED	Armed Conflict Location and Event Data
ARMM	Autonomous Region in Muslim Mindanao
BARMM	Bangsamoro Autonomous Region in Muslim Mindanao
BOL	Bangsamoro Organic Law
CAB	Comprehensive Agreement on the Bangsamoro
CDA	Cooperative Development Authority
CPP	Communist Party of the Philippines
DDR	Disarmament, Demobilization, and Reintegration
E-CLIP	Enhanced Comprehensive Local Integration Program
FAO	Food and Agriculture Organization
ICG	International Crises Group
IMRD	International Master of Science in Rural Development
IOM	International Organization for Migration
KMO	Kaiser-Meyer-Olkin
MILF	Moro Islamic Liberation Front
MNLF	Moro National Liberation Front
NDF	National Democratic Front
NFI	Normed Fit Index
NPA	New People's Army
NGO	Non-Governmental Organization
OCHA	Office for the Coordination of Humanitarian Affairs of the United Nations
OPAPRU	Office of the Presidential Adviser on Peace, Reconciliation, and Unity
PLS-SEM	Partial Least Squares – Structural Equation Modelling
PSA	Philippine Statistics Authority
SMD	Standardized Mean Difference
SRMR	Standardized Root Mean Residual
UN	United Nations
UNDP	United Nations Development Programme
UN-Peacekeeping	United Nations Peacekeeping Operations
UPEACE	University of Peace
USAID	United States Agency for International Development
WB	World Bank
YSEALI	Young Southeast Asian Leaders Initiative

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DECLARATION OF GenAI (NON)USAGE

Use of GenAI tools in the master’s dissertation:

- No use of GenAI tools
- One or more GenAI tools used

Indicate and describe, in case of using one or more GenAI tools, how you have used them:

	GenAI tool used as	Description	Used tool(s)
<input type="checkbox"/>	Idea generator		
<input type="checkbox"/>	Search engine		
<input checked="" type="checkbox"/>	Writing assistant	Used to check grammar and spelling of some of my paragraphs to ensure better readability	InstaText
<input type="checkbox"/>	Designer		
<input checked="" type="checkbox"/>	Practice tool	Used to critique the structure of some of my sentences/phrases	ChatGPT
<input type="checkbox"/>	Data analysis		
<input type="checkbox"/>	Efficiency booster		
<input type="checkbox"/>	Used in another way		

ABSTRACT

Reintegrating former rebels into civilian life remains a major challenge in post-conflict societies, where sustainable livelihoods and social cohesion are essential for long-term peace. The Philippines is one of the most conflict-affected countries in the world, sharing the 29th spot with Afghanistan and ranks second in ASEAN after Myanmar. The Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) in the southern Philippines has been particularly affected by decades of armed conflict and institutional weaknesses, notably in provinces such as Sulu. In response, the Philippine government is promoting the integration of returnees into coffee cooperatives as part of its peace and reintegration strategy. Despite persistent volatility, the BARMM, particularly Sulu province, has emerged as one of the country's leading coffee-producing regions contributing over a quarter of national production and providing a strategic pathway to economic recovery. It is therefore crucial to understand how these cooperatives contribute to both livelihoods and social reintegration. This study examines how membership in a coffee cooperative is associated to the socio-economic transition of rebel returnees in Sulu. Based on the Disarmament, Demobilization, and Reintegration (DDR) framework and social capital theory, a comparative cross-sectional design with survey data from 101 returnees was used. Through regression analysis and structural equation modelling, we show that membership in a cooperative is associated with higher productivity, financial stability, and stronger social capital, even if infrastructural challenges, conflict vulnerabilities, governance, and market difficulties persist. The study demonstrates how locally rooted cooperatives can transform conflict legacies into peace dividends that foster economic gains, social cohesion, and inclusive development. These findings highlight the potential of cooperatives as a pathway for durable socio-economic transitions in fragile contexts. Moreover, the study underscores the importance of targeted support, capacity building, and improved market access to enable returnee cooperatives to fully realize their role in promoting sustainable livelihoods, facilitating social reintegration, and contributing to lasting peace.

Keywords: coffee cooperatives, post-conflict reintegration, rebel returnees, social capital, socio-economic transition



CHAPTER I

INTRODUCTION

1.1 Background of the study

The socio-economic reintegration and transition of former rebels and combatants remains a critical challenge in post-conflict societies and requires innovative and sustainable approaches to promote stability and development (Heger & Neumayer, 2022; Zuluaga & Palacios, 2025). Among the strategies employed, agricultural cooperatives have been perceived to be important platforms for integrating former rebels into productive economic activities that provide both livelihood opportunities and a sense of community (Ofori et al., 2019). Also in other contexts, cooperatives provide access to key resources such as credit, training, and market linkages that enable former combatants to move out of a conflict-driven role and become part of the agricultural value chain (Blattman & Annan, 2016; De Luca & Verpoorten, 2015). As a result, agricultural cooperatives are generally recognized to benefit smallholder farmers by boosting farm profits, enhancing overall performance and significantly improving yields (Ayoub et al., 2024; Wang et al., 2019).

Integrating former rebels into agricultural cooperatives is perceived to not only facilitate economic empowerment, but also to play an important role in strengthening social cohesion and reducing the risk of recidivism or the tendencies of going back to rebellious and extremist ideologies (Humphreys & Weinstein, 2007; KC, 2019). By integrating former rebels into structured cooperative structures, societies are expected to achieve the dual goals of economic recovery and social reconciliation (Binenwa, 2016). This underscores the transformative potential of cooperatives in addressing the socio-economic challenges faced by smallholder farmers, and makes them an essential component of rural development strategies (Maniriho, 2021; Ortega et al., 2019; Pitts, 2018).

Despite the expected positive effects of membership in cooperatives, these organizations also face significant challenges. In conflict-affected regions specifically, it is difficult for them to support and sustain effective post-conflict reconstruction initiatives and programs (Wilson & Mutersbaugh, 2020). Cooperatives around the world face significant challenges in post-conflict recovery, which include organizational challenges that typically range from leadership and governance to resource utilization and income diversification (Doria-Orozco, 2017). Effective leadership is crucial in these conflict areas, especially when it comes to fostering trust in cooperative leaders and members, as this can influence member participation and decision-making processes (Muke et al., 2024).

On top of this, these cooperatives often struggle with efficient resource management and instability in diversifying their income. There is a need for versatile income-generating activities since reliance on a single crop is perceived to be risky in volatile environments (Sam, 2010; Sam & Abubakar-Sam, 2013). Additionally, external influences also pose significant challenges, including political and economic instability, and limited access to support networks. The broader socio-political environment and problems, such as violence and economic disruption, may create additional barriers to cooperative operations (Katwesigye et al., 2022; Kolk & Lenfant, 2015; Sam & Abubakar-Sam, 2013).

Rebuilding the socio-economic structures helps to promote social cohesion and relationships between communities and to create a basis for long-term recovery and growth (Löhr et al., 2021; Slosse et al., 2022). In the area of this study, the most vulnerable groups in this process are the former combatants who have returned and made the transition to civilian life. Their successful reintegration into civilian life not only stabilizes their livelihoods but is also believed to prevent the resurgence of violence (Knight & Ozerdem, 2004). An example of programs in the Philippines that aim to create economic opportunities and promote social cohesion (Özerdem et al., 2010; Özerdem, 2012) is the Enhanced Comprehensive Local Integration Program (Office of the President of the Philippines, 2018; 2020).

In the Philippines, political violence and fatalities have declined significantly over the past decade (OCHA, 2025). Nevertheless, conflict remains a persistent concern, with index levels still elevated (Figures 1 and 2). Globally, the Philippines ranked 29th, tied with Afghanistan. Within the ASEAN region, it is second only to Myanmar whose 2021 coup and ongoing repression have considerably destabilized regional security and undermined ASEAN cohesion (ACLED, 2024).

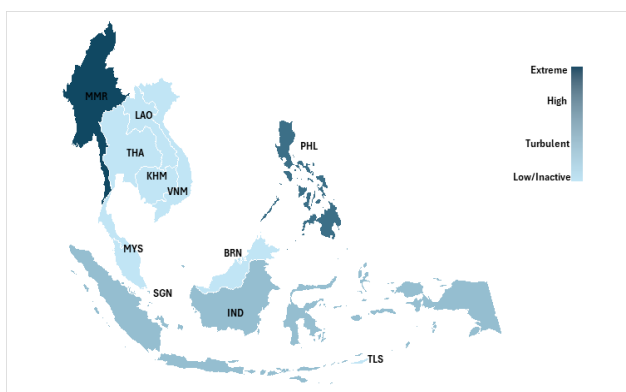


Figure 1. Conflict Index in ASEAN as of 2024

Note: Map created using Microsoft Excel with data retrieved from ACLED Global Report 2024

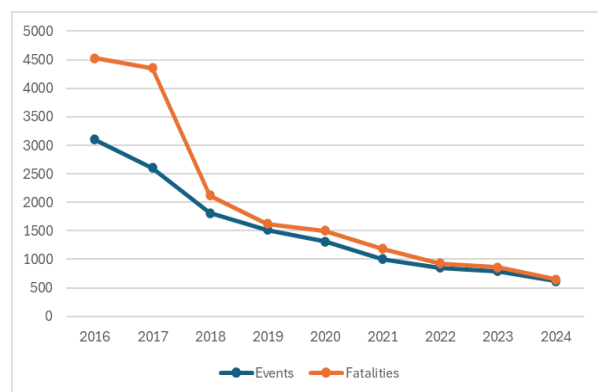


Figure 2. Political Violence and Fatalities in the Philippines, 2016-2024

Note: Graph created using Microsoft Excel with data retrieved from UN-OCHA

A closer look at the conflict-affected areas in the Philippines, the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) emerged to have long been a focal point of conflict and peacebuilding. As a region born of resistance, BARMM carries with it a legacy of armed struggles involving groups such as the Moro National Liberation Front (MNLF) and the Moro Islamic Liberation Front (MILF), whose decades-long struggle for self-determination has left deep socio-economic and political scars (Bertrand, 2000; Moner et al., 2024). The origins of the conflict can be traced back to the colonial era, when unjust land distribution, the displacement of the indigenous Moro population and discriminatory policies fueled grievances that persisted well into the post-colonial period (Buendia, 2004). These tensions were later exacerbated by national policies perceived as exploitative and neglectful, further marginalizing the region (Montalbo, 2021).

Today, BARMM continues to struggle with challenges rooted in these historical grievances. Land disputes, unclear land tenure, and competition for natural resources, particularly in agriculture and similar activities, continue to cause conflict (Heydarian, 2015). The region is also facing the effects of climate change, which is affecting agricultural productivity and intensifying competition for fertile land and water (Taniguchi, 2022). Governance issues such as weak institutional capacity, corruption and the continued exclusion of marginalized groups further hinder the effectiveness of peace efforts and sustainable development initiatives (Rood, 2005). Despite the signing of the Comprehensive Agreement on the Bangsamoro (CAB) in 2014, which aimed to establish inclusive governance and address historical injustices, the implementation of reforms has encountered significant obstacles which is delaying the progress and leaving some causes of conflict unresolved (Siân, 2024; Taniguchi, 2022).

One of the key efforts under the CAB has been the initiatives spearheaded by the Cooperative Development Authority (CDA) to help former combatants transition into civilian life through training, education, and livelihood opportunities. Among these initiatives, coffee production has emerged as a key livelihood opportunity that leverages BARMM's agricultural potential. In 2023, BARMM was the leading coffee-producing region in the Philippines which accounted for roughly 710 tons or 26% of the country's total coffee production, where Sulu province, which is studied in this thesis, positioned itself as one of the major contributors to the region's coffee production (Philippine Statistics Authority, 2023). This progress underscores the potential of cooperative-led development to achieve the dual goals of economic recovery and peacebuilding, and to lay the foundation for a more sustainable and resilient future for the region.

With this in consideration, engaging in coffee cooperatives and production is perceived as beneficial in creating livelihood opportunities and promoting community reconstruction (De Vries & Wiegink, 2011), which is also evident in Sulu Province. It is noticeable that coffee cooperatives are playing an increasingly important role in Sulu, especially in the post-conflict landscape. The province's fertile land

is suitable for coffee cultivation, where varieties such as robusta, liberica, arabica, and excelsa all thrive in province's climatic and soil fertility type (Bureau of Soils and Water Management, 2019). Following this success in coffee production in the province, coffee cooperatives can use this potential to support the economic recovery of the former rebels and give them a chance to rebuild their livelihoods (Binenwa, 2016; Ettang & Okem, 2016; Rodríguez-Castellón, 2024), making coffee cooperatives important tools for post-conflict recovery in Sulu.

1.2 Problem Statement and Research Gap

Despite the growing recognition of cooperatives in reintegration efforts, there remains a global lack of empirical research on the relationship between these structures and the socio-economic transition of rebel returnees who are reintegrating into civilian life. While existing studies highlight the general contributions of cooperatives to rural development, agrarian reform, and post-conflict recovery (Blattman & Annan, 2016; Humphreys & Weinstein, 2007), few studies examine how cooperative membership is associated with economic and social reintegration outcomes, or the barriers that hinder returnees' participation (Binenwa, 2016; Cubero et al., 2021; Godefroidt & Langer, 2023; Rodríguez López et al., 2015).

In the Philippine context, most research has focused on agrarian reform, kinship-based economic arrangements, and the politics of development in post-authoritarian and conflict-affected regions (Angeles, 2009; Angeles & Shah, 2019; Hilario, 2022; Riedinger, 1995). While Montefrio and Dressler (2018) explored cooperatives in agricultural value chains, their study was limited to oil palm plantations and did not address how cooperatives function as reintegration pathways for former combatants or the role of specific commodities, such as coffee, in these processes.

This knowledge gap is especially evident in Sulu, a province in Muslim Mindanao region still grappling with the legacies of armed conflict. While some studies reference rebel returnees, cooperatives, or Mindanao more broadly (Andaya, 2021; Alongan & Omblero, 2023; Cubero et al., 2021; Özerdem et al., 2010), they often focus on other areas, different rebel groups like the Communist Party of the Philippines–New Peoples' Army–National Democratic Front (CPP-NPA-NDF), or general peacebuilding efforts, without examining the intersection of coffee cooperatives, rebel reintegration, and the socio-cultural context of Sulu, such as the case of this study (Arcala-Hall, 2006:2009; Coronel-Ferrer, 2005; Ilar et al., 2021; Montiel, 1997; Rutten, 2001; Torres, 2011). Moreover, although the Philippine government and international donors promote cooperative membership as a reintegration mechanism, little is known about how rebel returnees experience this process or what measurable factors predict their long-term socio-economic outcomes, such as income, productivity, skills acquisition, access to resources and institutions, and vulnerability to conflict.

Thus, this study addresses these gaps by offering, to the best of our knowledge, one of the first and few empirical analyses of the relationship between coffee cooperatives and the socio-economic transition of rebel returnees. By examining cooperative-based livelihoods in a post-conflict context such as in Sulu, the study offers new insights into factors associated with socio-economic transition of the former combatants. Using a highly localized yet theoretically grounded case study approach, the Disarmament, Demobilization, and Reintegration (DDR) framework (World Bank, 2009) and social capital theory (Putnam, 2000; Woolcock, 2001) are integrated to analyze how cooperative membership is related to productivity, social cohesion, and the returnees' broader socio-economic transition. In doing so, it contributes to theory by extending DDR and social capital frameworks to a conflict-affected agricultural community. It also contributes to practice by generating context-specific, evidence-based recommendations for policy makers, NGOs, and cooperative leaders in Sulu and in other similar conflict-affected settings in the Global South.

1.3 Research Objectives

The overarching objective of this study is to address the global empirical gap in understanding the associations between cooperative membership and the socio-economic transition of rebel returnees, through a case study of coffee cooperatives in Sulu, in the southern Philippines. Specifically, the study aims to compare the socio-economic outcomes of cooperative members and non-members among rebel returnees in Sulu, including financial (in)stability, access to market channels, farming support services, and barriers to farming technology adoption. Central to this study is an exploration of the social capital dimensions as experienced by cooperative members and their manifestation within cooperative functioning. In addition, the study seeks to identify underlying latent constructs that are associated with the reintegration experiences of returnees in a post-conflict agricultural setting. These constructs, together with cooperative membership and socio-economic and demographic variables, will be analysed to determine significant predictors of cooperative participation. Furthermore, the study will also analyse the extent to which cooperative membership predicts productivity and gross revenue from coffee when controlling for socio-economic and contextual factors. Finally, the study will assess the direct and indirect associations of cooperative membership and contextual factors with socio-economic outcomes using structural equation modelling.

1.4 Research Questions and Hypotheses

Guided by the objective of exploring the role of coffee cooperative in the socio-economic transition of rebel returnees in Sulu, the study specifically seeks to answer the following research questions. First, what are the differences in socio-economic outcomes between cooperative members and non-members among rebel returnees in Sulu? Second, what are the key social capital dimensions reflected in the

functioning of coffee cooperatives as perceived by their members? Also, what contextual factors/constructs underlie the socio-economic reintegration experiences of rebel returnees? Forth, to what extent does cooperative membership predict productivity and gross revenue especially when controlling for other socio-economic and contextual factors? Fifth, what factors significantly predict cooperative membership among rebel returnees? And finally, what are the direct and indirect effects of cooperative membership and contextual factors on the socio-economic outcomes and transition of rebel returnees through the structural equation modelling?

Following these research questions, these hypotheses are formulated:

H1	Cooperative members exhibit significantly higher levels of financial stability, productivity, and market access than non-members.
H2	Cooperative functioning is positively associated with the presence of bonding, bridging, and linking social capital among members.
H3	Contextual factors/constructs significantly differ between members and non-members.
H4	Cooperative membership significantly predicts higher productivity and gross revenue.
H5	Socio-demographic characteristics and contextual factors significantly predict the likelihood of cooperative membership.
H6	Contextual factors mediate the relationship between cooperative membership and socio-economic outcomes and transition of rebel returnees

1.5 Study Significance and Structure of the Paper

This study holds both theoretical and practical significance, particularly in the intersecting domains of post-conflict development, cooperative economics, and reintegration policies. By examining the role of coffee cooperatives in the socio-economic transition of rebel returnees in Sulu, it contributes to the limited but growing literature on livelihood-based reintegration strategies in conflict-affected regions. The use of partial least squares structural equation modelling (PLS-SEM) provides robust empirical evidence and analysis of complex relationship among contextual factors predicting cooperative membership, and how participation in cooperative contributes strongly/weakly to social and economic outcome, thereby essentially contributing to the socio-economic transition of rebel returnees. Practically, the findings can inform government agencies, non-government organizations, and peacebuilding actors on how local economic institutions such as cooperatives can be leveraged not only for economic empowerment, but also to promote stability, social cohesion, and sustainable peace in post-conflict communities. In addition, the study sheds light on the obstacles and preconditions for effective cooperative participation and access, thus providing action-oriented guidance for designing programs and formulating strategies tailored to the needs of former combatants.

This paper is organized into six chapters. Chapter 1 introduces the study by setting out the background, the problem, the research objectives, and the significance and structure of the study. Chapter 2 provides a comprehensive overview of the related literature and the theoretical frameworks that ground the study in the existing academic discourse. Chapter 3 outlines the research methodology, including the research design, data collection methods, variable, and the use of econometric estimation and structural equation modelling to determine association and prediction. Chapter 4 presents the results, structured around the comparison of cooperative members and non-members, participation and access levels, and the socio-economic outcomes derived from the analysis. Chapter 5 discusses the findings, primarily highlighting the study's academic value, key lessons, contradictions and confirmations of other related studies, and whether or not the findings confirm the hypotheses of the study. Finally, Chapter 6 provides a summary of findings, conclusions, limitations, and policy recommendations, as well as directions for future research. Together, these chapters form a coherent narrative that links empirical inquiry with practical implications for reintegration and development in conflict-affected areas.

CHAPTER II

LITERATURE REVIEW

2.1 Transformation and Socio-Economic Transition: Definition and Concept

Socio-economic transition are transformation processes in which existing structures, institutions, culture, and practices are broken down and new ones are established (Loorbach, 2007). In the same manner, societal transition is defined as a process of change that structurally alters the culture, structure, and practices of a societal system (Holmberg et al., 2015; Loorbach, 2007). The concept of transformation and socio-economic transition encompasses the systematic changes in socio-economic relations and formations within a society. Transformation refers to a targeted and regulated process that modifies existing systems and builds new ones, influencing various sectors of the economy and society at large (Bil, 2024). In contrast, socio-economic transition encompasses broad and often less deliberate shifts in economic practices, social relations, and institutional frameworks (Bauer, 2018). It is often driven by factors such as globalization, digitalization, human labor efficiency, and sustainability (Pasqualino et al., 2021).

To emphasize, transformation is characterized by systematic changes that lead to new socio-economic structures. It is a process that is both regular and self-regulating, impacting other phenomena, and the emergence of new systems that exert lasting effects on society (Bil, 2024; Kozlov, 2022). Whereas socio-economic transition involves the evolution of market relations, changes in social systems that manifest through various forms such as growth, decline, and transformation, and the adaptation to modern challenges, including economic crises and technological advancements (Bula & Melnychenko, 2023; Petrov & Petrova, 2022).

Other studies defined transition as the process of moving from one state or condition to another, whether in societal shifts toward sustainability, large-scale institutional changes such as from socialism to capitalism, or changes within specific domains like media processing and application dynamics. It involves the reorganization of systems, infrastructure development, and resource reallocation which enable shifts toward new structures or pattern (Hall & Gupta, 1991; Irwin, 2015; Mathias & Gérard, 1996; Ward et al., 2005).

Moreover, socio-economic transition often involves shifting from a centrally planned to a market-oriented economy, characterized by changes such as privatization, foreign investment, and resource

reallocation. These transitions impact political systems, health, inequality, and both institutional frameworks and societal values, blending elements of reform with legacy ideologies (Dolata, 2011; Fahey, 2008; Kalediene & Petrauskiene, 2004; Kiss, 2000; Krausmann & Fischer-Kowalski, 2012; Pridemore et al., 2007; Tomer, 2002). In this sense, while transformation and socio-economic transition are often viewed as progressive, some critiques argue that these processes can lead to instability and socio-economic shocks, particularly in contexts of rapid change or conflict (Bula & Melnychenko, 2023). However, transition theory suggests that such shifts are often preceded by incremental changes in protected niches that can mitigate the immediate destabilizing effects of broader systemic change (Geels et al., 2023). Drawing from these, this study follows that the socio-economic transition means the transformation of former rebels from armed conflict to civilian life. In this way, they move from conflict and unlawful activities to sustainable socio-economic activities (Parry & Aymerich, 2023; Saldner, 2020).

2.2 Socio-Economic Reintegration in Post-Conflict Recovery

In post-conflict contexts, socio-economic reintegration is an important part of the socio-economic transition and thus a crucial component for achieving sustainable peace (International Alert, 2010; United Nations, 2019). It is therefore essential for preventing the resurgence of violence in areas undergoing recovery (Orago, 2017). The concept of reintegration, as it is broadly defined, involves the social, economic, and political transition among former combatants (Torsejen, 2013; United Nations, 2019). Nazaruiddin et al. (2016) pointed out that in conflict recovery, socio-economic reintegration involves the process of integrating former combatants and conflict victims into society. It focuses on economic empowerment and social transformation initiatives that often occur in communities they once fought against or were estranged from (United Nations, 2019). Hence, most scholars emphasized that successful reintegration must be able to address the underlying economic drivers of conflict that are mainly linked to poverty, inequality, and limited availability of viable employment or entrepreneurial opportunities. Promoting economic stability through access to sustainable livelihoods plays a pivotal role in reintegration as it fosters sense of purpose, social inclusion, and long-term engagement in civilian life (Annan et al., 2011; Blattman & Ralston, 2016; Gilligan et al., 2013; Humphreys & Weinstein, 2007).

In many post-conflict areas, the limited local infrastructure, scarcity of job opportunities, and social stigmatization exacerbates and sustains the challenges of the socio-economic transition for rebel returnees (Honwana, 2017; Maniraguha, 2011; Sharif, 2018; Zakaria, 2006). This condition makes economic pathways critical for reintegration as these pathways can impact directly the ability of the rebel returnees in sustaining themselves, integrate into the society and their local communities, and most importantly contribute to community development (Melin et al., 2025).

Many studies reveal that without viable economic alternatives, the tendencies for rebel returnees to revert to illicit activities or any other survival strategies that will ultimately undermine the efforts of peacebuilding (Hazen, 2005; Maniraguha, 2011; Peters, 2006; Rhea, 2016; Sharif, 2018).

In this context, various economic models such as cooperatives that promote self-employment and collective support must be in place and are particularly beneficial. It provides rebel returnees, including those marginalized individuals and alike, a structure in reintegrating themselves into local economies that foster both social and economic opportunities (Colleta et al., 1996; Gilligan et al., 2013; Hazen, 2005; McLeod & Davalos, 2008; Subedi, 2014). In fact, Lopera-Arbel ac et al. (2023) noted the concept novelty of cooperatives in the context of Disarmament, Demobilization, Reintegration (DDR) framework of the United Nations, which aims to assist the armed groups and rebel returnees in their transition to civilian life (UN-Peacekeeping, 2024).

2.3 Cooperatives' Role in the Economic Recovery of Conflict-Affected Areas

The significant role of cooperatives in fostering economic recovery, particularly growth and development in conflict-affected localities, was emphasized by Ettang & Okem (2016) who stated that cooperatives promote community collaboration, enhancing resource sharing, and facilitating access to markets. They also facilitate collective risk management which is crucial in areas with limited access to land and capital (McDougal & Almquist, 2014). Cooperatives enable economies of scale which allows members to benefit from reduced costs and increased market access, thus enhancing local economic resilience (Mallett & Slater, 2014).

Cooperatives play a crucial role in promoting trust among members which leads to the reduction of tensions (Joseph et al., 2021). It also advances social cohesion, which is vital in situations like those within post-conflict environments. Research found that cooperative membership correlates with lower reported violence and increased community trust (Ettang & Okem, 2016; McDougal & Almquist, 2014). This confirms the critical position of cooperatives in peacebuilding and conflict mitigation (Joseph et al., 2021) by linking economic development with social stability in fragile economies as part of its local economic recovery (Doria Orozco, 2017). In addition, cooperatives provide local producers with access to markets and fair prices (Kolk & Lenfant, 2015), which in turn creates jobs and promotes decent work. It also contributes to strengthening economic resilience by providing their members with stable sources of income through collective bargaining and access to fair trade markets (Bacon, 2010; Filippi et al., 2023; Slosse et al., 2022).

2.4 Coffee Cooperative Development in Conflict-Affected Areas

The development of coffee cooperatives in conflict-affected areas has shown to be a key strategy for fostering economic resilience (Slosse et al., 2022) and contributing to peacebuilding efforts (Bacon, 2010). Coffee cooperatives are perceived to be a viable solution for smallholder farmers. They offer pathways to better prices and enhance their members' economic stability (Shumeta & D'Haese, 2016). By fostering collective action and access to markets, cooperatives may reduce poverty, contribute to sustainable development, and promote conflict reconciliation by facilitating inter-group dialogue and fostering positive relations between different ethnic groups (Tobias & Boudreaux, 2011). However, their success is often hindered by a range of complex socio-economic factors such as poverty, income instability, limited access to credit and infrastructure, unemployment or underemployment, and the lasting legacies of conflict (Navarrete-Cruz et al., 2020). Establishing and sustaining coffee cooperatives in these regions requires overcoming a range of challenges that go beyond formal processes, including issues related to informal markets, unstable governance, and broader socio-political constraints (Mswaka et al., 2024; Slosse et al., 2023).

Coffee farmers, especially in economically disadvantaged regions, may sell in informal markets if cooperatives are unable to provide timely payments or sufficient financial security (Slosse et al., 2023). This side-selling behavior is driven by the immediate need for cash and concerns about food security, making it difficult for cooperatives to maintain stable membership (Mujawamariya et al., 2013). Informal markets, which often exist alongside cooperatives, provide an alternative for farmers seeking immediate financial returns, which may destabilize cooperative operations (Slosse et al., 2023). The challenge is therefore not only to establish cooperatives, but also to create financial models that can guarantee timely payments and provide sufficient incentives for long-term membership and loyalty (Sánchez-Navarro et al., 2024; Trejo-Pech et al., 2023).

In addition to market dynamics, governance issues also pose a significant challenge for coffee cooperatives in conflict areas. Frequent political changes, corruption, and weak leadership within cooperatives can destabilize these organizations. It may lead to conflicts of interest among members and further hinder their operational effectiveness (Mhando, 2014). These governance challenges often extend to institutional gaps, preventing the development of management capacity within cooperatives and limiting their adaptation to market demands (Mswaka et al., 2024). Without strong leadership and effective governance structures, cooperatives struggle to ensure transparency and accountability, which are essential for maintaining trust and cooperation among members (Navarrete-Cruz et al., 2020).

In conflict-affected areas, these institutional challenges are exacerbated by the fragmentation of social networks, which can further undermine the cooperative's ability to foster community cohesion (Wilson & Mutersbaugh, 2020). Research on the Mirembe Kawomera cooperative in Uganda has shown that community support is crucial to the success of cooperatives as it helps to cement trust and collective action (Auerbach, 2012). However, in conflict areas, social fragmentation can lead to divisions that undermine the formation of cooperative groups, making it difficult to achieve common goals and sustain collective action (Löhr, et al., 2021).

The challenges faced by coffee cooperatives in conflict areas are not limited to a specific region, but can be observed worldwide, including in Southeast Asia. In Timor-Leste, for example, the legacy of colonialism and ongoing conflict has led to unequal market conditions, where smallholder farmers struggle against powerful buyers who dictate prices (Howson, 2022). In Laos, too, the displacement of smallholder coffee farmers by large-scale plantations and neoliberal reforms has led to land conflicts and worsened livelihoods for many (Delang et al., 2013).

In the Philippines, coffee cooperatives hold considerable importance in conflict-affected areas, particularly in the southern regions. Despite generational conflicts, such as in Mindanao, coffee cooperatives have managed to provide important income-generating activities and ensure a more equitable use of resources (Cruz, 2020; Sam, 2010; Tañongon, 2024). These cooperatives may also serve as platforms for peacebuilding, where people from different social and political backgrounds can work together towards common goals. The experience of coffee cooperatives in the Philippines shows their potential to promote economic recovery and social inclusion, and act as important actors for stability and development (Ahmed, 2019).

2.5 The Philippines and Sulu Context: A Synopsis

The Philippines, especially its southernmost region, has long been synonymous with conflict and instability. Rooting back from the declaration of martial law in 1972 (retrieved from [Philippine Official Gazette](#)), rebellion emerged as a response to the many human rights violations brought about by the dictatorship (Leary et al., 1984). Despite the end of the regime in 1981, rebel groups continued to fight for their self-determination and self-aspirations. For the northern and central regions of the Philippines, the New Peoples Army (NPA) continued the armed struggle upholding their ideologies and standing on the narrative of fighting against the abuses caused by the government. In the southern regions, various rebel groups such as the Moro National Liberation Front (MNLF) and the Moro Islamic Liberation Front (MILF) were prominent for a hotbed of rebel movements (Avila, 2011; Heydarian, 2015; Santos, 2010; Quimpo, 2006).

In 1996, the Philippine government entered into an agreement with the MNLF regarded as the ‘Final Peace Agreement’ (Plank, 2015). This was the result of the creation of an autonomous region enshrined in the 1987 Philippine Constitution and by the Republic Act No. 6734 which established the Autonomous Region in Muslim Mindanao (ARMM) as ratified in November 1989 (Bacani, 2006; Bauzon, 1999; Bertrand, 2000).

After 23 years, the ARMM was abolished and transitioned in 2019 into what is now known as the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) through Republic Act No. 11054 or the Bangsamoro Organic Law. This was the result of the peace deal, known as the Comprehensive Agreement on the Bangsamoro (CAB), between the Philippine government and this time with the MILF. The BARMM is composed of the provinces of Basilan, Cotabato City, Lanao del Sur, Maguindanao, Sulu, Tawi-Tawi, and other special geographic areas included during the ratification of the said law (Figure 3; Bangsamoro Organic Law, 2018; Damao, 2021; Moner et al., 2024; Untong et al., 2022).

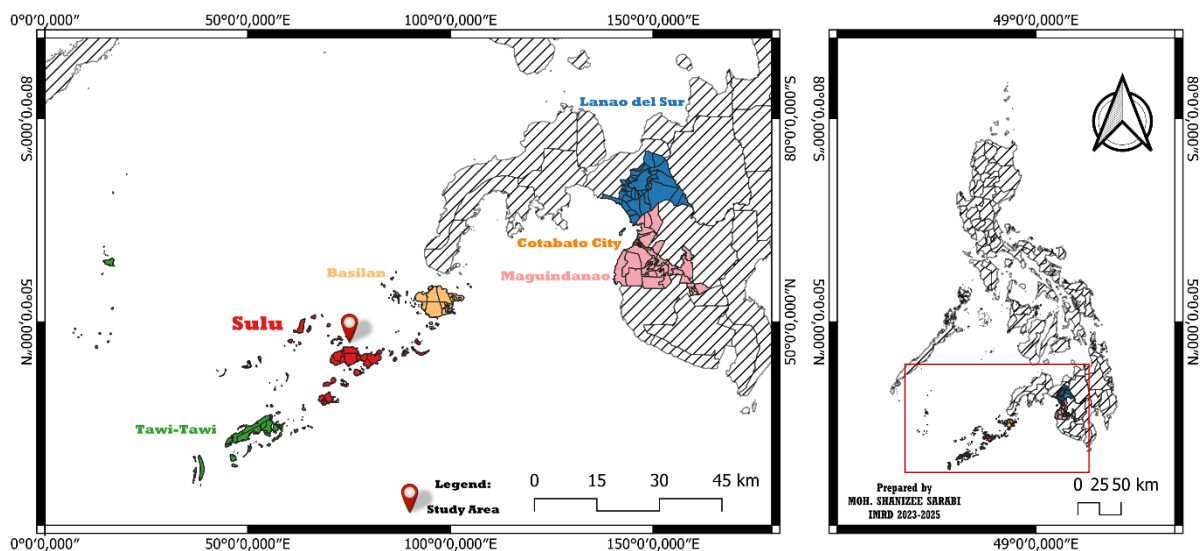


Figure 3. Regional Map of BARMM (Map created by the author and processed using QGIS Prizen 3.34)

There are two tracks involving this agreement. The normalization track and the political track. The political track mainly focuses on establishing a new Bangsamoro regional government. Currently, it is composed of appointed ministers and members of the parliament, headed by a Chief Minister. Under the normalization track, the MILF undergoes a decommissioning of their armed wing and turned over their firearms to the Philippine government. They will be known as the rebel returnees (Ali, 2022; OPAPRU, 2019). In a report by the International Crises Group (2023), there are around 12,000 MILF combatants who were decommissioned following the creation of BARMM between September 2019 and March 2020. Through the normalization track, these rebel returnees are to be provided with various socio-economic development programs such as social protection, capacity development, livelihood and employment, and small-scale infrastructure (Ali, 2022; International Crises Group, 2021; Montalbo, 2021).

In many provinces of BARMM, the Philippine government through the Office of the Presidential Adviser on Peace, Reconciliation, and Unity (OPAPRU) and other key agencies initiated the integration of rebel returnees in agricultural cooperatives (OPAPRU, 2019). This notes the increasing recognition of cooperatives in fostering economic resilience and support the transition from conflict to sustainable livelihoods. In areas where formal institutions may be weak, like Sulu province, these cooperatives can play a crucial role in rebuilding trust, fostering social cohesion, and improving livelihoods (Slosse et al., 2023).

2.6 Disarmament, Demobilization, and Reintegration Framework

As established, rebel returnees face significant obstacles that prevent them from achieving socio-economic stability. These include stigmatization, lack of livelihood opportunities and weak institutional support (Aldrich, 2012; Wilson & Mutersbaugh, 2020). For the purpose of this study, the Disarmament, Demobilization, and Reintegration (DDR) framework serves as the theoretical basis for examining the role of coffee cooperatives in facilitating the socio-economic transition of rebel returnees in Sulu, Southern Philippines.

The DDR framework, as described by World Bank (2009), is a systematic approach to post-conflict reintegration of former combatants. It provides a structured process that aims to transform former combatants into productive and peaceful members of society (United Nations, 2019). The framework's focus on reintegration is particularly relevant to this study as it highlights the economic and social dimensions of transitioning from a militarized identity to a civilian role.

2.6.1 Key Components/Phases of DDR Framework

The DDR framework consists of three interrelated phases such as disarmament, demobilization, and reintegration – all of which contribute to the overall goal of post-conflict stabilization (World Bank, 2009). This study focuses on the reintegration phase, as the rebel returnees studied are believed to have gone through the earlier phases of disarmament and demobilization (OPAPRU, 2019).

Disarmament

Disarmament refers to the collection, documentation, and safe disposal of weapons previously in the possession of combatants. This phase is symbolic of the willingness of combatants to leave behind their role in the armed groups. Although this study does not focus directly on disarmament, it assumes that the participants in the coffee cooperatives have successfully completed this phase and thus laid the foundations for their reintegration into civilian life (IOM, 2019; OPAPRU, 2019).

Demobilization

Demobilization is the formal and controlled disengagement of combatants from armed forces or groups. This phase is crucial in preparing former rebels for a civilian role and often involves the provision of reintegration packages that may include cash assistance, skills training or transitional support. In the Philippine context, government programs such as the Enhanced Comprehensive Local Integration Program (E-CLIP) provides a framework for this phase (Office of the President of the Philippines, 2018).

Reintegration

Reintegration is the most complex and long-term component of the DDR framework. It encompasses the process of enabling former combatants to become economically self-sufficient and socially accepted in their communities (Gilligan et al., 2013). Muggah (2005) emphasized that reintegration is not only about physical resettlement, but also about ensuring that returnees have access to livelihoods, social networks and opportunities for personal development. This study focuses on the reintegration phase where coffee cooperatives are explored as mechanisms for managing both the economic and social dimensions of this transition.

2.7 Social Capital Theory

Social capital theory provides a framework for understanding how social relations, trust, and collective action facilitate the reintegration of rebel returnees into society. Drawing on the works of Pierre Bourdieu (1986), James Coleman (1988), and Robert Putnam (1993), the theory assumes that social networks and norms act as valuable resources that can produce positive social and economic outcomes. In the context of DDR, social capital plays a fundamental role in promoting sustainable reintegration by strengthening community cohesion, restoring trust, and facilitating economic opportunities for returnees (Kilroy & Basini, 2018). While DDR approaches have traditionally emphasized security, economic support, and political reintegration, social capital theory complements this approach by highlighting the importance of interpersonal relationships and institutional linkages in ensuring long-term stability (Kilroy, 2015).

A fundamental premise of social capital theory is that social ties operate at different levels and influence individual and collective well-being in different ways. Putnam (2000) classifies social capital into three main forms: bonding, bridging, and linking capital. Bonding social capital refers to the strong ties between individuals within homogeneous groups, such as families, ethnic communities, or former rebel networks. While this form of social capital provides important emotional and psychological support, it can also lead to exclusivity and make reintegration more difficult if former combatants remain socially isolated (Colletta & Cullen, 2000). Bridging social capital, on the other hand, connects people across

different social groups, promotes community cohesion, and facilitates economic participation. For reintegration programs, bridging capital is crucial as it allows former combatants to interact with host communities, which may reduce stigma and promote mutual trust (Aldrich, 2012). Finally, bonding social capital refers to the connections between individuals or communities and formal institutions such as government agencies, non-governmental organizations (NGOs), and private companies. This dimension is particularly important for DDR, as access to institutional networks improves the ability of former combatants to secure employment, participate in cooperatives, and engage in economic and social development programs (Woolcock, 2001).

Another important aspect of social capital theory for DDR is its role in addressing the socio-political constraints that often hinder reintegration. Many former combatants face challenges such as discrimination, limited employment opportunities and political marginalization, all of which can undermine reintegration efforts (Themnér, 2013). Linking social capital that fosters relationships with state institutions and civil society organizations is critical to mitigating these challenges (Richmond & Franks, 2009).

2.8 Appropriateness of DDR Framework and Social Capital Theory for the Study

The DDR framework is well suited for this study for several reasons. First, its focus on reintegration corresponds to the socio-economic transition of rebel returnees. By examining coffee cooperatives as reintegration mechanisms, the study contributes to the literature on sustainable peacebuilding through livelihood interventions. Secondly, its application in a post-conflict context makes it a robust tool for analyzing reintegration in Sulu, taking into account the unique cultural and economic conditions of the region. Finally, by integrating economic, social, and psychological dimensions, the framework provides a comprehensive perspective on the complex challenges and opportunities faced by returning rebels.

In the same manner, the application of social capital theory in this study complements the DDR framework by addressing the structural and relational aspects of reintegration. Traditional DDR programs often focus on material support, such as financial assistance and vocational training, neglecting the social dimensions that are crucial for long-term success (Munive, 2013). Reintegration is both an economic and a social process, in which former combatants must rebuild their relationships and gain acceptance in their communities. A lack of social capital can prolong marginalization and increase the risk of recidivism (Kaplan & Nussio, 2018). By fostering bonding, bridging, and networking capital, reintegration efforts can strengthen social trust, support community development, and create sustainable livelihood opportunities.

Integrating social capital theory into DDR programs and processes provides a holistic approach to reintegration by recognizing the interplay between social relationships, economic opportunities and institutional support. By strengthening bonding capital through emotional support networks, fostering bridging capital through cooperative initiatives, and enhancing bonding capital by connecting returnees to formal institutions, DDR programs can achieve more sustainable reintegration outcomes. Given the empirical evidence on the role of social capital in post-conflict recovery, this study draws on social capital theory as a complementary framework for DDR to gain a more comprehensive understanding of the factors that influence successful reintegration.

2.9 Conceptual Framework

2.9.1 DDR as a Foundational Mechanism

This study uses a conceptual framework that integrates disarmament, demobilization and reintegration (DDR) theory and social capital theory, recognizing their complementary role in shaping the socio-economic transition of rebel returnees. The framework, as illustrated in [Figure 4](#) below, emphasizes the interplay between DDR processes, social capital, and cooperative-based reintegration mechanisms, and focuses in particular on the role of coffee cooperatives in promoting improved socio-economic transition for rebel returnees.

DDR is the main framework for transforming rebel returnees into productive members of society through three phases. The collection and disposal of weapons, the formal exit of combatants from armed groups, and their transition to civilian life ([Munive, 2013](#); [Kaplan & Nussio, 2018](#)). While DDR programs traditionally focus on security, economic reintegration, and political stability, its social and relational aspects are often neglected, which may eventually cause mistrust, marginalization, and relapse into violence ([Themnér, 2013](#); [Kilroy, 2015](#)). This study focuses on reintegration, emphasizing coffee cooperatives as key reintegration strategy for returnees.

2.9.2 Social Capital as a Reintegration Enabler

Social capital theory provides an important complement to DDR by examining the role of social relationships, trust, and collective action in reintegration. Social capital comprises three dimensions: bonding, bridging and bonding capitals ([Putnam, 2000](#); [Woolcock, 2001](#)). In the proposed conceptual framework, social capital is presented as a mediating factor that increases the effectiveness of DDR programs. The presence of strong social capital facilitates reintegration by promoting trust, reducing social tensions, and enabling cooperative economic initiatives. In contrast, weak social capital can exacerbate reintegration difficulties and lead to social exclusion and economic marginalization.

2.9.3 Coffee Cooperatives as a Reintegration Mechanism

Given the challenges of economic reintegration, cooperative models offer a viable, sustainable livelihood for the post-conflict period. Coffee cooperatives, as described in the conceptual model, utilize social capital to provide both social and economic benefits. Participation allows former combatants access to markets, financial resources and vocational training, improving productivity, and employability (Godefroidt & Langer, 2023), while fostering bridging and bonding capital, community trust, and institutional support (Boothby et al., 2009). Their success, as reflected in improved social and economic outcomes, drives the socio-economic transition of rebel returnees. Considering that transition is a multidimensional process, it requires both economic stability and social acceptance, which underscores the importance of integrating DDR with social capital theory in post-conflict reintegration strategies.

2.9.4 Integrative Perspective

This conceptual framework guides the study by showing how DDR processes, social capital, and coffee cooperatives interact to support the socio-economic transition of rebel returnees. It emphasizes that reintegration is a multidimensional process that requires not only economic stability but also social acceptance and the strengthening of community ties.

Coffee cooperatives serve as both economic and social mechanism and provide a basis for analyzing how participation in them can facilitate sustainable livelihoods, promote trust and cooperation, and support the long-term integration of former combatants into their communities. This inclusive perspective underpins the study's focus on examining the practical impact of cooperative membership on the reintegration process.

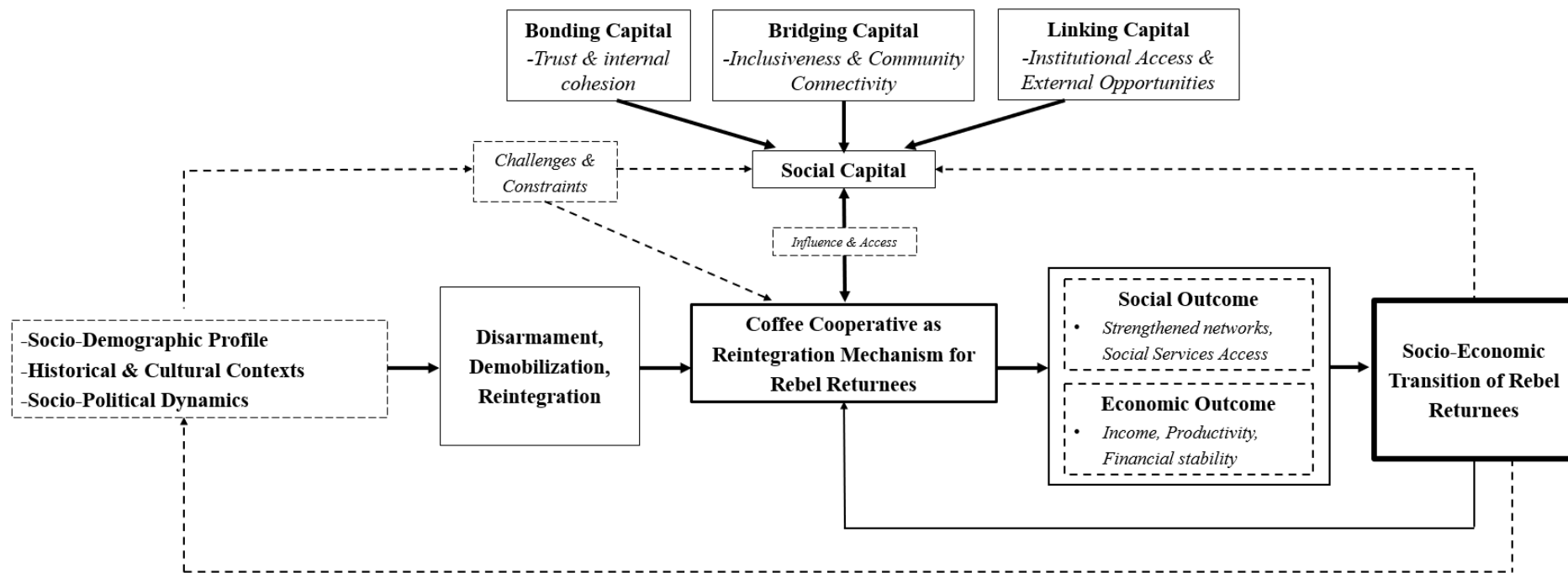


Figure 4. Conceptual Framework for the Socio-Economic Reintegration of Rebel Returnees through DDR Framework and Social Capital Theory

Note: Author's own elaboration. Adapted and modified from World Bank (2009), United Nations (2019), Putnam (1993:2000), and Woolcock (1998)

CHAPTER III

MATERIALS AND METHODS

3.1 Study Location

The study is situated in the municipality of Patikul, located in Sulu Province of the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM), Philippines (Figure 5). Historically, Patikul has been a focal point of armed conflicts and insurgencies in the southern Philippines, leading to socio-economic challenges and underdevelopment (Santos Jr & Dinampo, 2010). Despite these adversities, the region holds significant potential for agricultural development, particularly in coffee cultivation, owing to its fertile soils and favourable agro-climatic conditions (Bureau of Soils and Water Management, 2019).

A critical factor influencing agricultural practices in Patikul is its varied topography. The municipality's terrain ranges from level to mountainous, with slope gradients spanning from 0% to over 50%. Gentle slopes (0–8%) are generally considered optimal for mechanized farming and are conducive to coffee cultivation, as they minimize erosion risks and facilitate farm operations (Parwito et al., 2024). Moderate slopes (8–18%) can still support coffee farming but may require soil conservation measures to prevent degradation (Sepúlveda & Carrillo, 2015). Steeper slopes (>30%) pose challenges due to increased erosion potential and reduced mechanization feasibility; however, they can be utilized for coffee cultivation through agroforestry systems and appropriate land management practices (Nigussie, et al., 2024).

The suitability of land for coffee cultivation is not solely determined by slope but also by other factors such as elevation, soil type, and climate. Arabica coffee, for instance, thrives at elevations between 1000–1700 meters above sea level, with optimal growth observed on slopes less than 15% (Winston, et al., 2005). In Patikul, certain upland areas meet these criteria, offering potential for high-quality coffee production. However, the implementation of sustainable farming practices is essential to mitigate erosion and maintain soil fertility, especially on sloped terrains (Helena Coffee Vietnam, 2023).

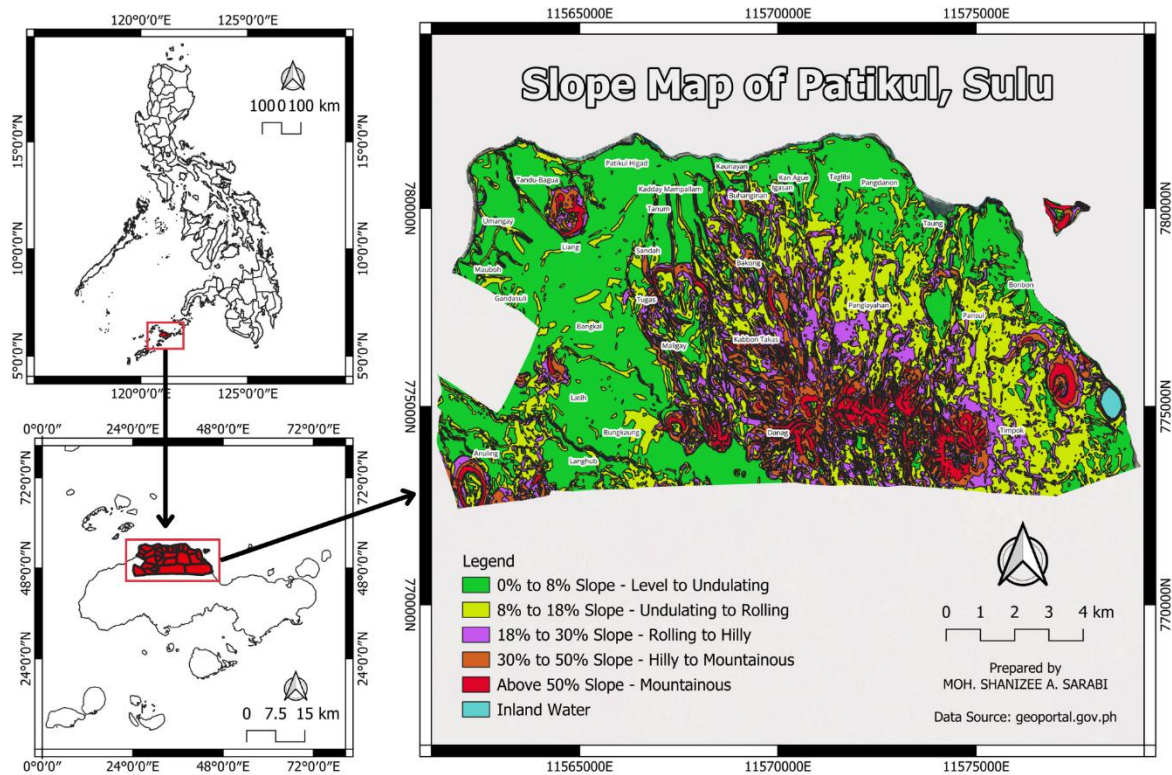


Figure 5. Slope Map of the Study Area (Map created by the author and processed in QGIS Prizren 3.34)

3.2 Research Design

This study adopts a cross-sectional comparative research design to explore the associations between cooperative membership and the socio-economic transition of rebel returnees in a post-conflict setting. Cross-sectional studies are widely used in development and peacebuilding research when it is impractical to implement longitudinal or randomized designs, particularly in fragile or conflict-affected regions (Levy & Lemeshow, 2013; Bryman, 2016).

As a non-experimental observational study, this study does not aim to infer causality. Instead, it examines statistical associations between cooperative membership and key reintegration outcomes. These outcomes are interpreted through the lens of Disarmament, Demobilization, and Reintegration (DDR) theory and social capital theory, both of which emphasize the structural and relational conditions necessary for successful transitions from armed groups to civilian life (Colletta & Cullen, 2000; Kaplan & Nussio, 2018). While the analysis controls for key covariates, the risk of unmeasured confounding remains. Thus, the results are interpreted as associational, not causal, which is a standard limitation in cross-sectional research in development contexts (Firebaugh, 2008; Pearl, 2010). Nevertheless, this design allows for meaningful insights into the potential role of cooperative in promoting economic reintegration and social stability among former combatants.

3.3 Target Population and Sampling Method

The target population of this study consists of rebel returnees who are actively engaged in coffee farming in the municipality of Patikul, located in Sulu Province of the southern Philippines. These individuals represent a highly vulnerable post-conflict demographic undergoing formal reintegration through state and community-based programs (International Crises Group, 2021). The study focuses on two distinct subgroups of this population: (1) returnees who are members of organized coffee cooperatives, and (2) returnees who are coffee farmers but not cooperative members. This stratification enables comparison of reintegration experiences and outcomes based on institutional affiliation (Gilligan et al., 2013; Blattman & Annan, 2016).

A multi-stage non-probability sampling strategy was used. First, the municipality of Patikul (Figure 5) was purposively selected due to its historical conflict exposure, active reintegration initiatives, and presence of functioning coffee cooperatives. This approach is standard in fieldwork within fragile contexts, where safety, access, and thematic relevance outweigh statistical generalizability (Maxwell, 2013; Baird, 2010). Second, nine barangays of the municipality of Patikul namely Kaunayan, Buhanginan, Kan Ague, Liang, Bangkal, Latih, Bungkaung, and Danag (Figure 6) were selected using key informant recommendations and field access considerations. These areas were chosen for their concentration of returnee farmers and relatively stable security conditions at the time of data collection.

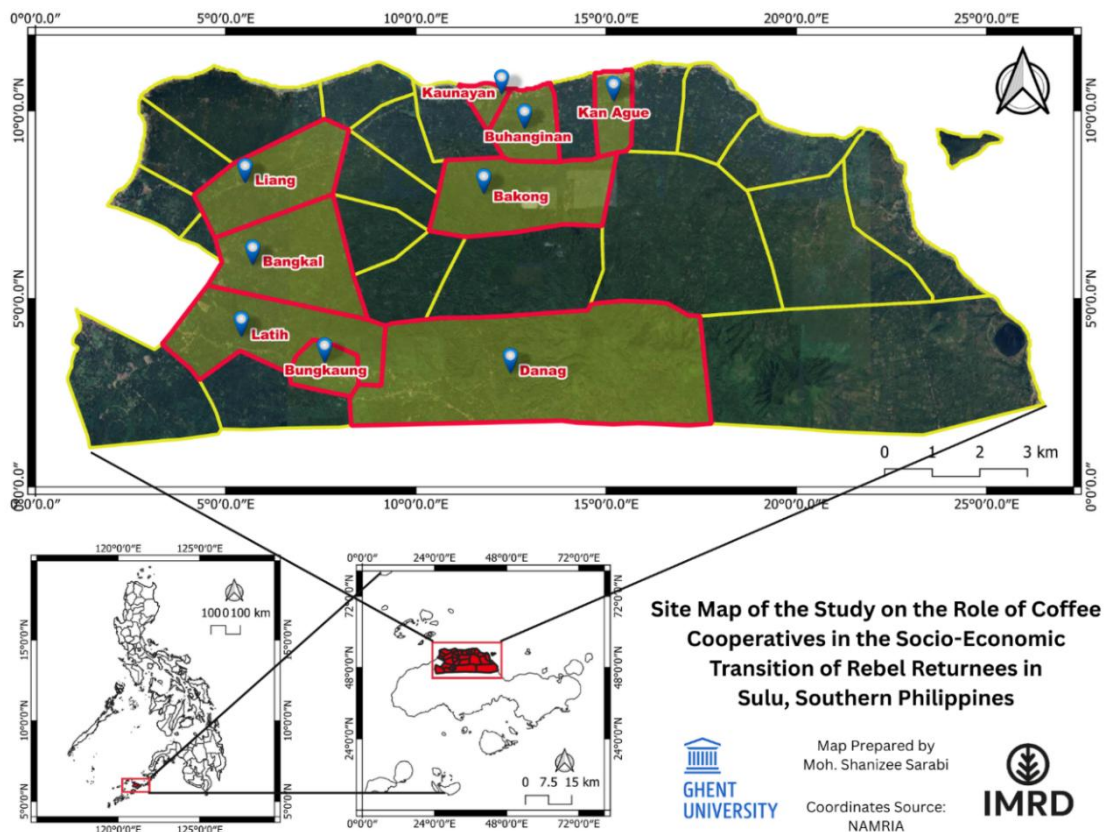


Figure 6. Site Map of the Study Area (Map created by the author processed in QGIS Prizren 3.34)

Participants within these barangays were stratified by cooperative membership (members and non-members). Particularly for this study, only membership to Kantitap Consumer Cooperative was covered considering that it is the only coffee cooperative that has membership from rebel returnees in the municipality. Amongst members and non-member of the cooperative, convenience sampling and snowball sampling (especially for the non-members) was employed, considering participant availability, willingness to participate, and logistical feasibility. Though not statistically representative, convenience sampling is widely accepted in conflict-affected settings due to access limitations and community mistrust toward external researchers (Wood, 2006; Cohen & Arieli, 2011). Although non-probability sampling limits generalizability, the analytic validity and theoretical contribution of the study remain strong. The approach allowed the author to gather primary evidence in a high-risk environment where formal sampling frames were unavailable, yielding insights grounded in real-world reintegration experiences (Hancock et al., 2021).

A total of 114 surveys were conducted, of which 101 were fully completed (47 cooperative members and 54 non-members). The 101 respondents were included in the socio-demographic and descriptive analyses. For regression and PLS-SEM analyses, only 96 responses were retained after assumption checks (43 cooperative members and 53 non-members). To support access and community engagement, the researcher partnered with the Kantitap Consumers Cooperative (Figure 7; Appendix B), a member of the Federation of Sulu Coffee Industry Cooperative. This collaboration facilitated ethical, informed access to cooperative-affiliated returnees, and provided institutional support during fieldwork.



Figure 7. Photo of the Kantitap Cooperative Building along with some snapshots during the fieldwork (Photos by the author)

3.4 Data

3.4.1 Data Collection Instruments

The primary data collection instrument was a structured questionnaire designed to compare the outcomes for cooperative members and non-members. The questionnaire included sections on socio-demographic characteristics (age, gender, education level, household size, previously affiliated rebel group, years as rebel group member, years as rebel returnee, years in farming, and years in coffee farming specifically), external and contextual factors (conflict exposure, conflict resolution initiatives, and community cohesion), cooperative membership (access, cooperative functioning, and social capital), economic characteristics (income generated from coffee sales from the last cropping season, land ownership, farm size, support programs, farming practice, farming technology adoption, primary source of income, grown coffee varieties, and sales channels) and socio-economic transition (living standards, financial (in)stability, peacebuilding factors, economic and livelihood transition, and perceived living standard as cooperative member).

Closed-ended questions and categorical response formats were used. The survey instrument was pilot tested with a small group of coffee farmers and cooperative leaders. The feedback from the pilot phase was used to refine the wording of the questions, the response categories, and the overall process to make the instrument more suitable for the study context.

3.4.2 Data Collection Procedure

The structured survey was conducted through face-to-face interviews. The face-to-face interviews were conducted by the researcher himself together with hired research assistants from February to April 2025. This strategy was effective in accessing the conflict-prone area and ensuring that participants were able to answer the survey correctly. A strict quality assurance process was introduced to ensure the integrity of the data (Figure 8). The researcher reviewed the collected data to identify and eliminate inconsistencies or missing responses. Secondary data such as national authority statistics were also used to verify key variables such as reported income level.

Ethical standards were upheld throughout the data collection process, particularly in safeguarding the dignity, safety, and voluntary participation of the respondents. The participants were informed that their participation was entirely voluntary. They were reminded of their rights to refuse to participate or to withdraw at any time without penalty. The respondents were likewise informed of the potential risks, benefits, confidentiality, and data protection. All respondents gave informed consent, and data collection adhered to appropriate ethical standards for research in vulnerable populations (Silverman, 2011; Tiruneh, et al., 2024).

Due to contextual constraints, obtaining formal ethical clearance through institutional channels proved challenging. Nevertheless, ethical practices were strictly observed in accordance with standard research protocols and guided by principles of respect, non-coercion, and cultural sensitivity in working with vulnerable populations.

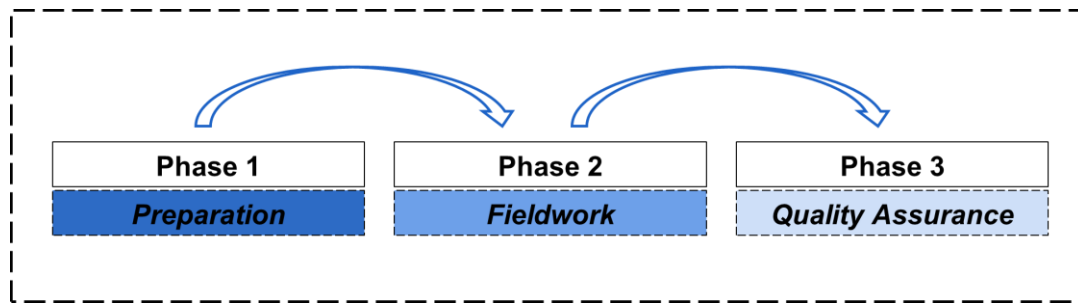


Figure 8. Phases of Data Collection Procedure (Author's Own Illustration)

3.4.3 Analytical Approach

The data were encoded, edited, and cleaned to ensure consistency, accuracy, and uniformity before being analyzed using the Statistical Package for the Social Sciences (SPSS) version 25. To evaluate group differences, the study utilizes both descriptive statistics and multivariate regression analysis. Independent sample t-tests are applied to assess whether socio-economic indicators differ significantly between cooperative members and non-members. In addition, ordinary least squares (OLS) and binary logistic regression models are used to adjust for observed confounding variables, including age, household size, education, coffee farming experience, and conflict exposure such as duration of rebel membership and duration of being a returnee. This approach allows for a more robust estimation of relationships while acknowledging the limitations of observational data (Rosenbaum, 2022; Angrist & Pischke, 2009).

3.4.3.1 Descriptive Analysis

Descriptive statistics were employed to summarize the socio-demographic, contextual, and livelihood characteristics of the study population. Mean and standard deviation were computed for continuous variables, such as age, years in school, years in farming, and years as rebel returnees. Frequency distributions and percentages were used for categorical data, such as cooperative membership status and access to support services. This stage of analysis served two purposes. First, to profile the sample population and establish group-level baseline differences between cooperative members and non-members. Second, to provide contextual insights into the lived realities of rebel returnees.

3.4.3.2 Determination of Latent Constructs and Computation of Composite Scores

Several constructs were operationalized through composite indices and as latent constructs, each developed from multi-item Likert scales. An exploratory factor analysis (EFA) was conducted to identify the underlying structure, which determined five latent constructs. These include perceptions on challenges in accessing better infrastructure, conflict exposure and vulnerability, peacebuilding initiatives positively contributing to stability, positive experience on resolution initiatives, and improved socio-economic transitions. Internal consistency of each scale was evaluated using Cronbach's alpha to check if indices exhibit high or acceptable reliability, justifying the aggregation of component items into single latent constructs (Field, 2018). Assumption checks were conducted to check for collinearity.

Additionally, nonparametric inferential tests were employed to determine whether the differences observed between cooperative members and non-members were statistically significant across the five latent constructs identified through EFA. Given that the latent construct scores violated normality assumptions as assessed using the Kolmogorov-Smirnov test, the Mann-Whitney U test was used in place of the independent sample t-test. This nonparametric alternative is suitable for comparing the distributions of two independent groups when data do not meet the parametric assumptions of normality and homoscedasticity (Field, 2018). Test statistics, median scores, and significance levels were reported. A threshold of $p < 0.05$ was used to determine statistical significance (Cheung et al., 2024).

3.4.3.3 Internal Consistency of Social Capital Reflected on Cooperative Functioning Insights

To better understand the role of the cooperative in shaping member experiences and development outcomes, the cooperative functioning survey items were systematically grouped using the social capital as presented in the conceptual framework (Figure 4). Following Putnam (2000) and Woolcock & Narayan (2001), this study adopts a tripartite model of social capital: bonding, bridging, and linking.

In determining the constructs for bonding, bridging, and linking social capitals, the following justification of grouping them into the specific social capital was carried out, as presented in Tables 1, 2, and 3 respectively. Subsequently, an internal consistency testing was conducted to determine the reliability of grouping them (Cheung et al., 2024). Each item in the cooperative functioning scale asked to the cooperative members who participated in the survey was categorized according to the type of social capital it most directly reflects based on theoretical definitions and empirical precedents from the literature. This thematic categorization provides a conceptual basis for interpreting the subsequent results.

Bonding Capital

Table 1. Bonding Capital: Trust and Internal Cohesion

Statement	Justification	References
Cooperative leaders are honest and trustworthy	Trust is a core element of bonding social capital. Trust in leaders reflects strong intra-group cohesion.	Putnam (2000); Pretty (2003)
Cooperative leaders are accessible for discussions	Accessibility and open communication indicate mutual support within the group.	Narayan & Pritchett (1999) Uphoff & Wijayaratra (2000)
The cooperative is led by competent individuals	Confidence in leadership strengthens intra-group solidarity and shared identity.	Woolcock (1998); Krishna & Shrader (1999)
Members can voice their opinions in cooperative meetings	Democratic participation and voice within the group are hallmarks of bonding ties.	Uphoff & Wijayaratra (2000); Pretty (2003)
Member opinions are considered in decision-making	Reflects inclusive participation, a key dimension of bonding.	Narayan (1999)
General assemblies for cooperative members are well-organized	Institutionalized trust and structured group engagement enhance bonding.	Woolcock & Narayan (2000)
All members' opinions hold equal value	Equality in deliberation reinforces intra-group trust and mutual respect.	Szreter & Woolcock (2004)
Overall, I am a satisfied member of the cooperative	General satisfaction reflects internal social cohesion and trust.	Grootaert & van Bastelaer (2002)

Bridging Capital

Table 2. Bridging Capital: Inclusiveness and Community Connectivity

Statement	Justification	References
Cooperative leadership is democratically elected	Democratic norms suggest inclusiveness across member backgrounds.	Krishna & Shrader (1999); Putnam (2000)
It is affordable to join and stay in the cooperative	Affordability fosters inclusion across socioeconomic groups, a condition for bridging.	Narayan (1999); Grootaert, C. (2004)
The cooperative actively recruits new members	Recruitment builds ties with diverse external groups, promoting broader identity.	Woolcock & Narayan (2000)
An enhanced community connections/networks motivated me to join	This reflects broader social networks and perceived cohesion in the community.	Pretty (2003); Szreter & Woolcock (2004)

Linking Capital

Table 3. Linking Capital: Institutional Access and External Opportunities

Statement	Justification	References
The cooperative helps me find better buyers and market opportunities	This reflects institutional connections to markets, a typical linking function.	Krishna & Shrader (1999); Woolcock (2001)
I can sell a larger quantity of produce through the cooperative	Institutional access to market infrastructure enhances vertical mobility.	Narayan (1999); Grootaert et al. (2004)
I receive higher prices for my coffee because of the cooperative	Economic outcomes through external market linkage define linking capital.	Woolcock & Narayan (2000)
The cooperative provides access to loans and financial support	Financial access via formal institutions (e.g., banks, microfinance) is a linking mechanism.	Krishna & Shrader (1999)
The cooperative provides training on farming best practices	Access to institutional knowledge or external agents (e.g., NGOs, state agri offices).	Pretty (2003); Grootaert, C. (2004)
I can access additional resources as member of the cooperative	Institutional linkages provide material and informational resources.	Woolcock (1998); Uphoff (2000)

3.5 Econometric Estimation

3.5.1 Linear Regression

To examine the effect of cooperative membership, latent constructs, and socio-economic factors on farmers' productivity and sales, a series of linear regression models were specified for each outcome variable. This modeling approach enables an assessment of the individual and joint contributions of transition and structural variables in explaining variation in key economic outcomes among rebel returnees. Separate sets of models were estimated for two dependent variables: productivity (coffee yield per hectare) and sales (gross revenue from the last cropping season). Each set includes three models as shown below.

A. Productivity Models

- Model 1 (Cooperative Membership + Latent Constructs):

$$Y_i = \beta_0 + \beta_1 Coop_i + \sum_{j=1}^k \beta_j L_{ij} + \epsilon_i \quad (1)$$

- Model 2 (Cooperative Membership + Socio-Economic Variables):

$$Y_i = \beta_0 + \beta_1 Coop_i + \sum_{m=1}^n \beta_m S_{im} + \epsilon_i \quad (2)$$

- Model 3 (Full Model):

$$Y_i = \beta_0 + \beta_1 Coop_i + \sum_{j=1}^k \beta_j L_{ij} + \sum_{m=1}^n \beta_m S_{im} + \epsilon_i \quad (3)$$

B. Coffee Sales Models

- Model 1 (Cooperative Membership + Latent Constructs):

$$Y_i = \beta_0 + \beta_1 Coop_i + \sum_{j=1}^k \beta_j L_{ij} + \epsilon_i \quad (4)$$

- Model 2 (Cooperative Membership + Socio-Economic Variables):

$$Y_i = \beta_0 + \beta_1 Coop_i + \sum_{m=1}^n \beta_m S_{im} + \epsilon_i \quad (5)$$

- Model 3 (Full Model):

$$Y_i = \beta_0 + \beta_1 Coop_i + \sum_{j=1}^k \beta_j L_{ij} + \sum_{m=1}^n \beta_m S_{im} + \epsilon_i \quad (6)$$

Where:

- $Coop_i$: Binary variable for cooperative membership (1 = member, 0 = non-member)
- L_{ij} : Latent constructs for individual i (e.g., trust, perceived benefit, social capital)
- S_{im} : Socio-economic variables (e.g., age, gender, education, income, household size)
- ϵ_i : Error term

All models were estimated using Ordinary Least Squares (OLS) in SPSS. For each model, the regression coefficients, standard errors, standardized beta coefficients, and significance levels were reported. Model fit and explanatory power were assessed using indicators such as R squared and Adjusted R-squared, F-statistic and corresponding p-value, standard error of the estimate, and ANOVA table for model-level significance. Comparative tables were created to present the results of the models side by side for each outcome. This allows for clear evaluation of how the inclusion or exclusion of different sets of predictors affects the explanatory power of the model and the significance of cooperative membership as a predictor.

3.5.2 Binary Logistic Regression

To examine the factors influencing membership in a cooperative among rebel returnees, the dependent variable was defined as a binary indicator. 1 for individuals who are members of a coffee cooperative, and 0 for those who are not. Given the binary structure of the outcome variable, binary logistic regression was considered appropriate to estimate the likelihood of cooperative membership. Three models were specified, each differing in the set of predictor variables included (one focusing on latent constructs, another on socio-economic and demographic characteristics, and a third combining both) to assess their individual and joint influence. The combined model includes both sets of predictors to assess their joint influence on cooperative membership.

Model 1: Latent Constructs Only

$$\log\left(\frac{P(Y = 1)}{1 - P(Y = 1)}\right) = \beta_0 + \beta_1 L_1 + \beta_2 L_2 + \dots + \beta_k L_k \quad (7)$$

Where:

- $\log\left(\frac{P(Y=1)}{1-P(Y=1)}\right)$ is the probability of being a cooperative member
- L_1, L_2, \dots, L_k are latent constructs (results from exploratory factor analysis)
- β_0 is the intercept; $\beta_1, \beta_2, \dots, \beta_k$ are regression coefficients for the latent constructs

Model 2: Socio-Economic Variables Only

$$\log\left(\frac{P(Y = 1)}{1 - P(Y = 1)}\right) = \beta_0 + \beta_1 S_1 + \beta_2 S_2 + \dots + \beta_m S_m \quad (8)$$

Where:

- S_1, S_2, \dots, S_m are socio-economic and demographic variables (e.g., age, gender, education, household size, durations as rebel members and as returnees, and years in coffee farming)

Model 3: Combined Model (Latent Constructs + Socio-Economic Variables)

$$\log\left(\frac{P(Y = 1)}{1 - P(Y = 1)}\right) = \beta_0 + \sum_{i=1}^k \beta_i L_i + \sum_{j=1}^m \beta_j S_j \quad (9)$$

All models were estimated using binary logistic regression in SPSS. The coefficients (β), standard errors, and significance levels were reported. Model fit and explanatory power were evaluated using the -2 Log-Likelihood, and Nagelkerke R.

3.6 Partial Least Squares – Structural Equation Modelling (PLS-SEM)

Following the initial binary logistic analysis, which identified the key predictors significantly related to cooperative membership, the partial least squares structural equation modelling (PLS-SEM) approach was applied to further explore the structural relationships between the variables. This two-step methodological strategy was chosen to leverage the predictive power of logistic regression while using the explanatory capabilities of PLS-SEM to model complex pathways and latent constructs.

PLS-SEM was deemed suitable due to its ability to handle non-normal data, accommodate smaller sample sizes such as in this study, and estimate both direct and indirect effects within multivariate framework (Sarstedt et al., 2014; Hair et al., 2022). The significant predictors from the logistic regression served as exogenous variables in the structural model and predicts cooperative membership, which in turn was associated with mediators such as social cohesion and productivity (representing social outcome and economic outcome from the conceptual framework), and finally with the latent construct of improved socio-economic transition. The integration of this model is consistent with best practice in structural modelling, where regression results are incorporated into the model specification to ensure theoretical coherence and empirical validity (Rigdon et al., 2017; Sarstedt et al., 2019). The model was tested and created using SmartPLS, with bootstrapping set to 5000 subsamples to assess the reliability and significance of the path coefficients and interaction effects.

Furthermore, in modelling for the significant variables of binary logistic regression analysis, two final models were explored using PLS-SEM: one having socio-economic and demographic variables as direct predictors of cooperative membership, and another using them as moderators.

The first model is supported by the studies of Agarwal (2001), Huybrechts et al. (2014), and Hair et al. (2022) where they argued that socio-economic and demographic variables, such as in this case the educational level, duration as rebel returnee, and duration in coffee farming, may directly predict membership in community-based organizations, as these factors shaped individual's perceived utility, readiness, and capacity to engage.

The second model specifically intends to explore how the duration of becoming rebel returnee moderates the contextual factors such as challenges in accessing better infrastructure and the exposure to conflict. This model followed the argument of Henseler et al. (2015) and Sarstedt et al. (2019) stating that moderators are best used when a variable is hypothesized to alter the strength or direction of the relationship between two other variables, especially when it represents a personal characteristic or contextual factor. In this case, duration as rebel returnee is used as moderator particularly because longer reintegration period is hypothesized to moderate the relationship between challenges in accessing better infrastructure or conflict exposure and cooperative membership, reflecting how time facilitates healing, trust building, and readiness to facilitate reintegration (Gilligan et al., 2013). Early experience in reintegrating into civilian life may bring practical knowledge and network depth, which essentially may contribute to positive socio-economic outcomes (Bernard & Spielman, 2009; Barham & Chitemi, 2009).

CHAPTER IV

RESULTS

4.1 Sample Profile and Contextual Background of Rebel Returnees

4.1.1 Socio-Demographic Characteristics

The analysis reveals that coffee cooperative members differed significantly from non-members on several socio-demographic characteristics (Table 4). Rebel returnees who are cooperative members were generally older, had spent more years in farming and coffee farming in particular, and had longer durations as both rebel group members and as returnees. In addition, cooperative members possessed more total farmland and allocated more land specifically to coffee cultivation compared to non-members. Although, some differences were not statistically significant as observed in household size and years of formal schooling.

Additionally, a statistically significant association can be observed between gender and cooperative membership, with male participants more likely to be members. The distance to the cooperative, whether by foot or by vehicle, is also different between members and non-members. A majority of members owned or partly owned land, while a large proportion of non-members were sharecroppers. Access to credit or loans, training programs, and farming input subsidies also significantly more prevalent among cooperative members.

Furthermore, access to machinery equipment support and technical assistance shows strong associations with membership, with nearly all members having access to these services, unlike the majority of non-members. Lastly, a higher proportion of respondents benefiting from the receipt of government conditional cash programs is also significantly associated with cooperative membership.

Table 4. Socio-Demographic Characteristics of Cooperative Member and Non-members

<i>Continuous Variables</i>				
Characteristics	Member (n=47)	Non-Member (n=54)	t-stat	
	Mean (Std. Dev.)			
Age	54.72 (14.28)	39.24 (10.05)	6.21***	
Number of Household Members	5.28 (2.27)	4.69 (1.73)	1.46	
Years in School	2.70 (5.12)	1.65 (1.71)	1.35	
Duration as Rebel Member (Years)	15.40 (7.58)	12.59 (4.92)	2.18**	
Duration as Rebel Returnee (Years)	14.94 (7.31)	4.48 (1.80)	9.56***	
Years in Farming	32.55 (16.80)	17.35 (8.19)	5.65***	
Years in Coffee Farming	29.70 (17.49)	6.56 (4.50)	8.82***	
<i>Categorical Variables</i>				
Characteristics	Frequency (%)		Pearson Chi ²	
Gender	Male	29 (61.70)	50 (92.60)	14.07***
	Female	18 (38.30)	4 (7.40)	
Cooperative Distance by Foot	Less than 15 mins	4 (8.50)	0	28.22***
	15-30 mins	9 (19.20)	31 (57.40)	
	More than 30 mins to 1hour	19 (40.40)	22 (40.70)	
	More than 1 hour	15 (31.20)	1 (1.90)	
Cooperative Distance by Vehicle	Less than 15 mins	23 (48.94)	1 (1.90)	45.88***
	15-30 mins	18 (38.30)	13 (24.10)	
	More than 30 mins to 1hour	4 (8.51)	24 (44.40)	
	More than 1 hour	2 (4.26)	16 (29.60)	
Land Ownership	Owned	29 (61.70)	13 (24.10)	54.56***
	Partly Owned	15 (31.90)	1 (1.90)	
	Partly Rented	2 (4.30)	1 (1.90)	
	Rented	0	3 (5.60)	
	Sharecropped	1 (2.10)	36 (66.70)	
Access to Credit/Loan	Yes	43 (91.50)	17 (31.50)	37.52***
	No	4 (8.50)	37 (68.50)	
Access to Training Programs	Yes	44 (93.60)	27 (50)	22.90***
	No	3 (6.40)	27 (50)	
Access to Farming Input Subsidy	Yes	42 (89.40)	12 (22.20)	45.53***
	No	5 (10.60)	42 (77.8)	
Access to Machinery Equipment Support	Yes	41 (87.20)	0	79.30***
	No	6 (12.80)	54 (100)	
Access to Technical Assistance	Yes	45 (95.70)	15 (27.8)	48.14***
	No	2 (4.30)	39 (72.2)	
Recipient of Government Conditional Cash Programs	Yes	43 (91.50)	15 (27.8)	41.72***
	No	4 (8.50)	39 (72.2)	

*** $p < 0.01$, ** $p < 0.05$

4.1.2 Sales Channels Accessed in the Last Cropping Season

Cooperative members predominantly sold their coffee through the cooperative channel, with only roughly 7% of their harvest being sold to other channels. In contrast, non-members primarily sold their coffee to processors, roasters, and local traders, with substantially higher proportions using these channels compared to cooperative members (Figure 9). Direct-to-consumer sales were reported by a smaller share of both groups, with non-members showing a somewhat higher tendency to use this channel.

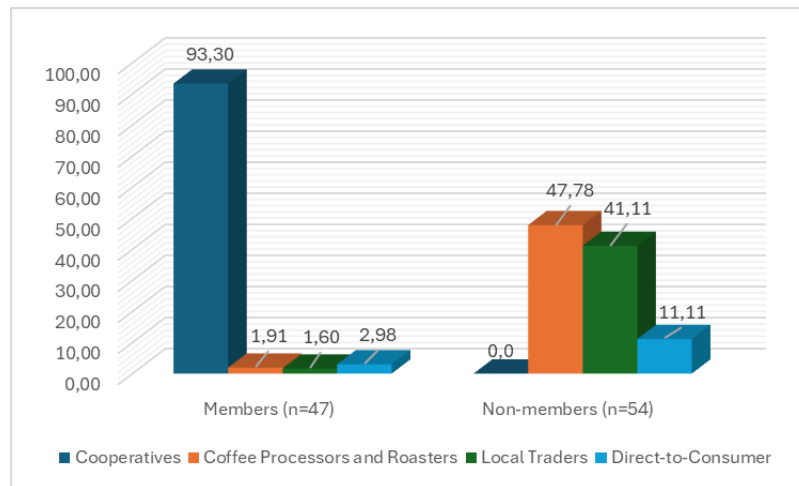


Figure 9. Comparison of Sales Channels Accessed in the Last Cropping Season

4.1.3 Perceived Barriers to Adoption of Farming Innovations

Table 5 and Figure 10 demonstrate that non-members consistently gave significantly higher scores for perceived barriers than cooperative members. While members tended to categorize these barriers as minimal to moderate, non-members regarded them as considerably more restrictive to the ability to adopt new farming practices. The contrast was mainly pronounced in areas such as lack of trust in the new practices and in the limited access to agricultural inputs or required tools, where the difference between the two groups were particularly striking.

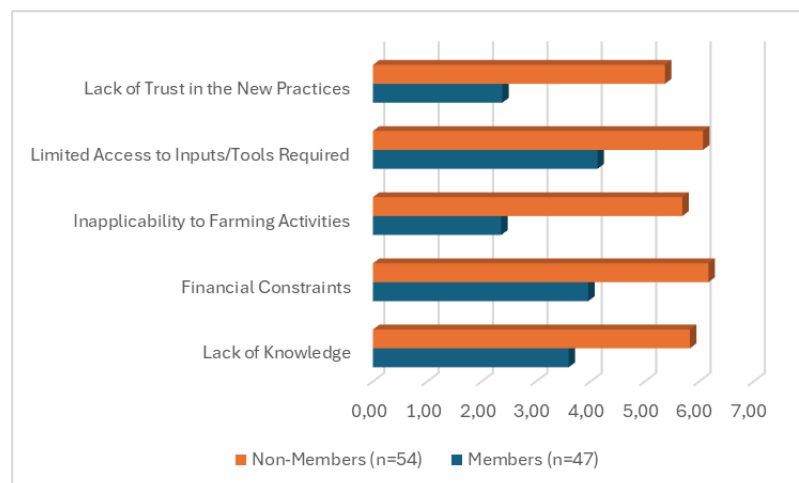


Figure 10. Visualization of the difference between members and non-members

Table 5. Comparison of Specific Adoption Barrier to Farming Innovations

Specific Adoption Barrier	Membership	Mean	SD	t-stat
Lack of Knowledge	Member	3.60	1.637	-8.124***
	Non-Member	5.83	0.666	
Financial Constraints	Member	3.96	1.587	-7.969***
	Non-Member	6.17	0.927	
Inapplicability to Farming Activities	Member	2.36	1.390	-13.728***
	Non-Member	5.69	1.113	
Limited Access to Inputs/Tools Required	Member	4.13	1.752	-6.697***
	Non-Member	6.07	0.749	
Lack of Trust in the New Practices	Member	2.38	1.344	-9.886***
	Non-Member	5.37	1.545	

Note: 1 - Not a Factor at All; 2 - Minimal Factor; 3 - Slight factor; 4 - Neutral; 5 - Considerable factor; 6 - Significant factor; 7 - Very significant factor; Members n=47, Non-members n=54; ***p<0.01

4.1.4 Financial (In)Stability as a Dimension of Socio-Economic Reintegration

A comparative assessment of perceived financial (in)stability among coffee cooperative members and non-members is presented in Figure 11. A significantly higher proportion of cooperative members reported feeling financially stable compared to non-members. Conversely, financial instability was predominantly reported by non-members. The main reason for financial instability which is indicated as ‘insufficient support’ was overwhelmingly cited by non-members. Other reported challenges such as high debt and low coffee prices were also more prevalent among non-members (Figure 12). In contrast, the primary reason cited by members for financial stability was increased income from coffee sales, followed by access to credit or loans. These reasons were reported with much greater frequency among members than non-members (Figure 13).

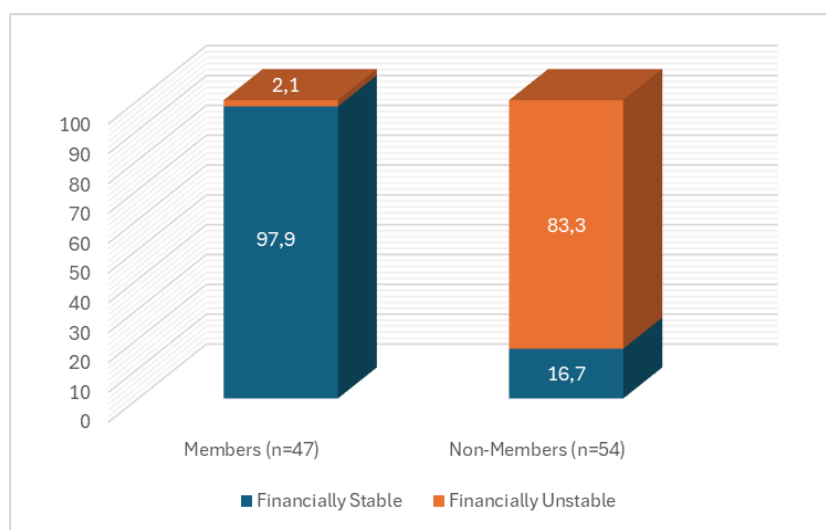


Figure 11. Perceived Level of Financial (In)Stability Since Returning to Civilian Life (%)

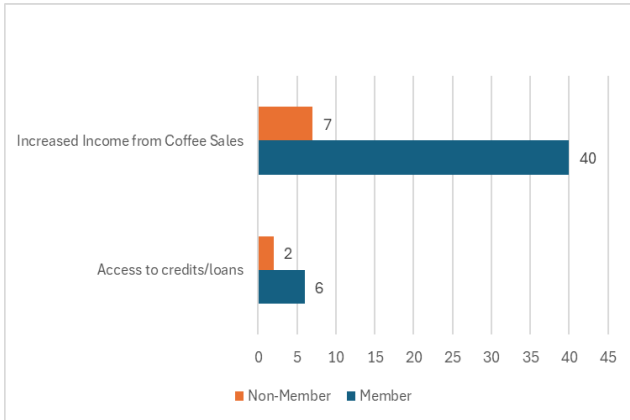


Figure 12. Perceived factors contributing to financial stability (count) (Members n=47; Non-members n=54)

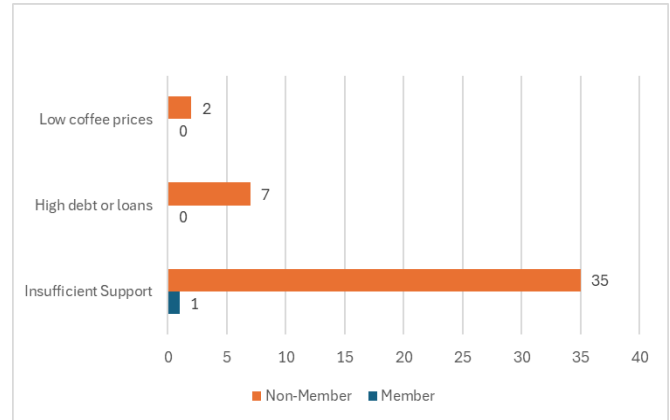


Figure 13. Perceived to be major reasons of financial instability (count) (Members n=47; Non-members n=54)

4.1.5 Social Capital Dimensions Reflected in Cooperative Functioning Indicators

Bonding Social Capital: Trust and Internal Cohesion

The reliability analysis of the bonding capital scale yielded a strong internal consistency (Table 6) within the acceptable threshold of 0.70 (Cheung et al., 2024). Items related to leadership accessibility and participatory assemblies showed the strongest correlations, while other items fall within acceptable limits. Removal of any item resulted in minimal changes to Cronbach’s alpha, confirming that all items contributed meaningfully to the scale. This confirms that the overall internal consistency of the bonding capital scale is strong.

Bridging Social Capital: Inclusiveness and Community Connectedness

The reliability analysis for the bridging capital scale yielded an acceptable internal consistency, suggesting meaningful contributions to the construct as well (Cheung et al., 2024). The item measuring community network enhancement showed high item-total correlation. An item was excluded due to a negative corrected item-total correlation which indicated poor alignment with the construct and improving reliability upon removal. The final three items retained in the scale effectively capture key dimensions of bridging capital, providing an adequate basis for assessing the cooperative’s external social connections.

Linking Social Capital: Institutional Access and External Opportunities

The reliability analysis for the linking capital scale also yielded a strong Cronbach’s alpha, indicating excellent internal consistency. An item regarding access to additional resources had the highest correlation, followed by an item on improved market access – highlighting these as core indicators of linking capital. Although items related to volume sold and price received showed lower correlations, they are still within the acceptable threshold. Their retention was supported by the minimal impact on overall reliability.

Table 6. Reliability Testing of the Three Social Capitals

Items	Cronbach's Alpha	Mean
<i>Bonding Social Capital: Trust and Internal Cohesion</i>		
Cooperative leaders are honest and trustworthy	0.93	6.94
Cooperative leaders are accessible for discussions		
The cooperative is led by competent individuals		
Members can voice their opinions in cooperative meetings		
Member opinions are considered in decision-making		
General assemblies for cooperative members are well-organized		
All members' opinions hold equal value		
Overall, I am a satisfied member of the cooperative		
<i>Bridging Social Capital: Inclusiveness and Community Connectedness</i>		
It is affordable to join and stay in the cooperative	0.76	6.94
The cooperative actively recruits new members		
An enhanced community connections/networks motivated me to join		
<i>Linking Social Capital: Institutional Access and External Opportunities</i>		
The cooperative helps me find better buyers and market opportunities	0.91	6.92
I can sell a larger quantity of produce through the cooperative		
I receive higher prices for my coffee because of the cooperative		
The cooperative provides access to loans and financial support		
The cooperative provides training on farming best practices		
I can access additional resources as member of the cooperative		

Note: n=47 (members)

Summary of Social Capital Dimensions: The Three Constructs

The study identified three important constructs of social capital. These are trust and internal cohesion, inclusiveness and community connectedness, and institutional access and external opportunities. After confirming internal consistency and reliability, summated scores were calculated for each dimension to capture the members' overall perceptions of social capital. Among the constructs, trust and internal cohesion achieved the highest score, closely followed by inclusiveness and community connectedness. Institutional access and external opportunities scored slightly lower but remain high. It reflects members' confidence in navigating institutional systems and accessing external opportunities through the cooperative. Low standard deviations across all constructs indicate strong consensus among members, with minimal variation in responses.

4.2 Latent Constructs Determined Using Exploratory Factor Analysis

An exploratory factor analysis (EFA) was conducted to identify the underlying dimensions or constructs related to the socio-economic transition of rebel returnees. Kaiser-Mayer-Olin and Bartlett's test of sphericity were examined before EFA to see if it was appropriate to use on a few chosen variables (Table 7). As shown in Table 7, the recommended cut-off value of 0.50 (Cheung et al., 2024) is exceeded by the KMO measure of sample adequacy of 0.77. Additionally, the Bartlett's test of sphericity was significant (sig. <.001), suggesting that the variables had enough correlations with one another (Cheung et al., 2024). Moreover, the results show that the 19 variables have indicated communalities ranging between 0.63 and 0.91 (Table 8), suggesting that a greater proportion of an item's variance is explained by the factors (Field, 2018).

Table 7. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.77
Bartlett's Test of Sphericity	Approx. Chi-Square	1565.42
	df	171
	Sig.	<0.001

Table 8. Communalities

Items	Initial	Extraction
Lack of transportation	1.00	0.88
Poor road infrastructure	1.00	0.88
Long distance to the cooperative	1.00	0.90
High transportation costs	1.00	0.88
Limited availability of transport services	1.00	0.91
Land Related Disputes	1.00	0.70
Resource Competition	1.00	0.89
Political or Governance-related Conflicts	1.00	0.82
Interpersonal or Community Disputes	1.00	0.81
Conflict resolution initiatives	1.00	0.78
Education and awareness programs	1.00	0.89
Community dialogue and engagement	1.00	0.88
Housing quality	1.00	0.88
Food security	1.00	0.87
Strong community leadership	1.00	0.64
High levels of trust and cooperation among residents	1.00	0.66
Active presence of government and NGO support programs	1.00	0.63
Access to economic opportunities reducing tension	1.00	0.67
Religious or community-based initiatives promoting peace	1.00	0.72

Extraction Method: Principal Component Analysis.

Based on the results of the Kaiser criterion, five factors have eigenvalue > 1 , hence these are retained (Appendix A). The results show that the cumulative percentage of variance explained by all five factors is 80% of the variance according to the rotational sums of squared loadings (Table 9). It satisfies the acceptable variance explained for a construct to be valid, which is 60% (Cheung et al., 2024).

Table 9. Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.87	25.62	25.62	4.87	25.62	25.62	4.51	23.75	23.75
2	3.96	20.86	46.48	3.96	20.86	46.48	3.33	17.50	41.25
3	3.17	16.67	63.16	3.17	16.67	63.16	2.89	15.23	56.48
4	1.83	9.62	72.78	1.83	9.62	72.78	2.72	14.32	70.80
5	1.45	7.64	80.42	1.45	7.64	80.42	1.83	9.62	80.42
6	0.73	3.83	84.25						
7	0.58	3.06	87.31						
8	0.45	2.35	89.66						
9	0.40	2.11	91.78						
10	0.28	1.47	93.25						
11	0.23	1.23	94.48						
12	0.22	1.17	95.65						
13	0.18	0.96	96.60						
14	0.15	0.81	97.41						
15	0.14	0.74	98.16						
16	0.11	0.56	98.72						
17	0.09	0.48	99.20						
18	0.08	0.44	99.64						
19	0.07	0.36	100.00						

Extraction Method is Principal Component Analysis.

4.2.1 Factor Loadings and Reliability of the Five Latent Constructs

Factor loadings range from 0.72 to 0.95 (Table 10), exceeding the minimum acceptable threshold of 0.60 (Cheung et al., 2024). This indicates satisfactory indicator reliability for inclusion in subsequent analyses. Five latent constructs were named following the result of the factor analysis. The construct referring to challenges in accessing better infrastructure showed the highest internal consistency. Other constructs also demonstrated acceptable to excellent reliability. Following the confirmation of the measurement model's adequacy, the validated latent constructs were used to compute the summated scale for each factor. These composite variables, representing the key dimensions identified through factor analysis, served as variables in the independent samples t-test and in the subsequent multiple linear regression analyses, binary logistic regression, and structural equation modelling.

Table 10. Factor Loadings and Reliability of Constructs

Items	Exploratory Factor Analysis				
	Challenges in Access to Better Infrastructure (Factor 1)	Conflict Exposure and Vulnerability (Factor 2)	Peacebuilding Initiatives Positively Contributing to Stability (Factor 3)	Positive Experience on Resolution Initiatives (Factor 4)	Improved Socio-Economic Transition (Factor 5)
Lack of transportation services	0.93	0.16	-0.00	-0.03	-0.02
Poor road infrastructure	0.92	0.07	-0.03	-0.06	-0.17
Long distance to the cooperative	0.93	0.07	-0.02	0.09	-0.09
High transportation costs	0.93	0.07	-0.02	0.12	-0.02
Limited availability of market buildings	0.95	0.02	0.05	0.05	-0.10
Land Related Disputes	-0.07	0.81	0.19	-0.05	-0.04
Resource Competition	0.18	0.92	0.11	0.05	-0.08
Political or Governance-related Conflicts	0.04	0.89	0.11	-0.08	0.01
Interpersonal or Community Disputes	0.13	0.88	0.14	-0.01	-0.04
Strong community leadership	-0.11	0.17	0.72	-0.20	0.23
High levels of trust and cooperation among residents	0.19	-0.77	0.74	0.19	0.18
Active presence of government and NGO support programs	-0.08	0.29	0.73	0.02	0.04
Access to economic opportunities reducing tension	0.02	0.29	0.74	0.02	-0.15
Religious or community-based initiatives promoting peace	0.04	0.03	0.79	0.32	0.05
Conflict resolution initiatives	0.06	-0.01	0.13	0.87	0.10
Education and awareness programs	0.09	0.00	0.04	0.94	0.04
Community dialogue and engagement	-0.01	-0.06	0.07	0.93	0.04
Housing quality	-0.23	-0.10	0.14	0.12	0.89
Food security	-0.09	-0.04	0.09	0.06	0.92
Cronbach's alpha	0.97	0.91	0.82	0.91	0.88

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 6 iterations.

4.3 Difference on Latent Constructs among Members and Non-Members

To determine whether cooperative membership is associated with significant differences in the latent socio-economic constructs derived from factor analysis, two non-parametric tests were conducted. The Kolmogorov-Smirnov test to examine distributional differences, and the Mann-Whitney U test to assess differences in median. As demonstrated in Table 11, the Kolmogorov-Smirnov test indicated significant differences in the distribution of all five factor scores between the two groups. Furthermore, results from the Mann-Whitney U test showed statistically significant differences in the median scores for the constructs related to challenges in accessing better infrastructure, as well as improved socio-economic transition. No significant median differences were observed for conflict exposure and vulnerability, peacebuilding initiatives, and positive experiences with resolution initiatives.

Table 11. Group Differences in Latent Constructs: K-S and Mann-Whitney U Test Results

Latent Construct	Kolmonov-Smirnov Z	Mann-Whitney U
Challenges in Access to Better Infrastructure	3.22***	333.00***
Conflict Exposure and Vulnerability	2.03***	953.00
Peacebuilding Initiatives Positively Contributing to Stability	1.54**	1136.00
Positive Experience on Resolution Initiatives	2.13***	1043.00
Improved Socio-Economic Transition	3.01***	390.50***

*** $p < 0.001$, ** $p < 0.05$

4.4 Insights from Multiple Linear Regression Models

4.4.1 Predicting Productivity

In this study, productivity was calculated as coffee yield per unit of farm area (kg/ha), allowing for standardized comparison between cooperative members and non-members. The results of the linear regressions in Table 12 indicate that cooperative membership is positively associated with productivity in both the first and third models. This association is statistically significant when cooperative membership is examined alongside latent constructs alone. It also remains positive, though slightly weakened, when all predictor groups are included in the full model. When cooperative membership is included with only socio-demographic variables, the relationship is not statistically significant, but the direction of association remains positive.

Conflict exposure and vulnerability show a positive association with productivity, while improved socio-economic transition display a negative relationship. Challenges in accessing better infrastructure also shows a marginally significant positive association. These patterns generally persist in the full model, though the strength of associations slightly diminishes, and the statistical significance of some variables changed.

In contrast, the model that includes only socio-demographic variables (model 2) does not produce any statistically significant associations. None of the demographic factors exhibit meaningful relationships with productivity. The model also shows the weakest overall fit.

Table 12. Multiple Linear Regression Models Predicting Productivity

<i>Main Variable</i>	Regression coefficient (Std. Error)		
	Model 1	Model 2	Model 3
Cooperative Membership	5.29 (2.47)**	1.23 (2.61)	5.09 (2.94)*
<i>Latent Constructs</i>			
Challenges in Accessing Better Infrastructure	0.91 (0.53)*	-	0.68 (0.60)
Conflict Exposure and Vulnerability	1.45 (0.69)**	-	1.28 (0.72)*
Peacebuilding Initiatives Positively Contributing to Stability	0.96 (1.15)	-	1.38 (1.20)
Improved Socio-Economic Transition	-3.20 (1.36)**	-	-3.08 (1.45)**
Positive Experience on Resolution Initiatives	1.22 (0.84)	-	1.21 (0.96)
<i>Socio-Economic & Demographic Variables</i>			
Age		0.02 (0.11)	-0.03 (0.11)
Number of Household Members		-0.28 (0.41)	-0.21 (0.41)
Years in School		-0.20 (0.24)	-0.01 (0.25)
Duration as Rebel Member (Years)		0.19 (0.19)	0.17 (0.19)
Duration as Rebel Returnee (Years)		0.22 (0.20)	0.27 (0.21)
Years in Coffee Farming		0.19 (0.09)	0.14 (0.10)
Intercept	5.71 (9.81)	12.73 (3.49)***	4.68 (10.21)
<i>Model Summary & Measure of Fit</i>			
R Square	0.136	0.063	0.174
Adjusted R Square	0.078	-0.012	0.055
Durbin-Watson	2.125	1.967	1.769
Std. Error of the Estimate	7.283	7.630	7.374
ANOVA Sig.	0.038	0.558	0.157

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, $n = 96$ (Members $n = 43$, Non-members $n = 53$)

4.4.2 Predicting Gross Revenue of Coffee per hectare

For the multiple linear regression analysis predicting gross revenue of coffee per hectare, cooperative membership consistently exhibits a positive and statistically significant association with gross revenue outcome across the models (Table 13). This relationship remains robust irrespective of whether latent constructs or socio-demographic variables are controlled for. Regarding the latent constructs (model 1), certain dimensions demonstrate statistically significant associations with gross revenue in specific models. Notably, experiences related to conflict exposure and vulnerability, improved socio-economic transitions, and views on the outcomes of resolution initiatives are among those showing significant or near-significant associations, albeit inconsistently across models. Other latent factors do not display significant effects within the model specified.

Among the socio-demographic variables shown in model 2, only years of coffee farming experience emerges as a significant positive predictor of gross revenue performance. Other demographic indicators do not exhibit statistically significant relationships with sales in the model tested. In terms of model performance, the full model (model 3) explains the greatest proportion of the variance in gross revenue, followed by the models 1 and 2 respectively. Model 2 demonstrates a comparatively lower explanatory power.

Table 13. Multiple Linear Regression Models Predicting Gross Revenue from Last Cropping Season

<i>Main Variable</i>	Regression coefficient (Std. Error)		
	Model 1	Model 2	Model 3
Cooperative Membership	2382.40 (1111.92)**	561.19 (1172.52)	2289.76 (1321.34)*
<i>Latent Constructs</i>			
Challenges in Accessing Better Infrastructure	409.78 (237.99)*		307.22 (268.30)
Conflict Exposure and Vulnerability	652.98 (309.45)**		575.34 (325.17)
Peacebuilding Initiatives Positively Contributing to Stability	431.99 (515.78)		621.653 (540.98)
Improved Socio-Economic Transition	-1439.70 (612.94)**		-1385.77 (650.65)**
Positive Experience on Resolution Initiatives	547.31 (376.12)		544.32 (430.38)*
<i>Socio-Economic & Demographic Variables</i>			
Age	-	9.74 (50.15)	-13.942 (51.09)*
Number of Household Members	-	-126.95 (182.87)	-95.40 (182.33)
Years in School	-	-88.642 (108.00)	-3.925 (110.57)*
Duration as Rebel Member (Years)	-	83.62 (84.80)	77.10 (84.40)
Duration as Rebel Returnee (Years)	-	96.55 (91.83)	122.40 (94.26)
Years in Coffee Farming	-	86.061 (41.95)**	62.29 (43.55)
Intercept	2568.24 (4415.51)	5728.54 (1572.10)***	2103.80 (4595.77)
<i>Model Summary</i>			
R Square	0.136	0.063	0.174
Adjusted R Square	0.078	-0.012	0.055
Durbin-Watson Test	2.125	1.967	2.057
Std. Error of the Estimate	3277.48	3433.61	3318.46
ANOVA (sig.)	0.038	0.558	0.157

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, $n = 96$ (Members $n = 43$, Non-members $n = 53$)

4.5 Predicting Cooperative Membership: Insights from Logistic Regression

Binary logistic regression analysis was conducted to explore factors associated with cooperative membership among rebel returnees in Sulu. The analysis was conducted across three models to examine the predictors of cooperative membership. Similarly with the previous multiple linear regressions, model 1 included only the latent constructs, while models 2 and 3 progressively introduced socio-economic and demographic variables (Table 14).

In model 1, significant constructs reflecting conflict exposure and challenges in accessing better infrastructure are negatively associated with membership. Another significant construct reflecting improved socio-economic transition is positively associated. Other latent factors do not demonstrate statistically meaningful relationships in this model. Model fit indicators suggest a strong and well-calibrated model. The goodness-of-fit test supports the model's adequacy in describing the data, with both Nagelkerke and Cox & Snell R-squared values indicate a substantial proportion of variance in cooperative membership is explained by these latent constructs alone.

Model 2 focuses solely on socio-economic and demographic variables. Within this set, three variables are found to be positively associated with cooperative membership. These are years spent in school, duration as a rebel returnee, and years engaged in coffee farming. Other characteristics are not significantly related. Model fit statistics again reflect strong performance, with the model demonstrating good calibration and explanatory strength. The Nagelkerke and Cox & Snell R-squared values suggest that these individual-level variables also account for a meaningful portion of variation in cooperative membership outcomes. The third model attempts to integrate both sets of variables in models 1 and 2, thereby creating the full model. However, the model fails to reach convergence due to estimation problems, leading to uninterpretable coefficients and inflated standard errors. As such, the results from this model are unreliable and cannot be meaningfully assessed.

Among the two models that converged successfully, model 2 demonstrates the most sensible interpretability. It yields the highest explanatory power, as indicated by the Nagelkerke R-squared, and identifies statistically significant, concrete individual-level predictors of cooperative membership. The model also fits the data well and produces stable, interpretable coefficients, making it a statistically robust and interpretable model for understanding cooperative membership among rebel returnees.

For this analysis, assumption checks were also conducted. In particular, multicollinearity was examined using standard diagnostics, and no serious multicollinearity was detected, as indicated by acceptable variance inflation factor (VIF) values, tolerance statistics, and condition index. Other key assumptions, such as the absence of influential outliers were also checked and found to be within acceptable bounds.

Table 14. Binary Logistic Regression of Variables Related to Cooperative Membership

	Regression coefficient (Std. Error)		
	Model 1	Model 2	Model 3
Latent Constructs			
Challenges in Accessing Better Infrastructure	-1.58 (0.42)***	-	-57.62 (1481.89)
Conflict Exposure and Vulnerability	-1.12 (0.54)**	-	-129.77 (2962.93)
Peacebuilding Initiatives Positively Contributing to Stability	0.32 (0.64)	-	126.85 (2804.62)
Positive Experience on Resolution Initiatives	-0.21 (0.44)	-	30.36 (2118.76)
Improved Socio-Economic Transition	3.94 (1.07)***	-	213.32 (5775.29)
Socio-Economic & Demographic Variables			
Age	-	-0.53 (0.06)	-9.54 (374.66)
Number of Household Members	-	-0.12 (0.29)	-9.79 (1346.43)
Years in School	-	0.41 (0.18)**	-16.83 (497.85)
Duration as Rebel Returnee (Years)	-	0.98 (0.33)***	49.73 (1799.94)
Years in Coffee Farming	-	0.20 (0.09)**	7.43 (297.39)
Intercept	-10.89 (5.18)**	-8.35 (3.47)**	-1234.82 (48188.99)
Model Summary and Measure of Fit			
Hosmer & Lemeshow Test (sig.)	<0.001	0.879	1.000
Nagelkerke R Square	0.817	0.917	1.000
Cox & Snell R Square	0.611	0.685	0.747
-2 Log Likelihood	41.499	21.075	0.000 ^a

Note: *** $p < 0.01$, ** $p < 0.05$, ^aEstimation terminated at iteration number 20 because maximum iterations have been reached. Final solution cannot be found. $n = 96$ (Members $n = 43$, Non-members $n = 53$)

4.6 Path Analysis Using Partial Least Squares Structural Equation Model

4.6.1 Model with Socio-Economic Variable as Direct Predictors of Cooperative Membership

The first PLS-SEM model demonstrates several significant relationships between the variables in the study (Figure 14). Challenges in accessing better infrastructure have a significant negative effect on cooperative membership, while the negative effect of conflict exposure is not statistically significant. On the other hand, duration as rebel returnee, years in coffee farming, and education each have a significant positive effect on cooperative membership, aligning with the result of binary logistic regression.

Cooperative membership contributes significantly to social cohesion and productivity, both of which have a positive impact on improving socio-economic transition. In addition to these indirect effects, cooperative membership also has a significant direct positive impact on improving the socio-economic transition. Among the pathways, the strongest effect is observed between cooperative membership and social cohesion, followed by its influence on productivity.

Moreover, several significant total effects were found in this model for PLS-SEM analysis (Table 15). Challenges in accessing better infrastructure have a negative total effect on cooperative membership, improved socio-economic transition, productivity, and social cohesion. Duration in coffee farming shows a positive total effect on cooperative membership and improved socio-economic transition. Conflict exposure has negative total effect on cooperative membership, improvement in socio-economic transition, and social cohesion. Cooperative membership has a strong effect on productivity and social cohesion. Social cohesion contributed positively to the improvement in their socio-economic transition. The years of being a returnee had an overall positive impact on cooperative membership, improvement in socio-economic transition, productivity, and social cohesion. These significant overall effects confirm the structure of the model and confirm that membership in a cooperative plays a central role in improving social and economic outcomes for rebel returnees.

Additionally, it is noteworthy to look at the specific indirect effects in this model which revealed several significant mediation pathways (Table 16). Cooperative membership influenced improving socio-economic transition indirectly through social cohesion. Challenges in accessing better infrastructure had significant indirect effects on both improved socio-economic transition and productivity through cooperative membership. The duration as rebel returnees and education had significant positive effects on improved socio-economic transition and social cohesion. Other indirect effects were not found to be statistically significant.

Furthermore, the model demonstrates a good and acceptable fit for PLS-SEM interpretability, with an SRMR value satisfying the recommended cutoff of 0.08 and an NFI falling within the acceptable threshold (Sarstedt et al., 2019; Hair et al., 2022).

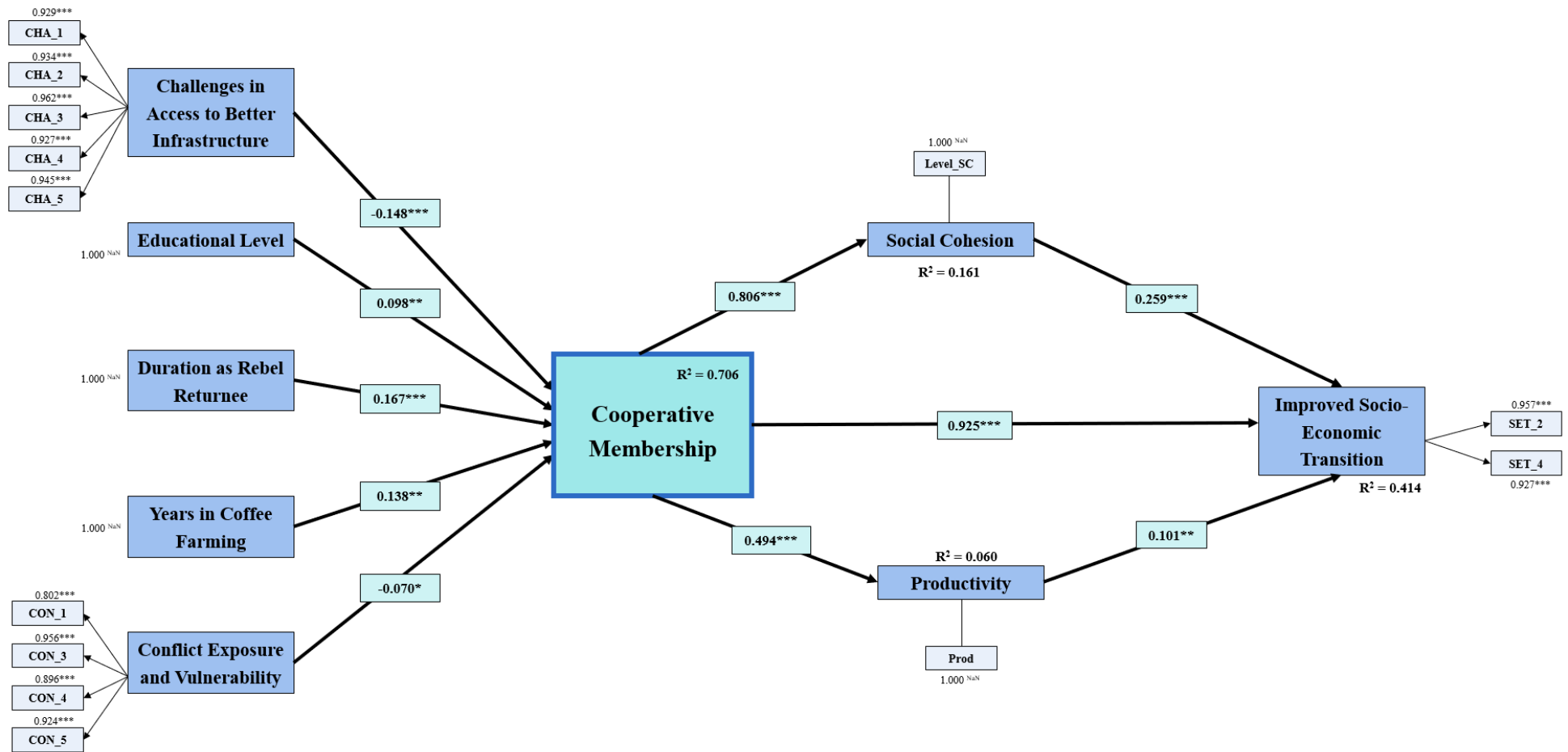


Figure 14. First model graphical result of bootstrapping after PLS algorithm showing path coefficients, p-values, and R-squared (Model conducted using SmartPLS; figure elaborated by the author, modifying the graphical result from SmartPLS)

Note: SRMR=0.056; NFI=0.879, ***p<0.01, **p<0.05, *p<0.1; see also Appendix C

Table 15. Total effects of the first model after bootstrapping in PLS-SEM

	Original sample	Sample mean	Std. Dev.	t-stat
CHALLENGE -> Coop_Membership	-0.15	-0.15	0.05	2.76***
CHALLENGE -> Socio-Economic Transition	-0.18	-0.18	0.06	2.75***
CHALLENGE -> Productivity	-0.07	-0.08	0.04	1.99**
CHALLENGE -> Social_Cohesion	-0.12	-0.12	0.05	2.41**
CoffeeFarming -> Coop_Membership	0.14	0.14	0.06	2.35**
CoffeeFarming -> Socio-Economic Transition	0.16	0.16	0.08	2.09**
CoffeeFarming -> Productivity	0.07	0.07	0.04	1.59
CoffeeFarming -> Social_Cohesion	0.11	0.11	0.06	1.89
CONFLICT -> Coop_Membership	-0.07	-0.07	0.04	1.71
CONFLICT -> Socio-Economic Transition	-0.08	-0.08	0.05	1.68
CONFLICT -> Productivity	-0.03	-0.04	0.03	1.31
CONFLICT -> Social_Cohesion	-0.06	-0.05	0.03	1.64
Coop_Membership -> Socio-Economic Transition	1.18	1.19	0.15	7.86***
Coop_Membership -> Productivity	0.49	0.51	0.19	2.63***
Coop_Membership -> Social_Cohesion	0.81	0.81	0.17	4.73***
EDUC -> Coop_Membership	0.10	0.10	0.04	2.25**
EDUC -> Socio-Economic Transition	0.12	0.12	0.06	2.05**
EDUC -> Productivity	0.05	0.05	0.03	1.80
EDUC -> Social_Cohesion	0.08	0.08	0.04	1.88
Productivity -> Socio-Economic Transition	0.10	0.10	0.04	2.467**
Social_Cohesion -> Socio-Economic Transition	0.26	0.26	0.10	2.69***
Years_Returnee -> Coop_Membership	0.17	0.17	0.05	3.34**
Years_Returnee -> Socio-Economic Transition	0.20	0.20	0.06	3.07***
Years_Returnee -> Productivity	0.08	0.08	0.04	1.94
Years_Returnee -> Social_Cohesion	0.13	0.13	0.04	3.03***

*** $p < 0.01$, ** $p < 0.05$

Table 16. Specific indirect effects of the first model after bootstrapping in PLS-SEM

	Orig. sample	Sample mean	Std. Dev.	t-stat
Coop_Membership -> Social_Cohesion -> Socio-Economic Transition	0.21	0.21	0.09	2.40**
CHALLENGE -> Coop_Membership -> Socio-Economic Transition	-0.14	-0.14	0.05	2.53**
CHALLENGE -> Coop_Membership -> Productivity	-0.07	-0.08	0.04	1.99**
CONFLICT -> Coop_Membership -> Socio-Economic Transition	-0.06	-0.06	0.04	1.63
CHALLENGE -> Coop_Membership -> Social_Cohesion	-0.12	-0.12	0.05	2.41**
CONFLICT -> Coop_Membership -> Productivity	-0.03	-0.04	0.03	1.31
CoffeeFarming -> Coop_Membership -> Socio-Economic Transition	0.13	0.13	0.07	1.91
CONFLICT -> Coop_Membership -> Social_Cohesion	-0.06	-0.05	0.03	1.64
CoffeeFarming -> Coop_Membership -> Productivity	0.07	0.07	0.04	1.59
CoffeeFarming -> Coop_Membership -> Social_Cohesion	0.11	0.11	0.06	1.89
EDUC -> Coop_Membership -> Socio-Economic Transition	0.09	0.09	0.05	1.88
EDUC -> Coop_Membership -> Social_Cohesion	0.08	0.08	0.04	1.88
Years_Returnee -> Coop_Membership -> Socio-Economic Transition	0.15	0.16	0.06	2.61***
Years_Returnee -> Coop_Membership -> Productivity	0.08	0.08	0.04	1.94
Years_Returnee -> Coop_Membership -> Social_Cohesion -> Socio-Economic Transition	0.04	0.03	0.02	2.07**
Years_Returnee -> Coop_Membership -> Social_Cohesion	0.13	0.13	0.04	3.03***
CHALLENGE -> Coop_Membership -> Productivity -> Socio-Economic Transition	-0.01	-0.01	0.01	1.40
CoffeeFarming -> Coop_Membership -> Productivity -> Socio-Economic Transition	0.01	0.007	0.01	1.26
CONFLICT -> Coop_Membership -> Social_Cohesion -> Socio-Economic Transition	-0.02	-0.01	0.01	1.27
EDUC -> Coop_Membership -> Social_Cohesion -> Socio-Economic Transition	0.02	0.02	0.01	1.55
Coop_Membership -> Productivity -> Socio-Economic Transition	0.05	0.05	0.03	1.71
Years_Returnee -> Coop_Membership -> Productivity -> Socio-Economic Transition	0.01	0.01	0.01	1.47
CHALLENGE -> Coop_Membership -> Social_Cohesion -> Socio-Economic Transition	-0.03	-0.03	0.02	1.63
CONFLICT -> Coop_Membership -> Productivity -> Socio-Economic Transition	-0.003	-0.003	0.003	1.13
CoffeeFarming -> Coop_Membership -> Social_Cohesion -> Socio-Economic Transition	0.03	0.03	0.02	1.65
EDUC -> Coop_Membership -> Productivity -> Socio-Economic Transition	0.01	0.01	0.003	1.49

*** $p < 0.01$, ** $p < 0.05$

4.6.2 Model Explored with Moderators

The result of the PLS-SEM for the second model as shown in [Figure 15](#) below illustrates that both perceived challenges in accessing infrastructure and exposure to conflict have significant direct negative effects on cooperative membership. Individuals who report higher levels of these structural and situational barriers are less likely to be cooperative members. In contrast, cooperative membership has significant positive effects on both social cohesion and productivity. Each of these two factors contribute positively to improving their socio-economic transition.

The moderating effect of the number of years as a returnee is statistically significant for the relationship between challenges and cooperative membership. This result indicates that the strength of this negative relationship decreases with increasing duration of reintegration. However, the moderating effect of years as a returnee on the relationship between conflict exposure and cooperative membership is not statistically significant. In this model, the education level and years of experience in coffee farming are not included, as their moderating effects were found to be statistically insignificant. Overall, the indicators for the model fit are within acceptable thresholds ([Sarstedt et al., 2019](#); [Hair et al., 2022](#)).

The bootstrapping analysis also revealed several statistically significant total effects ([Table 17](#)). Cooperative membership positively and strongly predicted socio-economic transition and social cohesion. Duration as a rebel returnee showed moderate positive total effects on cooperative membership, social cohesion, and socio-economic transition. Conflict exposure and vulnerability had a weak negative total effect on cooperative membership. Social cohesion and productivity each showed positive total effects on socio-economic transition, with the former being moderate and the latter being a weak effect.

In terms of indirect effects, several significant indirect pathways emerged ([Table 18](#)). Cooperative membership had a moderately positive indirect effect on socio-economic transition through social cohesion. The challenge in accessing better infrastructure showed a moderately strong negative indirect effect on socio-economic transition through cooperative membership and social cohesion. Additionally, the duration as rebel returnee had several significant indirect effects. First, it had a moderately positive indirect effect on social cohesion and socio-economic transition through cooperative membership. Second, a moderately positive indirect effect was observed on cooperative membership through conflict exposure and vulnerability and challenge in accessing better infrastructure. Furthermore, conflict exposure and vulnerability had a weak negative specific indirect effect on socio-economic transition mediated by cooperative membership and social cohesion.

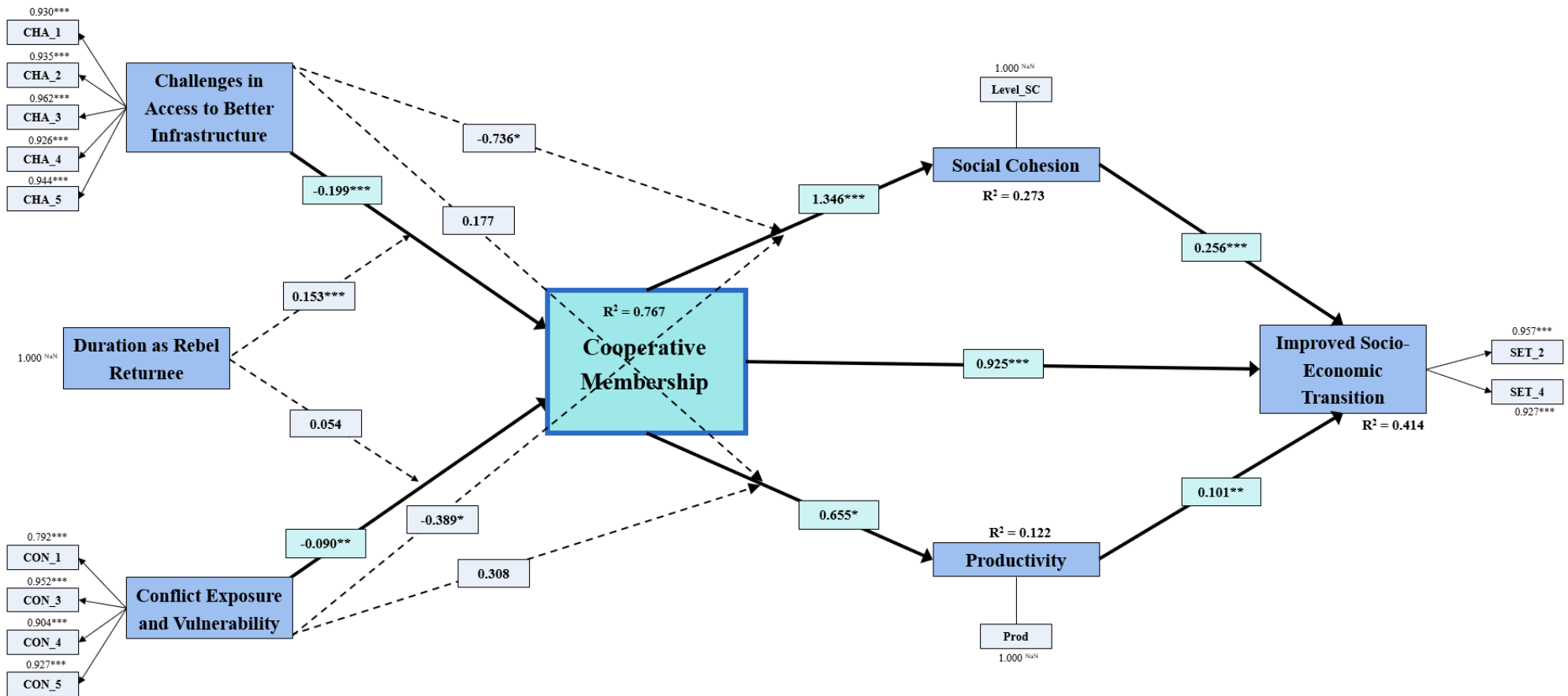


Figure 15. Graphical result of bootstrapping after PLS algorithm showing path coefficients, p-values, and R-squared (Model conducted using SmartPLS; figure elaborated by the author, modifying the graphical result from SmartPLS)

Note: SRMR=0.059; NFI=0.874, ***p<0.01, **p<0.05, *p<0.1; see also Appendix D

Table 17. Total effects of the second model after bootstrapping in PLS-SEM

	Original sample	Sample mean	Std. Dev.	t-stat
Challenge in Accessing_Better Infrastructure -> Cooperative_Membership	-0.19	-0.20	0.05	3.80***
Challenge in Accessing_Better Infrastructure -> Productivity	-0.02	0.09	0.35	0.05
Challenge in Accessing_Better Infrastructure -> Social Cohesion	0.48	0.55	0.32	1.52
Challenge in Accessing_Better Infrastructure -> Socio-Economic Transition	-0.06	-0.04	0.14	0.45
Challenge in Accessing_Better Infrastructure x Cooperative_Membership -> Productivity	0.18	0.04	0.46	0.39
Challenge in Accessing_Better Infrastructure x Cooperative_Membership -> Social Cohesion	-0.74	-0.83	0.43	1.72
Challenge in Accessing_Better Infrastructure x Cooperative_Membership -> Socio-Economic Transition	-0.17	-0.21	0.16	1.07
Conflict Exposure_and Vulnerability -> Cooperative_Membership	-0.09	-0.08	0.04	2.03**
Conflict Exposure_and Vulnerability -> Productivity	-0.42	-0.40	0.40	1.03
Conflict Exposure_and Vulnerability -> Social Cohesion	0.23	0.22	0.19	1.22
Conflict Exposure_and Vulnerability -> Socio-Economic Transition	-0.07	-0.06	0.09	0.74
Conflict Exposure_and Vulnerability x Cooperative_Membership -> Productivity	0.31	0.29	0.46	0.67
Conflict Exposure_and Vulnerability x Cooperative_Membership -> Social Cohesion	-0.39	-0.37	0.23	1.69
Conflict Exposure_and Vulnerability x Cooperative_Membership -> Socio-Economic Transition	-0.07	-0.06	0.09	0.80
Cooperative_Membership -> Productivity	0.66	0.75	0.39	1.70
Cooperative_Membership -> Social Cohesion	1.35	1.40	0.34	3.95**
Cooperative_Membership -> Socio-Economic Transition	1.34	1.38	0.16	8.43***
Duration as_Rebel Returnee -> Cooperative_Membership	0.34	0.34	0.05	6.85***
Duration as_Rebel Returnee -> Productivity	0.22	0.26	0.14	1.58
Duration as_Rebel Returnee -> Social Cohesion	0.46	0.48	0.13	3.43***
Duration as_Rebel Returnee -> Socio-Economic Transition	0.46	0.47	0.09	5.03***
Duration as_Rebel Returnee x Challenge in Accessing_Better Infrastructure -> Cooperative_Membership	0.15	0.16	0.04	3.70***
Duration as_Rebel Returnee x Challenge in Accessing_Better Infrastructure -> Productivity	0.10	0.12	0.08	1.33
Duration as_Rebel Returnee x Challenge in Accessing_Better Infrastructure -> Social Cohesion	0.21	0.22	0.09	2.21**
Duration as_Rebel Returnee x Challenge in Accessing_Better Infrastructure -> Socio-Economic Transition	0.21	0.22	0.07	2.99***
Duration as_Rebel Returnee x Conflict Exposure_and Vulnerability -> Cooperative_Membership	0.05	0.05	0.04	1.51
Duration as_Rebel Returnee x Conflict Exposure_and Vulnerability -> Productivity	0.04	0.04	0.03	1.04
Duration as_Rebel Returnee x Conflict Exposure_and Vulnerability -> Social Cohesion	0.07	0.07	0.06	1.33
Duration as_Rebel Returnee x Conflict Exposure_and Vulnerability -> Socio-Economic Transition	0.07	0.07	0.05	1.42
Productivity -> Socio-Economic Transition	0.10	0.10	0.04	2.47**
Social Cohesion -> Socio-Economic Transition	0.26	0.26	0.10	2.69***

*** $p < 0.01$, ** $p < 0.05$

Table 18. Specific indirect effects of the second model after bootstrapping in PLS-SEM

Specific Indirect Effect/Path	Original sample	Sample mean	Std. Dev.	t-stat
Challenge in Accessing_Better Infrastructure -> Social Cohesion -> Socio-Economic Transition	0.19	0.22	0.14	1.39
Conflict Exposure_and Vulnerability -> Social Cohesion -> Socio-Economic Transition	0.09	0.09	0.06	1.44
Cooperative_Membership -> Social Cohesion -> Socio-Economic Transition	0.35	0.37	0.18	1.99**
Challenge in Accessing_Better Infrastructure x Cooperative_Membership -> Social Cohesion -> Socio-Economic Transition	-0.19	-0.21	0.14	1.33
Challenge in Accessing_Better Infrastructure -> Cooperative_Membership -> Productivity -> Socio-Economic Transition	-0.01	-0.02	0.01	0.96
Conflict Exposure_and Vulnerability -> Cooperative_Membership -> Social Cohesion -> Socio-Economic Transition	-0.03	-0.03	0.02	1.37
Duration as_Rebel Returnee x Conflict Exposure_and Vulnerability -> Cooperative_Membership -> Social Cohesion -> Socio-Economic Transition	0.02	0.02	0.02	1.13
Duration as_Rebel Returnee -> Cooperative_Membership -> Social Cohesion -> Socio-Economic Transition	0.12	0.13	0.06	1.94
Duration as_Rebel Returnee x Challenge in Accessing_Better Infrastructure -> Cooperative_Membership -> Productivity -> Socio-Economic Transition	0.01	0.01	0.01	0.99
Challenge in Accessing_Better Infrastructure -> Cooperative_Membership -> Productivity	-0.13	-0.15	0.10	1.32
Challenge in Accessing_Better Infrastructure -> Productivity -> Socio-Economic Transition	0.01	0.03	0.05	0.25
Challenge in Accessing_Better Infrastructure -> Cooperative_Membership -> Social Cohesion	-0.27	-0.29	0.12	2.27**
Conflict Exposure_and Vulnerability -> Cooperative_Membership -> Productivity	-0.06	-0.06	0.04	1.33
Conflict Exposure_and Vulnerability -> Productivity -> Socio-Economic Transition	-0.04	-0.04	0.05	0.72
Challenge in Accessing_Better Infrastructure -> Cooperative_Membership -> Socio-Economic Transition	-0.18	-0.19	0.06	3.01***
Conflict Exposure_and Vulnerability -> Cooperative_Membership -> Social Cohesion	-0.12	-0.12	0.07	1.82
Cooperative_Membership -> Productivity -> Socio-Economic Transition	0.07	0.08	0.06	1.19
Conflict Exposure_and Vulnerability -> Cooperative_Membership -> Socio-Economic Transition	-0.08	-0.08	0.05	1.83
Duration as_Rebel Returnee -> Cooperative_Membership -> Productivity	0.22	0.26	0.14	1.58
Duration as_Rebel Returnee -> Cooperative_Membership -> Social Cohesion	0.46	0.48	0.13	3.43***
Duration as_Rebel Returnee -> Cooperative_Membership -> Socio-Economic Transition	0.31	0.32	0.09	3.61***
Duration as_Rebel Returnee x Challenge in Accessing_Better Infrastructure -> Cooperative_Membership -> Productivity	0.10	0.12	0.08	1.33
Duration as_Rebel Returnee x Challenge in Accessing_Better Infrastructure -> Cooperative_Membership -> Social Cohesion	0.21	0.22	0.09	2.21**
Duration as_Rebel Returnee x Conflict Exposure_and Vulnerability -> Cooperative_Membership -> Productivity	0.04	0.04	0.03	1.04
Challenge in Accessing_Better Infrastructure -> Cooperative_Membership -> Social Cohesion -> Socio-Economic Transition	-0.07	-0.08	0.05	1.52
Conflict Exposure_and Vulnerability -> Cooperative_Membership -> Productivity -> Socio-Economic Transition	-0.01	-0.01	0.005	1.12
Duration as_Rebel Returnee x Challenge in Accessing_Better Infrastructure -> Cooperative_Membership -> Socio-Economic Transition	0.14	0.15	0.05	2.87***
Duration as_Rebel Returnee x Conflict Exposure_and Vulnerability -> Cooperative_Membership -> Social Cohesion	0.07	0.07	0.06	1.33
Challenge in Accessing_Better Infrastructure x Cooperative_Membership -> Productivity -> Socio-Economic Transition	0.02	0.003	0.05	0.34
Duration as_Rebel Returnee x Conflict Exposure_and Vulnerability -> Cooperative_Membership -> Socio-Economic Transition	0.05	0.05	0.04	1.36
Conflict Exposure_and Vulnerability x Cooperative_Membership -> Productivity -> Socio-Economic Transition	0.03	0.03	0.05	0.58
Duration as_Rebel Returnee x Challenge in Accessing_Better Infrastructure -> Cooperative_Membership -> Social Cohesion -> Socio-Economic Transition	0.05	0.06	0.04	1.49
Duration as_Rebel Returnee x Conflict Exposure_and Vulnerability -> Cooperative_Membership -> Productivity -> Socio-Economic Transition	0.004	0.003	0.004	0.90
Duration as_Rebel Returnee -> Cooperative_Membership -> Productivity -> Socio-Economic Transition	0.02	0.03	0.02	1.14

*** $p < 0.01$, ** $p < 0.05$

CHAPTER V

DISCUSSIONS

5.1 Comparing Returnee Outcomes: Cooperative Members and Non-Members

This study reveals that cooperative members have significantly better access to organized market channels, agricultural support services, and training programs. This confirms hypothesis 1 which states that members achieve better socio-economic outcomes than non-members. These results are consistent with research findings from other post-conflict settings where cooperative membership improved farmers' access to extension services and markets (Annan et al., 2011; Binenwa, 2016; Maniriho, 2021). This was also confirmed in an interview with an agricultural extension worker (AEW) in Sulu conducted by the author. The AEW mentioned that cooperative members have significant leverage in accessing government programs and projects. This is because it is easier for AEWs to contact farmers once they are already organized, such as in cooperatives and/or farmer associations (Own survey, 2025). This improved access of members to government programs reflects the organizational benefits of cooperatives in pooling the interests of smallholder farmers (Abate, 2018), while making it easier to facilitate contacts with support agencies (Valentinov & Iliopoulos, 2013; Camargo Benavides & Ehrenhard, 2021).

Additionally, the study demonstrates that cooperative members reported higher levels of financial stability and higher productivity per hectare. This supports the contention that cooperatives can improve economic performance and resilience in a fragile environment (Wulandhari et al., 2022) such as the conflict-affected province of Sulu. Cooperative members correlate their perceived financial stability to the increased income from coffee sales and the ability to access credits/loans. Despite having one cooperative member reporting financial instability due to insufficient support, the findings remain consistent with the view that cooperatives provide a form of economic buffer by reducing transaction costs and spreading risks among members (Wahyuningtyas et al., 2023). Moreover, it is also evident that non-members continue to face barriers in adopting innovation and participating in the market. This suggests that structural exclusions persist in the area. This finding may align with criticisms of the elitism of cooperatives where membership may be biased towards those with greater resources (Fu et al., 2022). This thought was likewise shared by one of the non-members during the interview with the author.

From the DDR perspective, the difference in outcomes between members and non-members suggests that cooperatives can accelerate reintegration. However, it is only for those who have access to them.

Reintegration in this context is uneven among returnees, which reflects broader concerns in the DDR literature about the challenges of inclusion and the risks of marginalizing vulnerable returnees (Muggah, 2005; Özerdem, 2012; Kilroy, 2015). Thus, while hypothesis 1 is confirmed in these findings, this also prompts a critical examination of cooperative accessibility and equity.

5.2 Social Capital Reflected in Cooperative Functioning

Analyzing the dimensions of social capital showed that bonding capital was relatively strong, while bridging capital and especially linking capital were slightly weaker. This partially confirms hypothesis 2 where cooperative functioning supports social capital. These findings are consistent with Putnam's (2000) assertion that bonding capital often emerges more easily in homogeneous, close-knit groups. However, the weak bonding capital reflects the concerns and findings expressed by Slosse et al. (2023) that cooperatives in fragile, conflict-affected environments may find it difficult to embed themselves as formal institutions. The dual nature of cooperatives as being both facilitators and gatekeepers is evident. Whilst they promote internal solidarity, their inclusivity and external engagement remain limited (Woolcock, 2001). This finding challenges the optimistic portrayals of cooperatives as inherently inclusive spaces and supports more critical analyses that caution against romanticizing their role in post-conflict recovery.

5.3 Uncovering Latent Realities of Reintegration

The latent constructs identified through EFA reflect the multidimensional nature of reintegration and confirm the integration of structural and relational dimensions into the conceptual framework. Significant differences were found between members and non-members on these constructs, which confirms hypothesis 3. Members expressed greater confidence in peacebuilding outcomes and perceived better access to support, while non-members reported higher perceived barriers. This is consistent with the argument that reintegration is shaped not only by material conditions, but also by subjective experiences and perceptions of belonging and opportunity (Themnér, 2013; Kaplan & Nussio, 2018).

These findings emphasize that reintegration is not a linear and/or one-dimensional process. Rather, it is multi-layered and mediated by institutional, social, and psychosocial factors. By including these latent constructs, the study expands the typical focus of DDR theory on outcomes by emphasizing lived experiences and mediating mechanisms (Richmond & Franks, 2009). Moreover, this approach also showed that persistent challenges in accessing better infrastructure reflect structural issues which confirmed that even with institutional support, poorly designed rural services inhibit cooperative performance and social capital development (Angeles & Shah, 2019).

5.4 Key Insights on the Predictors of Productivity and Gross Revenue

The regression analysis emphasizes the crucial role of cooperative membership and peacebuilding experiences on the productivity and gross revenue of coffee farmers who are rebel returnees in Sulu. Cooperative membership is positively and significantly associated with both outcomes in models 1 and 3. However, its effect becomes statistically insignificant when considered only with socio-economic and demographic variables (model 2). This result suggests that the economic influence of cooperatives is amplified by broader institutional and post-conflict dynamics. These findings mirror the previous studies showing that cooperatives improve market access, productivity, and income, especially when combined with support services. For example, cooperative members in rural areas earn significantly more (Zou & Wang, 2022) and cooperatives improve performance through collective bargaining and knowledge sharing (Abate, 2018).

The comparison of the models shows that those containing latent constructs (model 1) and all variables in full model (model 3) have better explanatory power than the socio-economic and demographic model (model 2), which contains no significant predictors. Of the significant constructs, conflict exposure and vulnerability have a positive influence on productivity. This may be due to the fact that individuals who are most affected by conflict are more motivated to rebuild. One respondent even mentioned that the more they are hit by conflict and instability, the more they need to bounce back as they have families to feed (Own survey, 2025). Additionally, the perceived improvement in socio-economic transitions negatively predicts both productivity and revenue. This confirmed the assertion of a respondent during the survey that the stabilized returnees turn their efforts away from intensive agriculture, such as venturing into local trading, small enterprises, or migrating to a nearby city (Own survey, 2025).

Overall, these findings confirm that institutional support and conflict-related experience have a greater impact on post-conflict economic reintegration than individual demographic factors. This supports previous works showing that the success of reintegration depends less on who the returnees are and more on the structures that support their transition (Humphreys & Weinstein, 2007; Gilligan et al., 2013).

5.5 Predictors and Pathways to Cooperative Membership

The results of the logistic regression and the PLS-SEM analyses show that both individual characteristics and post-conflict experiences influence membership in a cooperative among the rebel returnees. Model 1 of the logistic regression showed that the conflict exposure and infrastructural challenges are significantly associated with a lower probability of joining a cooperative, while a perceived improvement in socio-economic transitions increases the probability of membership. Moreover, model 2 of logistic regression identifies education, duration as rebel returnees, and years in

coffee farming as significant positive predictors. These findings highlight how individual skills and integration experiences influence participation. This is coherent with the previous findings of Gilligan et al. (2013) showing that structural hardships limit engagement, while education and livelihood stability increase willingness to join collective organizations (Agarwal, 2001; Huybrechts et al., 2014).

Complementary to the logistic regression analysis of this study, the PLS-SEM analysis further refines these findings by confirming that cooperative membership is a key and central pathway to better socio-economic outcomes. It significantly improves social cohesion and productivity (which represents social and economic outcomes for this model), and contributes directly to socio-economic transition. This confirms theories that cooperatives not only fulfil economic functions but also strengthen social ties in post-conflict situations (Bernard & Spielman, 2009; Barham & Chitemi, 2009).

In addition, education, duration as rebel returnee, and years in coffee farming are again confirmed as significant positive factors for membership in cooperative, both directly and through indirect effects. It is also worthy to note that this model confirmed infrastructural challenges to have a significant negative effect on participation in a cooperative. This emphasizes the idea that unresolved structural barriers hinder reintegration, even when the motivation or ability to do so is present (Own survey, 2025).

Furthermore, the moderation model adds further nuance by showing that the duration as rebel returnee significantly reduces the negative effect of infrastructural challenges on cooperative membership. This suggests that time plays a rehabilitative role by allowing people to gradually overcome institutional mistrust, reconnect with community structures, or gain access to support systems that make easier participation in a cooperative. Moreover, prolonged reintegrations seems to reinforce the positive influence of cooperative membership on both social cohesion and socio-economic transition, especially through direct pathways. This underpins the idea that reintegration is not a one-off event, but a cumulative process in which continued contact with civilian life builds social capital, enhances confidence, and fosters a sense of belonging (Humphreys & Weinstein, 2007). Consequently, the duration of being a rebel returnee not only has a direct effect on belongingness, but also moderates the strength and effectiveness of community-level mechanisms that improve development outcomes more broadly.

CHAPTER VI

CONCLUSIONS

6.1 Summary and Conclusions

This study explores how coffee cooperatives contribute to the socio-economic transition of rebel returnees. Specifically, we studied rebel returnees as they integrate back into civilian life in Sulu, a province characterized by protracted conflict and institutional weakness. Guided by the DDR framework and social capital theory, the research went beyond assessing reintegration as a matter of livelihoods or access to services alone. Instead, the role of cooperatives as economic institutions and social spaces in which identity, stability, and belonging are reestablished after conflict was examined.

The findings suggest that cooperative membership significantly increases productivity, income, social cohesion, and perceive improvements in overall socio-economic transition. Returnees who become members in cooperatives benefit not only from technical support and market access, but also from reintegration into networks of trust and solidarity in the community. Cooperative membership is therefore both a symbol and a mechanism of reintegration, which is a sign that a returnee is no longer marginalized, but actively contributes to and is supported by their community.

Just as importantly, our research has determined the factors that enable or hinder their path to improved socio-economic transition. Education, coffee farming experience, and duration as rebel returnee increase the likelihood of participation in a cooperative, while infrastructural challenges and the legacy of conflict decrease the likelihood. Nevertheless, time plays a rehabilitative role. The longer the former rebels have returned to civilian life and stayed in the community, the more resilient they become in overcoming obstacles and accessing institutional spaces. This confirms that reintegration is not a one-off event, but a long-term and relational process that is influenced by context, trust, and opportunities.

One of the key lessons of this study is that building peace through reintegration requires more than disarmament and livelihood support. It requires institutional anchors that are locally rooted, socially trusted, and economically relevant. Cooperatives, if properly supported, can serve as such anchors. They not only help former combatants to earn a living, but also provide them with a space in which they can exercise their civil rights, restore their dignity, and contribute to peacebuilding. Furthermore, this study also shows that cooperatives can be powerful instruments of post-conflict transformation, especially in rural and fragile areas. It reinforces the idea that sustainable reintegration cannot be imposed from above. It must be driven by the communities themselves, through institutions that combine economic recovery with social restoration.

In conclusion, my master dissertation reinforces a hopeful message: return is not the end of history, but it can be the beginning of renewal. The experience of the rebels in Sulu shows that with the right support systems, even those who were once characterized by violence can become agents of peace, productivity, and community strength. Cooperatives, when based on trust and geared to local realities, can turn the promise of sustainable peace and progress into a lasting reality.

6.2 Implications

For those working in peacebuilding, post-conflict reintegration and rural development, especially in fragile and conflict-vulnerable areas, the findings of this study offer meaningful and significant practical and policy-relevant implications.

These findings may be useful for policy makers and local governments, primarily in BARMM provinces and other similar conflict-affected areas, in providing support for integrating cooperative development into formal reintegration strategies. Rather than being treated only as additional livelihood options, cooperatives should be recognized as long-term reintegration mechanisms capable of integrating returnees into productive community life. Strategic development and reintegration planning and programs should support the creation and expansion of cooperatives, strengthen internal governance and functioning, and ensure inclusive policies that can lower the barriers to membership for returnees.

As emphasized in this study, it is important and crucial to remove structural barriers, especially the challenges and limitations to better infrastructure, to ensure better success in the socio-economic transition. Improving access to roads, transportation systems, markets, and basic services in post-conflict areas should not only be considered as a development policy, but also an important and necessary precondition for inclusive reintegration mechanisms in the community. Similarly, it was also found in this study that returnees with higher education and agricultural experience are more likely to join cooperatives, thus it is necessary for the government and other active organizations to design reintegration programs that build on existing human capital through tailored training and support to ensure its success.

In a broader perspective of advocacy and policy works, it has been highlighted in this study that there is a need in shifting the discourse on reintegration away from short-term interventions towards community-based and institution-centered models. Given that cooperatives have been proven to be a powerful tool for livelihood restoration and social reintegration, especially when supported through policy, funding, and technical assistance, development partners and donors should align their investments in reintegration with the local cooperative ecosystem and embed support in trusted grassroots institutions.

6.3 Limitations and Future Research

As with most research, this study has several limitations. First, my work focuses mainly on correlations, which limits the possibility of establishing causal relationships. I acknowledge that the cross-sectional design of the study limits the analysis of understanding causality. Even though PLS-SEM allowed my study to show directional paths, the observation of the variables is still limited to one point in time. This limits the ability to confirm whether one variable caused another. Although PLS-SEM enables the modelling of theoretically based directional relationships and provides predictive insights, the lack of temporal sequence in the data means that causality cannot be definitively confirmed. To be clear, the path relationships observed in PLS-SEM should therefore be interpreted as theoretically based associations rather than proven causal effects. Thus, it would be more appropriate for future studies to conduct longitudinal or (quasi-)experimental designs to explore and confirm causal mechanism and how it evolves over time, particularly in response to policy interventions, peacebuilding initiatives, or economic shocks.

The study also relies heavily on self-reported data. While this is justified given the nature of the context, respondents may also be subject to recall errors or bias, over- or underestimation of data, and social desirability effects. Future research could benefit from increasing the validity of these measures by cross-checking certain responses with administrative data, cooperative membership data or satellite-based productivity estimates, where possible. And to be more timely and relevant, it is also good to first investigate the ability of cooperatives to record, conduct remote sensing studies, and check the (non)functionality and (non)availability of administrative records. My study is limited to the possibilities for triangulation as most of these records and/or data were unavailable.

Additionally, generalization may be difficult to be made for the entire southern Philippines given that the sample size was not a representative of the population. The sample is geographically bounded only to certain barangays in a municipality in Sulu. Indeed, data collection during my fieldwork was a challenge. Although originally planned to cover only three barangays, some potential respondents refused participation, possibly due to apprehension toward me being an "outsider" and their conflict trauma. Although I was born and raised in the province, my long absence and the study's foreign affiliation may have contributed to their hesitation.

For this reason, I had to expand the study location and reached out to nine barangays (Figure 5) to increase my sample size. Hence, it was very beneficial for me to hire research assistants to join me navigate the area, coordinate interviewees, and deal with local language, customs, and geography. Having them accompany me during fieldwork was also favorable for my safety, considering that my fieldwork falls during an election season when the province is always considered a hotspot for election-

related violence and armed threats. Future research could therefore be conducted in a different season and also explore the possibility of broadening the geographical scope to compare cooperative reintegration models in different provinces, ethnic communities, or histories of conflict. This could enrich the comparative findings.

Although the results are not directly generalizable to other regions or countries, the study provides insights into the role of coffee cooperatives in post-conflict socio-economic transitions, particularly in marginalized conflict-affected rural areas. These findings highlight how local cooperative structures can contribute to improving livelihoods and community reintegration, issues that could also play a role in similar contexts beyond Sulu. The study thus offers valuable lessons for other regions facing post-conflict recovery and rural development challenges, and highlights the potential of grassroots organizations in supporting socio-economic transitions.

It is also worth noting that my study sparks several directions for future studies. The long-term effects of cooperative participation on civic engagement and intergenerational mobility among returnees should be further explored. Behavioral economics could help identify the factors that influence whether the children of rebels who have returned home continue to thrive or potentially relapse into rebellion in the face of persistent challenges and inequalities. Future studies could also examine how gender, religious identity, or group dynamics within the cooperatives affect inclusivity and peacebuilding. Furthermore, examining the leadership, governance and external connections of cooperatives could shed light on what makes these organizations resilient and transformative in the post-conflict settings.

Ultimately, while this study offers a grounded and empirically supported view of how cooperatives contribute to the reintegration of rebel returnees, it also highlights the complexity of post-conflict recovery. It is my hope that this study could inspire more researchers to continue research work in unpacking the institutional, social, and political layers of this process and to design more effective and context-sensitive reintegration pathways. In conflict-vulnerable areas which may be harder to reach, like Sulu, it is highly relevant to make efforts not to overlook them in the quest for inclusive and lasting development. Our task as development practitioners is not to shy away from them just because they are difficult to reach.

We should make sure that the learnings we acquire in our pursuit of greater knowledge will be radiated into a purposeful contribution to our communities. In Sulu, for instance, given the agricultural potential of the province, especially in coffee, it is important to link sustainable agriculture with post-conflict development to stir a locally driven model of peace transition that aligns with global sustainability goals. It is highly important to support community-based cooperatives as scalable and culturally rooted solutions to conflict transformation, where every cup of coffee becomes a step toward sustainable peace.

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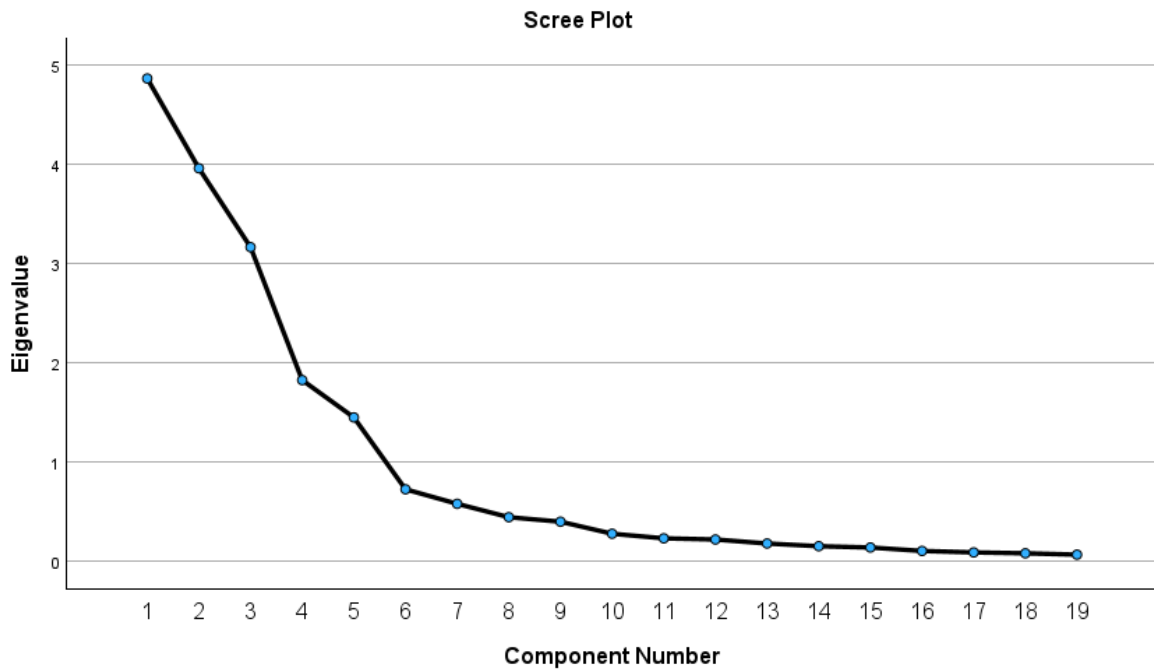
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APPENDICES

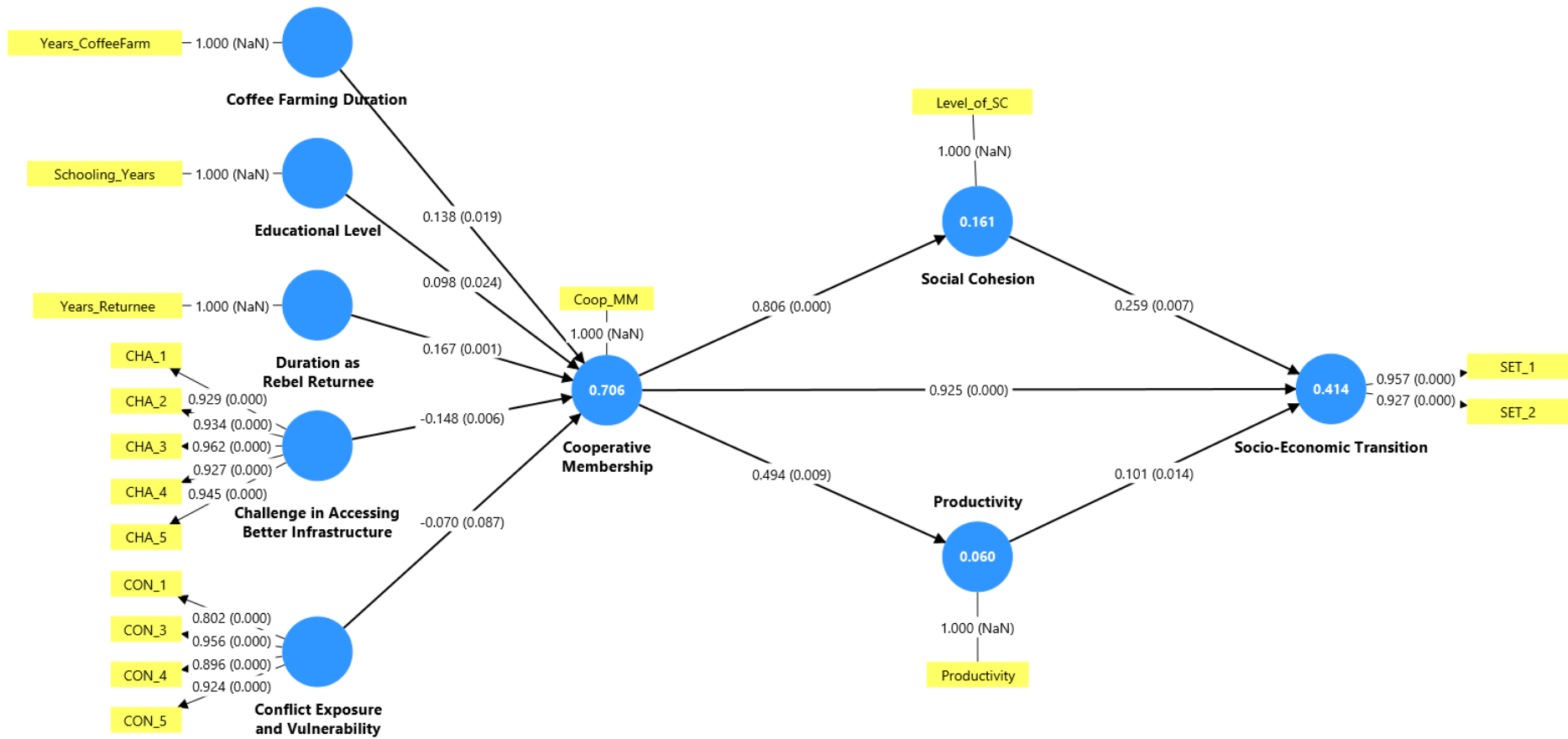
Appendix A. Scree plot result.



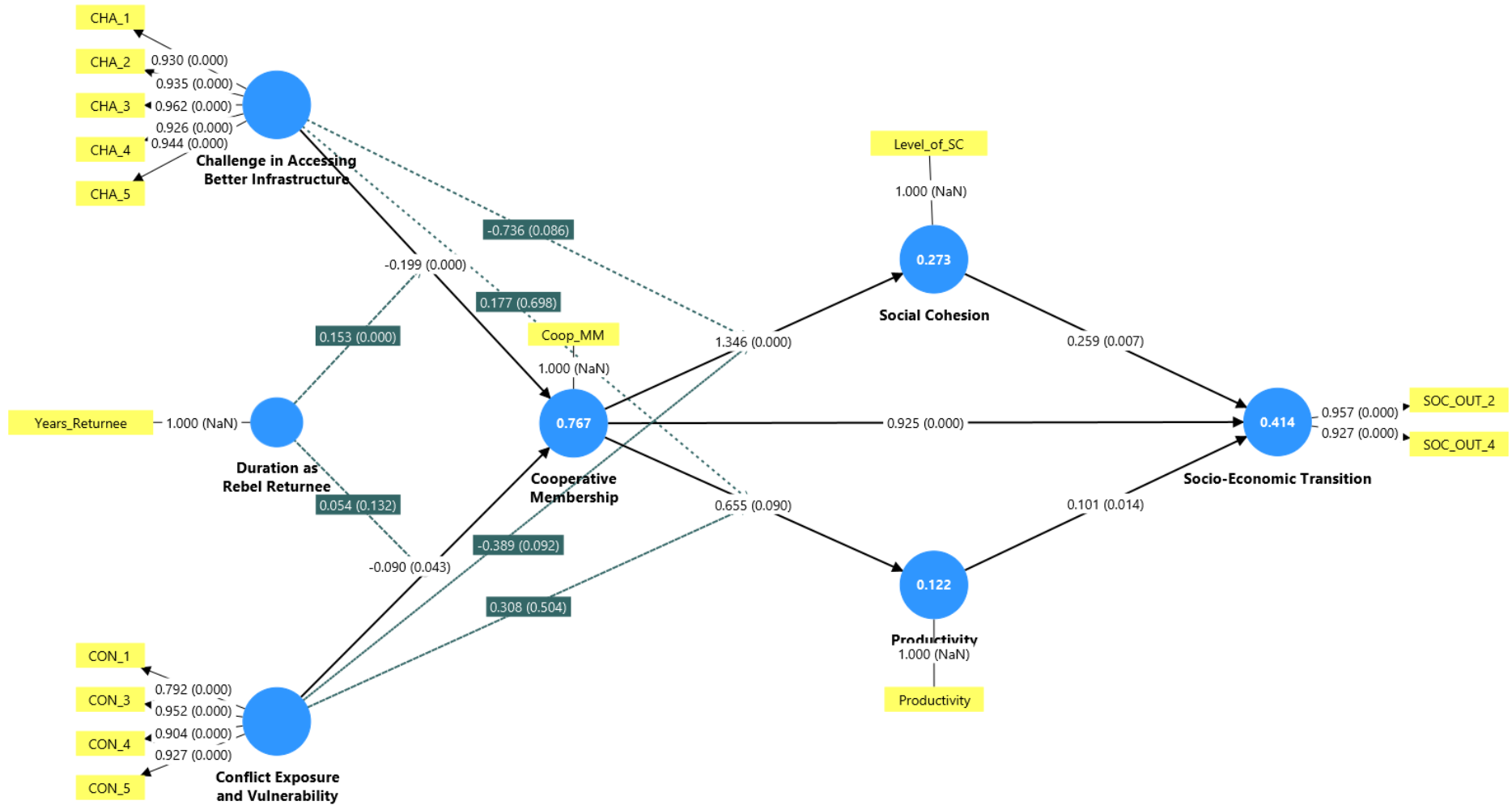
Appendix B. Certification from Kantitap Consumers Cooperative in Sulu, Philippines.



Appendix C. Graphical result from SmartPLS of the full PLS-SEM result of model 1



Appendix D. Graphical result from SmartPLS of the full PLS-SEM result of model 2



**INFORMED INTERVIEW CONSENT IN AGREEMENT WITH THE EUROPEAN
AND THE PHILIPPINE DATA PROTECTION REGULATION**

Study Title : The Role of Coffee Cooperatives in the Socio-Economic Transition of Rebel Returnees in Sulu, Southern Philippines

Researcher : Moh. Shanizee A. Sarabi

Institution : Ghent University

Contact : MohShanizee.Sarabi@UGent.Be

Dear participants,

You are cordially invited to participate in a research study that aims to examine the role of coffee cooperatives in the socio-economic transition of rebel returnees in Sulu province. This study is conducted as part of the master's thesis for the program International Master of Science in Rural Development (IMRD). The findings are expected to help improve policies and programs related to economic reintegration and cooperative development in conflict-vulnerable communities. Before you decide whether to participate, it is important to understand the purpose of the study, what your participation involves, and your rights as a participant.

Participation in this study is voluntary. You may ask any questions before agreeing to participate, and you are free to withdraw at any time without any consequences.

Why are you invited to participate in the study?

You have been invited to participate in this study because you meet the following criteria:

- You are a rebel returnee
- You are engaged in coffee farming
- Whether or not you are a member of a coffee cooperative in Sulu Province

Purpose:

This study aims to explore the role of coffee cooperative membership in facilitating the socio-economic transition of rebel returnees, with Sulu province in the southern Philippines as a case study, a region that has been affected by armed conflict and insurgency. It will examine the impact of cooperative membership on economic stability, livelihood security, and reintegration of former combatants. To understand this, this study compares cooperative members and non-members to estimate the impact of cooperative membership on key socio-economic outcomes. The aim is to determine whether cooperative membership contributes to stable income, improved market access, and higher productivity of returnees. It will also examine the barriers and challenges that influence participation in a cooperative.

Voluntary Participation:

Participation in this study is entirely voluntary. You have the right to refuse to participate or to withdraw at any time without penalty. If you choose to withdraw, any data collected from you will be excluded from the study and destroyed if requested. Declining to participate will not affect your position, benefits, or relationships with any institutions involved.

Procedure:

If you agree to participate in this study, you will be asked to complete a survey questionnaire and/or participate in an in-depth interview and/or focus group discussion (FGD). The questions will revolve around several sections and/or key points, including:

- Socio-Demographic Information
- Conflict and Social Cohesion Factors
- Cooperative Membership and Functioning
- Economic and Farming Variables
- Socio-Economic Transition

It will take approximately 30-45 minutes to complete a survey/in-depth interview/FGD. An interviewer/facilitator will be available to assist you in answering the questions for your convenience.

Confidentially and Data Protection:

All information you provide will be treated with strict confidentiality. Data will be processed particularly in accordance with European General Data Protection Regulation 2016/679 of April 27, 2016, applicable as of 25 May 2018 (the GDPR), and with the Philippines' R.A. 10173 or the Data Privacy Act of 2012, supplementarily. Your responses will be anonymized, and no personally identifiable information will be recorded. The data will be securely stored and used solely for academic and policy research purposes. The results of the study may be published or presented in academic settings, but no identifiable personal information will be shared. Furthermore, the data collected will be accessed and used only by the researcher, along with the study promoter and tutor.

Potential Risks and Benefits:

There are no known significant risks associated with participation in this study. However, some questions may ask about past conflict experiences, which could bring up sensitive memories. If at any point you feel uncomfortable, you may skip any question or stop participating in the study.

Nevertheless, your participation is beneficial as your responses will contribute to a better understanding of how coffee cooperatives help former rebels transition into civilian life, especially socio-economically. The findings may be used to inform policies and programs aimed at improving cooperative-based reintegration efforts, particularly in conflict-vulnerable areas such as Sulu and the Bangsamoro.

Contact Information:

If you have any questions about this research or your rights as a participant, you may contact Moh. Shanizee A. Sarabi at MohShanizee.Sarabi@UGent.be

Consent Agreement:

By putting a check mark on this box, I confirm that I have read and understood the information provided above. I voluntarily agree to participate in this study and understand that I can withdraw at any time without any consequences, and that I will be given the opportunity to ask questions, and all my questions will be answered.

Respondent Code: _____

Thank you very much for your participation.

**“SURVEY QUESTIONNAIRE ON THE STUDY OF THE ROLE OF COFFEE COOPERATIVES
IN THE SOCIO-ECONOMIC TRANSITION OF REBEL RETURNEES
IN SULU, SOUTHERN PHILIPPINES”**

Respondent Code: _____

Section 1: Socio-Demographic Characteristics

1. **What is your age?** (*Pila na in ummul mu?*)

2. **What is your gender?** (Unu in kasarian mu?)
 - **Male** (*Usug*) (1)
 - **Female** (*Babai*) (2)
 - **Non-binary/Other/Prefer not to say** (*Dih na hilista*) (3)

3. **What is the name of the barangay (town) where you live?** (*Unu in ngan sin barangay piyaghuhulaan mu?*)

4. **How many members are there in your household, yourself included?** (*Pila in taud niyu ha bay, lamud in baran mu?*)

5. **How many years of schooling did you have starting from Grade 1?** (*Pila tahun in na-iskul mo timagna daing ha Grade 1?*)
 - _____

6. **Which rebel group did you previously belong?** (*Unu in parhimpunan kiyatalbilang mo nakauna?*)
 - **Moro National Liberation Front (MNLF)** (1)
 - **Moro Islamic Liberation Front (MILF)** (2)
 - **Other** (please specify): _____

7. **How many years were you a member of the rebel group?** (*Pila tahun kaw nahinang member sin parhimpunan?*)
 - _____

8. **How long have you been a rebel returnee already?** (*Pila tahun na kaw nahinang returnee?*)
 - _____

9. **How many years have you been engaged in farming activities?** (*Pila tahun na kaw nag uuma?*)
 - _____

10. **How many years have you been engaged in coffee farming activities specifically?** (*Pila tahun na kaw nag uuma kahawa?*)
 - _____

Section 2: External, Contextual, and Social Factors/Variables

11. **In the last 5 years, have you experienced conflict in the community you are currently living?** (*Ha lawm sin 5 tahun limabay, awn jimatu lingug atawa bunuh ha kawman piyaghuhulaan mu bihaun?*)
 - **Yes** (*Huun*) (1)
 - **No** (*Wayruun*) (2)

12. **On a scale of 1 to 7; To what extent has each of the following conflicts negatively affected your life and livelihood? Encircle your answers.** (Bang kirahun daing ha 1 pa 7, biyadiin in kakusug sin kiyakangi sin mga lingug nasabbut ini ha kahianan mu? Ligungi in sambag mo)

1 - No impact at all; 2 - Minimal impact; 3 - Slight impact; 4 - Neutral; 5 - Considerable impact; 6 - Severe impact; 7 - Completely devastating

Conflicts	1	2	3	4	5	6	7
Land-related disputes	1	2	3	4	5	6	7
Armed conflict	1	2	3	4	5	6	7
Resource competition	1	2	3	4	5	6	7
Political or governance-related conflicts	1	2	3	4	5	6	7
Interpersonal or community disputes	1	2	3	4	5	6	7

13. **On a scale of 1 to 7; to what extent have the following factors contributed to the resolution of conflict in the community you are currently living? Encircle your answers.** (Bang kirahun daing ha 1 pa 7, biyadiin in kakusug sin pagka-hinang sabab sin pagkuh sin lingug ha kawman piyaghuhulaan mu bihaun? Ligungi in sambag mo)

1 - Not a Factor at All; 2 - Minimal Factor; 3 - Slight factor; 4 - Neutral; 5 - Considerable factor; 6 - Significant factor; 7 - Very significant factor

Factors Contributing to the Resolution of Conflict	1	2	3	4	5	6	7
Strong community leadership	1	2	3	4	5	6	7
High levels of trust and cooperation among residents	1	2	3	4	5	6	7
Active presence of government and NGO support programs	1	2	3	4	5	6	7
Access to economic opportunities reducing tension	1	2	3	4	5	6	7
Religious or community-based initiatives promoting peace	1	2	3	4	5	6	7

14. **On a scale of 1 to 7, how high is the level of social cohesion in the community you are currently living? (Please encircle)** (Bang kirahun daing ha 1 pa 7, biyadiin in kakusug sin pag-panganduli iban pag-taayun sin kawman niyu? Ligungi.

1 - None at All; 2 - Very low cohesion; 3 - Low; 4 - Neutral; 5 - Moderate cohesion; 6 - High cohesion; 7 - Perfect cohesion

1	2	3	4	5	6	7
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15. **On a scale of 1 to 7, please rate your agreement/disagreement to the following factors contributing to social cohesion in your community. Encircle your answers.** (Bang kirahun daing ha 1 pa 7, biyadiin in kapangahagari mo ha mga kabtangan ini bang nakatabang ha pag-taayun sin kawman niyu? Ligungi in sambag mo)

1 - Strongly disagree; 2 - Slightly disagree; 3 - Disagree; 4 - Neutral; 5 - Agree; 6 - Slightly agree; 7 - Strongly agree

Factors Contributing to Social Cohesion	1	2	3	4	5	6	7
Strong social networks and relationships among residents	1	2	3	4	5	6	7
Community members actively participate in local activities	1	2	3	4	5	6	7
Community members trust each other	1	2	3	4	5	6	7
Local leadership promotes unity and cooperation	1	2	3	4	5	6	7
Conflicts are peacefully resolved within the community	1	2	3	4	5	6	7

16. On a scale of 1 to 7, to what extent do the following factors hinder social cohesion in the community you are currently living? Encircle your answers. (Bang kirahun daing ha 1 pa 7, kiraha in mga gaggat/sabab nasabbut ini ha hikahinah sin pag-panganduli iban pag-taayun sin kawman? Ligungi in sambag mo)

1 – Not a Barrier at All; 2 – Minimal Barrier; 3 - Slight Barrier; 4 - Neutral; 5 - Considerable Barrier; 6 – Significant Barrier; 7 – Major barrier							
Factors Hindering Social Cohesion	1	2	3	4	5	6	7
Unequal access to opportunities and resources	1	2	3	4	5	6	7
Generational or age-related divisions	1	2	3	4	5	6	7
Misinformation or lack of communication	1	2	3	4	5	6	7
Social exclusion of marginalized groups	1	2	3	4	5	6	7
Past unresolved conflicts or historical grievances	1	2	3	4	5	6	7

Section 3: Cooperative Membership

19. Are you a member of a coffee cooperative? (Member kaw sin parhimpunan cooperatiba?)

- Yes (Huun) (1)
- No (Bukun) (2)

Follow-up Questions:

- If Yes: How long have you been a member of the cooperative? (Bang 'Huun' in sambag, Biyadiin na in lugay mu nahinang member? Tahun / bulan)

20. How long does it take to reach the cooperative by foot? (Biyadiin in layu panawun in uma mu harap pa opis sin cooperative?)

- Less than 15 minutes (Mababah daing ha 15 minit) (1)
- 15–30 minutes (Mga 15 pa 30 minit) (2)
- More than 30 minutes to 1 hour (Labi 30 minit pa mga Hangka Jam) (3)
- More than 1 hour (Labi Hangka Jam) (4)

21. How long does it take to reach the cooperative by motorcycle/four-wheeled vehicle? (Biyadiin in layu daganun sin motor atawa jeep in uma mu harap pa opis sin cooperative?)

- Less than 15 minutes (Mababah daing ha 15 minit) (1)
- 15–30 minutes (Mga 15 pa 30 minit) (2)
- More than 30 minutes to 1 hour (Labi 30 minit pa mga Hangka Jam) (3)
- More than 1 hour (Labi Hangka Jam) (4)

22. On a scale of 1 to 7, rate the extent to which each of the following factors is a challenge in accessing the cooperative either by foot or any transportation available. (Bang kirahun daing ha 1 pa 10, amuin 1 in pinakamababa' hati' 10 isab in pinakamataas, biyadiin mo kirahun in mga muna-muna sabab ha hikahunit sin pagkadtu pa cooperatiba? Ligungi in sambag)

1 – Not a Challenge at All; 2 – Minimal Challenge; 3 - Slight Challenge; 4 - Neutral; 5 - Considerable Challenge; 6 – Significant Challenge; 7 – Major Challenge							
Challenges in Accessing Better Infrastructure	1	2	3	4	5	6	7
Lack of transportation	1	2	3	4	5	6	7
Poor road infrastructure	1	2	3	4	5	6	7
Long distance to the cooperative	1	2	3	4	5	6	7
High transportation costs	1	2	3	4	5	6	7
Limited availability of transport services	1	2	3	4	5	6	7

Section 4: Cooperative Functioning (Likert Scale) (Note: Only for Members of Cooperatives)

As a cooperative member, indicate your agreement/disagreement with the following 18 statements:

(Bilang talbilang sin cooperative, gudlisi ha mga pag-pian in kakusug atawa kahina sin pangahagari mo ha mga kabtangan)

1 - Strongly Disagree ; 2 - Disagree ; 3 - Somewhat Disagree ; 4 - Neutral ; 5 - Somewhat Agree ; 6 - Agree ; 7 - Strongly Agree							
STATEMENTS							
The cooperative helps me find better buyers and market opportunities (1) <i>(Kiyatabangan ako sin cooperative makabaak mami sin kahawa ku)</i>	1	2	3	4	5	6	7
I can sell a larger quantity of produce through the cooperative (2) <i>(Makadagang ako mataud sin kahawa ku pa cooperative)</i>	1	2	3	4	5	6	7
I receive higher prices for my coffee because of the cooperative (3) <i>(Mas kahalgaan ku maraw in dagang ko pasal sin cooperative)</i>	1	2	3	4	5	6	7
The cooperative provides access to loans and financial support (4) <i>(Makatabang kakuh in cooperative mag-loan iban pagguna cien)</i>	1	2	3	4	5	6	7
Cooperative leadership is democratically elected (5) <i>(Pag ijtimaan sin katan in pag-pih sin pagnakurah sin cooperative)</i>	1	2	3	4	5	6	7
Cooperative leaders are honest and trustworthy (6) <i>(Kapangandulan tuud in nagtatawmaas sin cooperative)</i>	1	2	3	4	5	6	7
Cooperative leaders are accessible for discussions (7) <i>(Kapag-hayak-hayakan in nagtatawmaas sin cooperative)</i>	1	2	3	4	5	6	7
The cooperative is led by competent individuals (8) <i>(Maasahan in tag-uhanan sin cooperative)</i>	1	2	3	4	5	6	7
Members can voice their opinions in cooperative meetings (9) <i>(Ukab dumihil kabtangan in mga talbilang sin cooperative bang awn pag-meeting)</i>	1	2	3	4	5	6	7
Member opinions are considered in decision-making (10) <i>(Titimbang iban diyurungug in pikilan sin member ha pag desisyon sin cooperative)</i>	1	2	3	4	5	6	7
General assemblies for cooperative members are well-organized (11) <i>(Marayaw in pag-paragan sin pag-imun imun sin mga members)</i>	1	2	3	4	5	6	7
All members' opinions hold equal value (12) <i>(Sama-sibuh in buhगत sin pamikil iban kabtangan sin katan member)</i>	1	2	3	4	5	6	7
It is affordable to join and stay in the cooperative (13) <i>(Kagausan da in babayaran ha pag lamud ha cooperative)</i>	1	2	3	4	5	6	7
The cooperative actively recruits new members (14) <i>(Masi-masi in pagpapa-member pa cooperative)</i>	1	2	3	4	5	6	7
The cooperative provides training on farming best practices (15) <i>(Nagpapa-awn training ha mga marayaw hihinangun ha pagpa-sung sin dayaw sin pag-uma)</i>	1	2	3	4	5	6	7
I can access additional resources as member of the cooperative (16) <i>(Makaluhay ako kumawa kagugunahan bilang member)</i>	1	2	3	4	5	6	7
An enhanced community connections/networks motivated me to join the cooperative (17) <i>(Nahinang sabab in paglu-ag sin koneksyon ko ha kawman ha pagbayah ko magmember)</i>	1	2	3	4	5	6	7

Section 5: Economic Variables and Farming Information

25. Were you a recipient of any of the following? (*Nakatabuk na kaw sin mga nasabbut ini? Gudlisi in sambag mu.*)

Support	Recipient	
	Yes	No
Credit/Loans		
Training programs		
Farming inputs (e.g., seeds, fertilizers)		
Machinery and equipment access/support		
Market linkage and price support		

26. What new farming practices have you adopted since becoming a rebel returnee? (*Unu in mga bahgu panghati ha pag-uma in iyuusal mo ha uma mo timagnah daing ha returnee mu?*)

Farming Practice	Adoption	
	Yes	No
Use of Improved Seeds (1) (<i>Pag-usal sin marayaw binhi</i>)		
Application of Fertilizers/Pesticides (2) (<i>Pag-butang pampahambug</i>)		
Crop Diversification (3) (<i>Pag-pinda-pinda sin tiyatanum</i>)		
Soil and water conservation techniques (4) (<i>pag-ipat iban pagtipid sin lupah iban tubig</i>)		
Organic farming practices (5) (<i>Organik; Dih mag usal sintetik pampahambug</i>)		
Shade management for coffee plants (6) (<i>Pagtanum mataas kahuy ha hikatabun pa kahawa</i>)		
Proper pruning and canopy management (7) (<i>Pag-tuh-tuh sin sanga sin tanum kahawa</i>)		
Others, please specify (<i>Listaha bang way nasabbut</i>):		

27. Who introduced new farming techniques to you? Check all that apply. (*Hisiyu in nakahindu kaymu in mga bahgu panghati ha uma? Gudlisi in sambag mo misan makaliyu hambuuk*)

Institution	Introduced	
	Yes	No
Cooperative (1) (<i>Cooperatiba</i>)		
Agricultural Extension Worker (2) (<i>Naghihinang ha opis sin agriculture</i>)		
Fellow farmers (3) (<i>Panaiban mag-uuma</i>)		
Non-government organizations (NGO) (4) (<i>Parhimpunan bukun parinta/NGO</i>)		
Government Offices (5) (<i>Opis parinta</i>)		
Schools and Universities (6) (<i>Kaiskul-iskulan</i>)		
Private Companies (7) (<i>Daing ha kumpanya</i>)		
Others, please specify (<i>Listaha bang way nasabbut</i>):		

28. On a scale of 1 to 7, rate the extent to which each of the following factors/reasons prevented you from adopting new farming practices. (*Bang kirahun daing ha 1 pa 7, biyaddin mu kirahun in mga sabab ha dih pag-usal sin mga bahgu panghati ha pag-uma? Ligungi in sambag mu.*)

1 - Not a Factor at All; 2 - Minimal Factor; 3 - Slight factor; 4 - Neutral; 5 - Considerable factor; 6 - Significant factor; 7 - Very significant factor							
Factors/Reasons for Non-Adoption	1	2	3	4	5	6	7
Lack of knowledge	1	2	3	4	5	6	7
Financial constraints	1	2	3	4	5	6	7
Not applicable to my farming activities	1	2	3	4	5	6	7
Limited access to inputs/tools required	1	2	3	4	5	6	7
Lack of trust in the new practices	1	2	3	4	5	6	7

29. What is the land ownership status of your farm? (*Unu in hal sin pagdapu sin lupah piyag-uumahan mo?*)

- Owned (*Tagdapu*) (1)
- Partly owned (*Kabahgi sin pagtagdapu*) (2)
- Rented (*Siyukayan*) (3)
- Partly rented (*Kabahagi sin pagsukay*) (4)
- Sharecropped (*Nananum sadja ha lupah sin dugaing*) (5)
- Other (please specify) (*Listaha bang way nasabbut*): _____

30. What is the total size of your farm (in hectare)? (*Unu in katibuukan lagguh sin lupah piyag-uumahan mu?*)

○ _____

31. What is the total size of your farm dedicated to coffee production (in hectare)? (*Unu in katibuukan lagguh sin lupah piyag-uumahan mu para ha kahawa?*)

○ _____

32. What is your household's primary source of income? (*Unu in pinaka-usaha sin pamilya mu?*)

- Coffee farming (*Pag-uma kahawa*) (1)
- Other farming (e.g., fruits, vegetables, livestock, etc.) (*Dugaing panghiyanum iban ipatan hayup*) (2)
- Labor or wage work (*Usaha daing ha hinang adlaw-adlaw*) (3)
- Trading or business (*Tindahan, tinda-tinda, etc.*) (4)
- Other (please specify) (*Listaha bang way nasabbut*): _____

33. What variety/ies of coffee do you grow? And what is your total coffee yield from the last season (in kilograms of cherries)? (**Only that apply**) (*Unu in klase sin kahawa in tiyatanum mu? Gudlisi in sambag mo misan makaliyu hambuuk. Iban (Pila in katibuukan timbang sin harbes mo sin kahawa ha lawm sin limabay timpu? Ha Kilogram)*)

Coffee Variety	Put a Check on all that apply	Cherries Yield from the last season (in Kg) (<i>Harbes mo ha limabay timpu, kilogram</i>)
Arabica	<input type="checkbox"/>	
Robusta	<input type="checkbox"/>	
Liberica	<input type="checkbox"/>	
Excelsa	<input type="checkbox"/>	

36. Which sales channel/s do you use to sell your coffee? And how many percentages of your process are sold to these channels. (Should all add up to 100%) Check all that apply. (Harap kansiyu in kamawmuhan pagdagangan mu sin kahawa? Iban pila percent sin harbes mu in kiyadagang pa channel ini. [Subay jumukup 100%] Gudlisi in sambag mu misan makaliyu ha hambuuk)

Sales Channels	Put a Check on all that apply	Percentage sold to this channel
Direct-to-consumer (Diretso pa mag-uusal ha binaybayan) (1)	<input type="checkbox"/>	
Cooperatives (Cooperatiba) (2)	<input type="checkbox"/>	
Local traders/middlemen (Pa-lito) (3)	<input type="checkbox"/>	
Coffee processors and roasters (Maggigiling kahawa) (4)	<input type="checkbox"/>	
Wholesalers (Magpami pakyawan) (5)	<input type="checkbox"/>	
Export channels (Hidagang pa dugaing hulah) (6)	<input type="checkbox"/>	

37. What are the barriers to your income improvement? Put a check on all that apply. (Unu in mga gaggat ha pagpasung sin pag-usaha iban pagpataas sin magka-usaha? Gudlisi in sambag mo misan makaliyu hambuuk)

Barriers to income improvement	YES	NO
Low coffee prices (Mababah in bi sin kahawa)	<input type="checkbox"/>	<input type="checkbox"/>
Poor market access (Kulang in kadagangan)	<input type="checkbox"/>	<input type="checkbox"/>
Lack of cooperative support (Kulang in supporta daing ha cooperatiba)	<input type="checkbox"/>	<input type="checkbox"/>
High cost of farm inputs (e.g., fertilizers, seeds, pesticides, labor) (Mahalgah in kagugunahan ha pag-uma, biyah na sin pampahabug, binhi, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
Limited access to credit or financing (Kulang in kakawaan hipag-kapital/loan)	<input type="checkbox"/>	<input type="checkbox"/>
Lack of knowledge or training on improved farming techniques (Kulang in panghati atawa training ha mga bahgu iban marayaw teknik sin pag-uma)	<input type="checkbox"/>	<input type="checkbox"/>
Unpredictable weather conditions or climate change impacts (Pag-pinda-pinda sin hal sin pangulan atawa panuga, lamud na in timpu iban butang sin hulah)	<input type="checkbox"/>	<input type="checkbox"/>
Pests and diseases affecting coffee yield (Magkasakit in mga panghiyanum)	<input type="checkbox"/>	<input type="checkbox"/>
Lack of post-harvest facilities (e.g., drying, storage, processing) (Kulang in tampat pag-taw-an, paggilingan, iban pagbuwaran sin kahawa)	<input type="checkbox"/>	<input type="checkbox"/>
Others, please specify (Listaha bang way nasabbut):	<input type="checkbox"/>	<input type="checkbox"/>

Section 6: Socio-Economic Transition and Feedback

43. On a scale of 1 to 7, rate as to what extent have the following aspects of your living standards improved since returning into civilian life? (Unu in muna-muna dimayaw ha pag-member mo pa cooperatiba? Ligungi in sambag mu)

1 - Not a Factor at All; 2 - Minimal Factor; 3 - Slight factor; 4 - Neutral; 5 - Considerable factor; 6 - Significant factor; 7 - Very significant factor							
Improved Socio-Economic Transition	1	2	3	4	5	6	7
Housing quality (Pamaybay) (1)	1	2	3	4	5	6	7
Access to healthcare (Pagpa-ubat, lamud na in pagpa-hospital iban pagbi ubat) (2)	1	2	3	4	5	6	7
Educational opportunities for children (Pag-iskul sin mga anak) (3)	1	2	3	4	5	6	7
Food security (Kasiguraduhan sin pagkaun) (4)	1	2	3	4	5	6	7

44. On a scale of 1 to 7, how would you describe your overall living standard since returning into civilian life? (Please encircle) (*Bang kirahun daing ha 1 pa 7, biyadiin mo kira-kirahun in kahalan sin kabuhianan mo timagna sin pag returnee mu?*)

1 - Declined Significantly; 2 – Considerably Declined; 3 – Slightly Declined; 4 – No Change; 5 - Slightly Improved; 6 – Improved Considerably; 7 – Improved Significantly

1	2	3	4	5	6	7
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45. For cooperative members, on a scale of 1 to 7, how would you describe your overall living standard since joining the cooperative? (*Biyadiin mo kira-kirahun in kahalan sin kabuhianan mo daing ha pag-member mo pa cooperatiba?*)

1 - Declined Significantly; 2 – Considerably Declined; 3 – Slightly Declined; 4 – No Change; 5 - Slightly Improved; 6 – Improved Considerably; 7 – Improved Significantly

1	2	3	4	5	6	7
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46. Do you feel more financially stable since returning to civilian life? (*Mas dimayaw in pagsud iban pag-ulin mo sin magka-usaha amun timagna ha pag-returnee mu?*)

- Yes (*Huun*) (1)
- No (*Wayruun*) (2)

Follow-up Questions:

- If Yes: What has contributed greatly to your financial stability? Select only one.. (*Unu in mga nahinang sabab ha kiyarayaw sin pagsud iban pag-ulin mo sin usaha? Gudlisi in sambag mo, hambuuk sadja*)
 - Increased income from coffee sales (*Timaas in bayaan sin kahawa*) (1)
 - Access to credit/loans (*Magpaka-loan na*) (2)
 - Reduced farming expenses (*Miyabah in gastu ha mga kagugunahan ha pag-uma*) (3)
 - Other (please specify) (*Listaha bang way nasabbut*): _____
- If No: What is the major reason for your financial instability? Select only one. (*Unu in sabab sin bukun panuytuy sin dayaw? Gudlisi in sambag mo, hambuuk sadja*)
 - Low coffee prices (*Mababah in bayaan sin kahawa*) (1)
 - High debt or loans (*Mataas/mataud in utang atawa loan*) (2)
 - Insufficient support (*Kulang in support ha hikarayaw*) (3)
 - Other (please specify) (*Listaha bang way nasabbut*): _____

47. On a scale of 1 to 7, would you agree that cooperative membership can contribute to peacebuilding and stability in your community? (*Bang mu kirahun, biyadiin kaw mag-agree sin nakatabang in pag-member pa cooperatiba ha pagpanuytuy sin kahanungan ha kawman?*)

1 - Strongly Disagree; 2 - Disagree; 3 - Somewhat Disagree; 4 - Neutral; 5 - Somewhat Agree; 6 - Agree; 7 - Strongly Agree

1	2	3	4	5	6	7
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48. On a scale of 1 to 7, rate as to what extent do the following factors contribute to peacebuilding in your community? (Unu in mga sabab nakatabang ha pagpanuytuy sin kahanungan ha kawman? Ligungi in sambag mu.)

1 – No contribution at All; 2 - Minimal contribution; 3 - Slight contribution; 4 - Neutral; 5 - Considerable contribution; 6 - Significant contribution; 7 – Major contribution							
Factors Contributing to Peacebuilding							
Conflict resolution initiatives (Programa ha pagdayaw sin hiluhala atawa lingug) (1)	1	2	3	4	5	6	7
Trust-building activities (Programa ha pagpakusug sin pangandul sin kawman) (2)	1	2	3	4	5	6	7
Improved income and livelihoods (Mas marayaw usaha iban pangusahan) (3)	1	2	3	4	5	6	7
Education and awareness programs (Pag-iskul iban programa ha pagpasung sin panghati) (4)	1	2	3	4	5	6	7
Community dialogue and engagement (Pag-tainghug iban paghati ha pikilan sin kawman) (5)	1	2	3	4	5	6	7

49. On a scale of 1 to 7, rate as to what extent do the following are barrier to peacebuilding in your community. (Unu in mga gaggat ha pagpanuytuy sin kahanungan ha kawman? Ligungi in sambag mu.)

1 – Not a Barrier at All; 2 – Minimal Barrier; 3 - Slight Barrier; 4 - Neutral; 5 - Considerable Barrier; 6 – Significant Barrier; 7 – Major barrier							
Barriers Peacebuilding							
Persistent conflicts or disputes (Masi-masi awn hiluhala iban lingug) (1)	1	2	3	4	5	6	7
Lack of cooperative engagement in peace efforts (Kulang in panglamuri sin cooperatiba ha pagpasung sin kahanungan sin kawman) (2)	1	2	3	4	5	6	7
Economic inequality (Bukun sibuh-sibuh in usaha sin daing ha hambuuk pa hambuuk) (3)	1	2	3	4	5	6	7
Political instability or weak governance (Pagpinda-pinda sin pulitik atawa mahina in pamarinta) (4)	1	2	3	4	5	6	7
Limited access to education and awareness programs (Kulang in pag-iskul iban pagpanghati) (5)	1	2	3	4	5	6	7

50. On a scale of 1 to 7, rate as to what extent do the following factors hinder your economic and livelihood transitions. (Unu in gaggat ha pagpasambu sin kahalan iban kabuhianan? Ligungi in sambag mu.)

1 – Not a Barrier at All; 2 – Minimal Barrier; 3 - Slight Barrier; 4 - Neutral; 5 - Considerable Barrier; 6 – Significant Barrier; 7 – Major barrier							
Barriers to Economic & Livelihood Transition							
Lack of sustainable development programs (Kulang in pagpanuytuy sin programa) (1)	1	2	3	4	5	6	7
Limited financial growth (Kulang in siyung sin magka-usaha) (2)	1	2	3	4	5	6	7
Resistance to change (Dih mabayah magpinda sin kahalan) (3)	1	2	3	4	5	6	7
Poor infrastructure (Kulang atawa mahina in imprastruktura) (4)	1	2	3	4	5	6	7
Security concerns (Problema ha kaligtasan) (5)	1	2	3	4	5	6	7

51. **For cooperative members, has cooperative membership contributed to your long-term socioeconomic transition?** (*Nakatabang in pag-member mu pa cooperatiba ha katihabaan pagpasambu sin kahalan iban kabuhianan mu?*)
- **Yes** (*Huun*) (1)
 - **No** (*Wayruun*) (2)
52. **For cooperative members, would you recommend cooperative membership to other rebel returnees?** (*Hi-recommend mo ha dugaing returnee in pagmember pa cooperative?*)
- **Yes** (*Huun*) (1)
 - **No** (*Dih*) (2)

Section 9. Final Remarks

53. **Do you have any additional comments or suggestions or clarifications to the researcher?** (*Awn kaw mabayah higanap baytaun or pahatihun pa researcher?*)
- **No additional comments** (*Wayruun na*)
 - **Yes (please specify)** (*Huun*): _____
54. **Date surveyed:** _____

ABOUT THE AUTHOR

Moh. Shanizee Albani Sarabi is completing the International Master of Science in Rural Development at Ghent University in Belgium. His master dissertation, *The Role of Coffee Cooperatives in the Socio-Economic Transition of Rebel Returnees in Sulu, Southern Philippines*, reflects his deep commitment to using research as a tool for peacebuilding and inclusive rural development, especially in far-flung and conflict-affected communities often overlooked by mainstream narratives.

Born and raised as a young Tausug in the southern Philippines, Sarabi earned his Bachelor of Science in Agribusiness (Cum Laude) and pursued graduate studies in Public Administration at Western Mindanao State University.

His academic path has been complemented by international fellowships, including the Young Southeast Asian Leaders Initiative (YSEALI) Academic Fellowship on Social Entrepreneurship and Economic Development at the University of Connecticut in USA, and specialized training in entrepreneurship, policy analysis, and impact assessment across Asia, Europe, and Latin America. Sarabi also earned his Certificate on Entrepreneurship, Innovation, and Social Change at the University of Peace (UPEACE), a United Nations-mandated university in Costa Rica.

His research and professional work focus on agricultural innovation, rural livelihoods, and socio-economic transitions in both conflict-affected and climate-vulnerable communities. He has co-authored and presented studies on farming systems, rural resilience, and local enterprises in international conferences in Europe, Southeast Asia, and Türkiye.

Beyond academia, Sarabi has applied his expertise as a Science Research Specialist in socio-economic and data analytics projects, and as founder of *im-Packed Lokal*, a social enterprise supporting farmers and fisherfolk. His long-standing involvement with the 4-H Club of the Philippines, where he served as National Vice President, allowed him to represent Filipino youth in global agricultural forums, earning recognition such as the Excellent Speaker Award in South Korea.

Bringing together his experiences as a researcher, youth leader, and social entrepreneur, Sarabi is driven by a vision of empowering rural communities and fostering inclusive development pathways that bridge divides and create opportunities for those most often left behind.

