Article

Borrowing under Strain: How Are Security Conditions Associated with Household Indebtedness in Myanmar?

Lat Aung*

Abstract

This study examines how perceived physical insecurity relates to household indebtedness in Myanmar using panel data from the Myanmar Household Welfare Survey (MHWS). During periods of armed conflict, increases in residents' perceived insecurity in their locality are associated with a higher likelihood that their household indebtedness. The association is heterogeneous across place of residence: compared with urban households, rural households are more likely to become indebted as their insecurity concerns rise. These findings suggest that restoring security, through durable ceasefire arrangements and broader peacebuilding, should be considered a core component of policies aimed at easing the financial distress of Myanmar's households, many of whom have faced the economic consequences of conflict since independence in 1948.

Keywords: residents' perception of physical insecurity; armed conflict; household indebtedness; rural; Myanmar.

1. Introduction

Armed conflict still extremely happens in 10 countries around the world in 2024 (Raleigh & Kishi, 2024). It results in more than just deaths and injuries; its consequences extend well beyond these direct casualties (Gates et al., 2012). There are many studies that focus on the various socioeconomic consequences of armed conflict on the households (Fürst et al., 2010; Sánchez-Céspedes, 2017). As a consequence of armed conflict, most households in poor countries in Africa, Asia, and Latin America face extreme destitution, poverty, and despair (Justino, 2011). Household well-being is declining because of armed conflict (Nathan

*Doctoral Program Student, Graduate School of Economics, Ritsumeikan University, Japan.
Email. gr0659si@ed.ritsumei.ac.jp, latapt2011@gmail.com

& Joel Uche, 2023). Furthermore, people in conflict-affected countries also face their financial difficulties to survive in their high-insecurity environment.

Myanmar is in Southeast Asia and is one of the developing countries. The total population is 51.4 million in 2024. Myanmar has been engaged in the longest civil war in history since 1948, with both political and ethnic armed factions (Graceffo, 2024). The armed conflicts that are now taking place in more than half of 330 townships have significantly hampered both the domestic trade within the nation and the border trade with the neighboring countries (World Bank, 2024a). Because of political and economic instability, Myanmar households' income is decreasing, and they still spend more than half of their income on food (FAO & WFP, 2023). Decreasing income and increasing prices make Myanmar households face financial difficulties during this political instability period. Thus, two-thirds of the Myanmar households were income-poor families, and many households were indebted to lenders (MAU, 2023). However, measuring the full scope of armed conflict within a country presents significant challenges, particularly in capturing its localized and diffuse nature. Given the difficulty of capturing localized conflict events, I utilize residents' perception of physical security in their living area as a proxy for conflict exposure, as reported in the Myanmar Household Welfare Survey (MHWS). This approach reflects the notion that households residing in more violent or unstable areas are likely to experience heightened insecurity and fear, providing a practical household-level measure of conflict intensity that complements official statistics. Therefore, I use this variable as an alternative indicator of conflict intensity, operating on the core assumption that heightened physical insecurity is a direct correlation of residing in a conflict-affected zone. This method allows us to derive a granular, household-level measure of conflict exposure that official casualty or event data might miss, especially in areas with limited access or reporting. Ultimately, this approach provides a crucial means to capture the nuanced and hyper-localized effects of conflict where traditional administrative data are incomplete, unavailable, or fail to convey the lived experience of the population.

People are usually concerned about their physical insecurity when and where they live in conflict-affected areas. Many people are killed or suffer injuries, and people are also forced to migrate to other areas due to the detrimental effects of armed conflict (Adelaja & George, 2019). When there is instability during armed conflict, political and military organizations usually take advantage of the situation by forcing young people to join them (McIntyre, 2003). And throughout the armed conflict, they were typically endangered by criminal and armed organizations (Ray, 2017). Thus, during armed conflicts, people frequently feel unpleasant and have more security worries (Williams et al., 2018). The concern of their physical insecurity often disrupts the operation of their daily and business activities, leading to a decrease in their income. Furthermore, this perceived physical insecurity also increases operational risks and costs, which are ultimately passed on to con-

sumers through higher prices. In addition, poor law enforcement and concerns about physical insecurity fail to protect them from losing their assets and properties due to crimes such as looting and theft during the armed conflict. Confronted by this combination of lower income, higher expenses, and depleted assets, households face intense financial pressure. To cover their essential needs and sustain themselves, they need to seek external financial resources from other actors. Consequently, the physical security concerns contribute to a rise in household indebtedness and financial vulnerability.

Although previous research has established the detrimental effects of armed conflict on household welfare (Justino, 2011; Sánchez-Céspedes, 2017; George et al., 2020; Kafando & Sakurai, 2024), studies focusing specifically on household financial difficulties remain limited. This gap is significant, as financial strain is a critical channel through which conflict erodes well-being, potentially leading to asset depletion, unsustainable debt, and long-term poverty traps. Furthermore, existing literature predominantly relies on direct measures of conflict, such as battle events or casualties (Gates et al., 2012; Adelaja & George, 2019; Adelaja et al., 2023), with less consideration for the perceived physical insecurity of residents in affected areas. This focus on objective measures may overlook the nuanced ways in which the constant fear of violence alters economic behavior at the household level. While prior research has examined key aspects of Myanmar's recent conflicts, namely humanitarian, displacement, and economic consequences (Khai 2023; Minten et al. 2023), the specific effect of physical insecurity on household indebtedness remains unexplored using empirical, nationwide survey data like MHWS. Thus, my study aims to address this gap by investigating how subjective perceptions of physical insecurity directly influence household financial outcomes, offering a more detailed understanding of the connection between conflict and household indebtedness. Furthermore, this study also examines possible heterogeneity related to the residents' living areas, rural vs. urban.

2. Hypothesis

The armed conflict leads to increasing their financial difficulties in several ways. First, people could not fully do their income generation activities during the armed conflict because of their security concerns. Many studies find that increasing armed conflict and terrorism result in a decrease in households' income and employment (Justino & Verwimp, 2013; Kafando & Sakurai, 2024; ILO & PCBS, 2024). Decreasing income will cause households to increase financial burden to survive in an unsafe environment during the armed conflict. To solve their financial difficulties, they need to borrow money from the various lenders.

Second, people usually suffer increasing commodity prices and inflation during the armed

conflict because of disruption in infrastructure and fuel supply chains. In armed conflict-affected areas, armed conflicts severely damage infrastructure across all sectors (Weinthal & Sowers, 2019; Al-Saidi et al., 2020; Alhaj Omar et al., 2023). The disruption of infrastructure like trade networks raises security concerns among business organizations that lead to increasing premiums for risk, increasing transportation and logistics costs, and limiting opportunities for domestic trade (George & Adelaja, 2022). Furthermore, damage to infrastructure like electricity creates millions of people and households suffering from power shortage problems during the armed conflict (Zheng et al., 2022). This power shortage makes firms incur more fuel expenses and consequently reduce their average incomes (Allcott et al., 2016). In addition, armed conflict also causes fuel shortages and disrupts the fuel supply chain. Studies found that the Russia-Ukraine armed conflict caused the disruption in the energy supply that resulted in the price of gasoline increasing (Ozili & Ozen, 2023). Thus, people usually face higher commodity prices, and higher inflation is usually high during the armed conflict (Sab, 2014; WFP, 2023). That also creates household suffering from the financial burden to survive in unsafe environments during the armed conflict.

Third, during the armed conflict, poor law enforcement and concerns about people's physical insecurity fail to protect them from disruptions to their assets and properties caused by the higher incidence of criminal activities in conflict-affected areas. The law enforcement could not fully perform their operation during the armed conflict, and the criminal cases are usually increasing (ICRC, 1999; Baker, 2017). Consequently, intense fighting and looting often result in the loss or destruction of people's assets and properties (Justino, 2011). The Rwandan conflict in the 1990s generated extensive destruction and significantly impacted on households' poverty level (Justino & Verwimp, 2013). That also creates the financial burden for households to buy and rebuild the essential assets and properties for their daily life and business activities.

In Myanmar, the ongoing armed conflict creates financial difficulties for the population. Businesses have been greatly harmed by armed conflicts, which has raised pressure on employment and household income (World Bank, 2022). Investors and firms lack confidence in doing business because of current political and economic instability (Aliyev et al., 2023). Furthermore, the security situation remains unstable and difficult to predict (U. S. Department of State, 2022). As a result, when engaging in income-generating activities, firms and households are frequently worried about security. The ongoing conflict has damaged the power infrastructure, preventing the power supply from meeting public demand and resulting in a serious power shortage across the entire country (Aliyev et al., 2023). Moreover, in 2022, the fuel prices are more than double compared to the previous year (WFP, 2022). The increase in fuel prices leads to rising transportation expenses, supply chain disruptions, and restricted market access (COAR, 2022). Furthermore, conflict causes more limitations on travel and movement, which slows transportation speeds and raises transporta-

tion expenses (World Bank, 2024b). Consequently, firms and households face serious difficulties with their daily and business operations and income generation activities. In addition, armed conflict has created an increase in violent crimes, including robbery and looting, since 2021 (GI-TOC, 2023, 2024). Therefore, individuals must invest financial resources in reconstructing and reacquiring the properties they lost or destroyed during the armed conflict. When their financial resources are insufficient, they resort to borrowing money from others.

Armed conflicts cause households in affected areas to lose their socioeconomic stability. Because there is a constant threat of violence, people's concerns about their physical insecurity during regular activities are intensified throughout these conflicts (Williams et al., 2018). Since it is difficult to assess the scope and intensity of armed conflicts at the household or regional levels, this study uses respondents' perceptions of their physical insecurity as an alternative metric to quantify the quantity of armed conflict. Based on the above studies, I construct the hypotheses as follows:

Hypothesis: As the residents' perception of physical insecurity in their living area increases, their households are more likely to have indebtedness.

3. Data And Methodology

3.1 Data

This study constructs the panel dataset by utilizing the survey data from the 5th, 6th, and 7th round of the MHWS. For these three rounds of surveys, the nationwide phone survey was conducted by IFPRI from Mar 30, 2023, to July 7, 2024.[1] The survey provides a comprehensive set of indicators that capture various aspects of household welfare in Myanmar, including income and expenditure patterns, access to credit, employment, livelihood characteristics, and living conditions of the household. These indicators are essential for understanding the overall economic well-being and social conditions of Myanmar households. The analytical sample consists of 5,840 households present in all three survey rounds.

Table 1 presents the variables used in this study, along with their corresponding descriptions and measurement methods. To identify whether the household has debt or not, I create the binary variable based on the respondent's answer to the survey question, "Currently, do you owe any money to loan or credit providers, including banks, MFIs, moneylenders, shops, traders, suppliers, relatives, or friends?"

To measure the perceived level of physical insecurity in Myanmar households, this study uses the survey question, "How would you describe the overall level of physical security in your area?" Their answers were recorded on a four-point scale, where 1 means "very low

Table 1. Description of the variables

Variable	Description and measurement
Debt	Household currently has debt: 1 = yes, and 0 = no.
Selling properties	Household sells properties to cope with lack of money and food: 1 = yes, and 0 = no.
Income situation	Household's income situation compared to the previous year: high decline (1)-high increase (5).
Security level	
Physical Insecurity	Respondent's perception of their physical insecurity level of area: very low physical insecurity (1)-very high physical insecurity (4).
Respondent's characteristics	
Gender	Gender of respondent: 1 = female, and 0 = male.
Education	Education level of respondent: 1 = high, 0 = low.
Age	Log of respondent's age
Social relationship	The average of the respondent's perception on social relationship level of their township
Household's characteristics	
Income	Log of 1 + income of household
Agriculture	Household gets income from Agriculture, livestock and fishing: 1 = yes, and 0 = no.
Non-agriculture	Household gets income from non-agriculture business: 1 = yes, and 0 = no.
Firm ownership	Household owns at least one of firms/businesses (Agriculture, livestock, fishing and Non-agriculture)
Remittance	Log of 1 + remittance of household
Ownership of dwelling	Household owns dwelling, 1 = yes, and 0 = no.
Dwelling strength	Dwelling condition: 1 = strong, and 0 = weak.
Electricity (grid)	Household gets electricity from national and border grid line: 1 = yes, and 0 = no.
Water (safe)	Household gets safe drinking water: 1 = yes, and 0 = no.
RURAL	Household's living areas: 1 = rural, 0 = urban.

physical insecurity" and 4 means "very high physical insecurity." I use these perceptions as a practical way to estimate the intensity of local armed conflict. The reasoning is that people living in areas with more violence and instability will naturally feel less physically secure. This approach offers critical information about the localized effects of conflict, especially in regions where official data on violence is incomplete or difficult to obtain.

I also utilize the respondent's and the household's characteristics from the MHWS as covariates in this study. As the respondent's characteristics, I apply the respondent's gender, age, education, and perceptions of social relationships in their living areas. For the household's characteristics, I include income, income sources, firm ownership, remittances, dwelling ownership, dwelling strength, electricity sources, safety of drinking water, and whether they live in rural or urban areas.

3.2 Methodology

This study applies fixed effects (FE) regression to analyze how a resident's perception

Table 2. Overall Summary Statistics (full sample)

	count	mean	sd	min	max
Debt	17503	0.4593	0.4984	0.0000	1.0000
Selling properties	17517	0.1201	0.3250	0.0000	1.0000
Income situation	17422	2.8139	1.2116	1.0000	5.0000
Physical Insecurity	17491	1.9206	0.8397	1.0000	4.0000
Gender	17520	0.5308	0.4991	0.0000	1.0000
Education	17520	0.3546	0.4784	0.0000	1.0000
Age	17520	3.6653	0.3206	2.8904	4.3041
Social relationship	17449	2.9861	0.2018	2.0000	4.0000
Income	17520	0.4192	0.4524	0.0000	6.6214
Agriculture	17520	0.4087	0.4916	0.0000	1.0000
Non-agriculture	17520	0.6168	0.4862	0.0000	1.0000
Firm ownership	17520	0.5636	0.4960	0.0000	1.0000
Remittance	17520	1.3488	3.7865	0.0000	17.2167
Ownership of dwelling	17520	0.8473	0.3597	0.0000	1.0000
Dwelling strength	17520	0.3433	0.4748	0.0000	1.0000
Electricity (grid)	17520	0.6883	0.4632	0.0000	1.0000
Water (safe)	17520	0.8122	0.3906	0.0000	1.0000
RURAL	17520	0.6959	0.4600	0.0000	1.0000

of physical insecurity affects the household indebtedness. The empirical model is shown as:

$$Debt_{it} = \beta_0 + \beta_1 \text{ Physical Insecurity}_{it} + \gamma X_{it} + \varepsilon_{it},$$

where $Debt_i$ is the measure of respondent i's household has debt or not; Physical Insecurity$_{it}$ is the measure of respondent i's perception of physical insecurity at survey round t; X_{it} is a set of the control variables or covariates which consist of respondent's characteristics (gender, age, education, and perceptions of social relationships) and their household characteristics (income, income sources, firm ownership, remittance, ownership of dwelling, dwelling strength, electricity sources, safety of drinking water and their living areas); and ε_{it} is the error term.

Furthermore, for the robustness check, I also separately apply two additional financially related variables as the outcome variable. The first one is Selling properties, which is the binary variable created from the survey question "sell any asset?" which means whether the household sells properties to cope with lack of money and food or not. The second is Income situation, which was created from the survey question "When considering your total household income of the past three months (including remittances and other transfers): How would you compare your total household income now to that income one year ago?". Their answers were recorded on a five-point scale related to their income situation, where 1 means "high decline compared to the previous year" and 5 means "high increase compared to the previous year".

Table 2 presents the descriptive statistics of the variables used in this study. The mean

Table 3. Overall Summary Statistics (sub sample)

	Rural					Urban				
	count	mean	sd	min	max	count	mean	sd	min	max
Debt	12185	0.4958	0.5000	0.0000	1.0000	5318	0.3759	0.4844	0.0000	1.0000
Selling properties	12191	0.1221	0.3274	0.0000	1.0000	5326	0.1155	0.3196	0.0000	1.0000
Income situation	12115	2.8576	1.2253	1.0000	5.0000	5307	2.7140	1.1739	1.0000	5.0000
Physical Insecurity	12174	1.8824	0.8537	1.0000	4.0000	5317	2.0081	0.8000	1.0000	4.0000
Gender	12192	0.5257	0.4994	0.0000	1.0000	5328	0.5424	0.4982	0.0000	1.0000
Education	12192	0.2475	0.4316	0.0000	1.0000	5328	0.5997	0.4900	0.0000	1.0000
Age	12192	3.6937	0.3153	2.8904	4.3041	5328	3.6002	0.3233	2.8904	4.3041
Social relationship	12152	3.0202	0.1985	2.0000	4.0000	5297	2.9081	0.1870	2.0000	4.0000
Income	12192	0.4237	0.4982	0.0000	4.3944	5328	0.4091	0.3240	0.0000	6.6214
Agriculture	12192	0.5476	0.4978	0.0000	1.0000	5328	0.0910	0.2877	0.0000	1.0000
Non-agriculture	12192	0.4948	0.5000	0.0000	1.0000	5328	0.8962	0.3050	0.0000	1.0000
Firm ownership	12192	0.5886	0.4921	0.0000	1.0000	5328	0.5064	0.5000	0.0000	1.0000
Remittance	12192	1.3877	3.8422	0.0000	15.5203	5328	1.2598	3.6545	0.0000	17.2167
Ownership of dwelling	12192	0.9430	0.2319	0.0000	1.0000	5328	0.6284	0.4833	0.0000	1.0000
Dwelling strength	12192	0.2663	0.4421	0.0000	1.0000	5328	0.5195	0.4997	0.0000	1.0000
Electricity (grid)	12192	0.5837	0.4930	0.0000	1.0000	5328	0.9277	0.2589	0.0000	1.0000
Water (safe)	12192	0.7592	0.4276	0.0000	1.0000	5328	0.9336	0.2491	0.0000	1.0000
RURAL	12192	1.0000	0.0000	1.0000	1.0000	5328	0.0000	0.0000	0.0000	0.0000

value of the "Debt" is 0.4593, which means that 45.93% of the households currently have a debt. The average "Physical Insecurity" score is 1.9206 on a 4-point Likert scale, which means that, on average, respondents feel between "a little" and "somewhat" physically insecure.

Table 3 presents descriptive statistics for the variables, disaggregated by respondents' location (urban vs. rural). Regarding the location, the mean value of the debt is 0.4958 for rural households and 0.3759 for urban households. This means that 49.58% of rural households currently have a loan, whereas only 37.59% of urban households currently have a debt. The average "Physical Insecurity" score is 2.0081 for urban residents and 1.8824 for rural residents, indicating that perceived insecurity is higher in urban environments.

4. Results

4.1 The main results

Table 4 presents the results of the fixed effects estimation. In this table, column 1 does not consider both the respondents' and their household characteristics, column 2 only considers the respondents' characteristics but not household characteristics, whereas column 3 considers both the respondents' and their household characteristics. The results show that respondents' perception of physical insecurity has a significantly positive relationship with their household indebtedness on all three columns. This implies that higher perceived physical insecurity is associated with a high possibility of having debt, which supports my hy-

Table 4. The relationship between respondents' perception of physical insecurity and their household indebtedness

	(1)	(2)	(3)
Physical Insecurity	0.0146***	0.0146***	0.0149***
	(0.0056)	(0.0056)	(0.0056)
Gender		−0.0061	−0.0066
		(0.0224)	(0.0225)
Education		−0.0403*	−0.0399*
		(0.0235)	(0.0235)
Age		0.0176	0.0162
		(0.0457)	(0.0457)
Social relationship		0.0388	0.0372
		(0.0270)	(0.0270)
Income			−0.0456***
			(0.0109)
Agriculture			−0.0149
			(0.0116)
Non-agriculture			−0.0139
			(0.0116)
Firm ownership			0.0140
			(0.0105)
Remittance			0.0002
			(0.0012)
Ownership of dwelling			−0.0228
			(0.0201)
Dwelling strength			−0.0144
			(0.0157)
Electricity (grid)			−0.0069
			(0.0193)
Water (safe)			0.0082
			(0.0153)
Constant	0.4312***	0.2678	0.3258*
	(0.0110)	(0.1895)	(0.1910)
Household fixed effects included	Yes	Yes	Yes
Round fixed effects included	Yes	Yes	Yes
Observations	17,471	17,407	17,407
R-squared	0.6653	0.6663	0.6673

Robust Standard errors in parentheses. *$p<0.1$, **$p<0.05$, ***$p<0.01$

pothesis.

These findings reveal that during armed conflict, when the residents' perception of physical insecurity in their living area increases, their households are more likely to have debt. Several possible reasons exist for households to have a greater likelihood of incurring debt. First, during the armed conflict, households could not fully operate their income generation activities because of their security concerns. Thus, their income and employment are decreasing (Justino & Verwimp, 2013; World Bank, 2022; Kafando & Sakurai, 2024; ILO & PCBS, 2024), which leads to facing financial difficulties for survival. Second, armed conflicts result in the disruption of infrastructure, power shortage, and the increase in fuel price (Al-Saidi et al., 2020; Zheng et al., 2022; Alhaj Omar et al., 2023; Ozili & Ozen, 2023).

Table 5. The relationship between respondents' perception of physical insecurity and their household's selling properties and income situation

	Selling properties			Income situation		
	(1)	(2)	(3)	(4)	(5)	(6)
Physical Insecurity	0.0135***	0.0128***	0.0126***	−0.0758***	−0.0779***	−0.0791***
	(0.0046)	(0.0047)	(0.0047)	(0.0159)	(0.0161)	(0.0164)
Constant	0.0943***	0.0865	0.1302	2.9600***	4.0501***	3.6004***
	(0.0092)	(0.1571)	(0.1588)	(0.0316)	(0.4948)	(0.5501)
Household fixed effects included	Yes	Yes	Yes	Yes	Yes	Yes
Round fixed effects included	Yes	Yes	Yes	Yes	Yes	Yes
Respondent's characteristics included	No	Yes	Yes	No	Yes	Yes
Household's characteristics included	No	No	Yes	No	No	Yes
Observations	17,487	17,422	17,422	17,388	17,323	17,323
R-squared	0.5097	0.5104	0.5113	0.5315	0.5327	0.5471

Robust Standard errors in parentheses. *$p<0.1$, **$p<0.05$, ***$p<0.01$

These consequences of armed conflict create extra expenditure for firms and lead to increasing commodity prices and inflation (Sab, 2014; WFP, 2023). Higher prices and inflation make the households face financial difficulties for their daily and business activities. Third, during the armed conflict, because of poor law enforcement, criminal cases are usually high. Households suffer from their assets and properties being lost and destroyed during the armed conflicts (Justino, 2011; Justino & Verwimp, 2013). Thus, they need financial resources to repurchase and rebuild their assets and properties for their business and daily life. When they do not have enough financial resources, they need to find them elsewhere.

Table 5 shows the results of my robustness check by separately using two different dependent variables, (1) Selling properties and (2) income situation, that measure the financial situation of the household. In this table, the results of columns 1–3 are for the dependent variable, "Selling properties", and those of columns 4–6 are for the dependent variable, income situations. In columns 1–3, the respondents' perception of physical insecurity has a positive relationship with "Selling properties" at a 1% significant level. Furthermore, in columns 4–6, the respondents' perception of physical insecurity has a significant negative relationship with the "Income situation" at a 1% significance level. These findings suggest that during the armed conflict, the respondents felt compelled to sell their properties due to increased concerns about physical insecurity, a lack of income, and food shortages, resulting in a decrease in their income compared to the previous year. These findings in this robustness check are aligned with my findings in Table 4.

4.2 Heterogeneity across rural and urban areas

This study considers possible heterogeneity related to the residents' living areas, rural vs. urban. During the armed conflict, although urban residents suffer the consequence of

the armed conflict (Elfversson & Höglund, 2021; Dorward, 2024), the rural residents have a strong possibility of facing financial difficulties compared to their urban counterparts. This is due to the fact that rural areas are often the front line and the main location of armed conflict, as opposed to urban areas (Sánchez-Céspedes, 2017).

Furthermore, the armed conflict disrupts the agriculture production and livestock market, which is the primary source of livelihoods for most households in rural areas, which leads to decreasing the agriculture income of households in rural areas (FAO, 2016; George et al., 2021; Kafando & Sakurai, 2024). Moreover, farmers also face difficulty getting agriculture inputs, and even if they can get the inputs they require, the cost is unreasonably high because of the limited supply (Seid et al., 2024; Kafando & Sakurai, 2024). Decreasing income and increasing expenditure of the agricultural sector create financial difficulties for the people in rural areas. Another factor is that rural households are often more vulnerable to the effects of external shocks, such climate change and the challenges of financial affairs, than urban ones (Zhou et al., 2022; He & Zhou, 2022).

In Myanmar, the rural areas are usually the front line and center of the armed conflict, and rural residents have a high risk of being the victims of the war (Forsyth & Springate-Baginski, 2022; UN, 2023; Zhu et al., 2025). Due to armed conflict, farmers have been forced to relocate at critical stages of the agricultural cycle, which is predicted to significantly lower food production in several states and regions (COAR, 2022). Furthermore, armed conflict creates economic constraints, price hikes, and income decreases, especially for people in rural areas whose livelihoods mainly depend on the agricultural sector (Takada et al., 2022; UNDP, 2023). In addition, in rural areas, the level of employment is dropping from 65% in 2017 to 55% in 2022 (Sinha Roy & Van der Weide, 2024). Moreover, law enforcement organizations withdraw from rural areas and do not fully operate there due to threats from armed groups (Myanmar Peace Monitor, 2023, 2024). Consequently, the armed conflict results in the loss and destruction of rural residents' lives and properties (Myanmar Peace Monitor, 2022, 2025). Decreasing income, increasing prices, and losing properties make Myanmar rural households suffer the financial difficulties to survive during the hardship period.

To explore the heterogeneity across rural and urban areas, I analyze the relationship between respondents' perception of physical insecurity and their household indebtedness across urban and rural areas. Table 6 presents result from subsamples disaggregated by household living areas (rural vs urban), revealing significant heterogeneity between these areas. The respondents' perception of physical insecurity has a positive and statistically significant relationship (at the 1% level) with rural household indebtedness, but its positive relationship with urban household indebtedness is not statistically significant. The reason may be that rural areas are usually the front line and center of the armed conflict and have a high risk of being the victims of the armed conflict (Sánchez-Céspedes, 2017; For-

Table 6. The relationship between respondents' perception of physical insecurity and their household indebtedness

	Rural	Urban
Physical Insecurity	0.0182***	0.0082
	(0.0068)	(0.0097)
Constant	0.5245**	−0.0459
	(0.2253)	(0.3738)
Household fixed effects included	Yes	Yes
Round fixed effects included	Yes	Yes
Respondent's characteristics included	Yes	Yes
Household's characteristics included	Yes	Yes
Observations	12,128	5,279
R-squared	0.6518	0.6932

Robust Standard errors in parentheses. *$p<0.1$, **$p<0.05$, ***$p<0.01$

Table 7. The relationship between respondents' perception of physical insecurity and their household's selling properties and income situation

	Selling properties		Income situation	
	Rural	Urban	Rural	Urban
Physical Insecurity	0.0157***	0.0054	−0.0944***	−0.0423
	(0.0057)	(0.0081)	(0.0199)	(0.0289)
Constant	0.2306	−0.1695	3.2152***	3.9363***
	(0.1875)	(0.3170)	(0.6408)	(1.1405)
Household fixed effects included	Yes	Yes	Yes	Yes
Round fixed effects included	Yes	Yes	Yes	Yes
Respondent's characteristics included	Yes	Yes	Yes	Yes
Household's characteristics included	Yes	Yes	Yes	Yes
Observations	12,135	5,287	12,056	5,267
R-squared	0.5037	0.5314	0.5423	0.5593

Robust Standard errors in parentheses. *$p<0.1$, **$p<0.05$, ***$p<0.01$

syth & Springate-Baginski, 2022; UN, 2023; Zhu et al., 2025). Moreover, rural livelihood disruption, income decreasing, price hiking, and properties losing worsen the financial situation of the rural household living in conflict-affected areas (FAO, 2016; George et al., 2021; COAR, 2022; Takada et al., 2022; Myanmar Peace Monitor, 2022; UNDP, 2023; Seid et al., 2024; Kafando & Sakurai, 2024; Myanmar Peace Monitor, 2025).

Furthermore, the robustness checks presented in Table 7 validate this finding by demonstrating that the respondents' perception of physical insecurity significantly adversely affects other financial outcomes, specifically the selling of properties and income situation, but only in rural areas. This consistent pattern across tables confirms that rural households have distinct financial difficulties due to perceived insecurity during the armed conflict.

5. Conclusion

This study demonstrates that as the resident's perception of physical insecurity in their living area increases, they are more likely to have debt. This finding also supports my hypothesis and highlights the importance of physical insecurity during armed conflict when solving the financial difficulties of the people living in Myanmar. Furthermore, this study also examines the possible heterogeneity related to the residents' living areas, rural vs urban. My findings reveal that compared to urban households, rural households are more likely to have debt when their concerns about physical insecurity increase.

As a policy recommendation, the policymakers should consider implementing a ceasefire agreement and building sustainable peace as an important factor when the policymakers are solving the financial difficulties of the people who have suffered the consequences of the armed conflict since gaining independence in 1948. The Nationwide Ceasefire Agreement (NCA) should be improved to attract all stakeholders who are essential in the Myanmar peacebuilding process, actively participate in the NCA, and create sustainable peace in Myanmar. Moreover, policymakers should prioritize enhancing the financial status of both rural and urban residents. Not only improving the financial support programs but also facilitating agriculture sector and rural infrastructure development should be implemented and incorporated with peace-building efforts like the NCA for rural residents who have a higher risk of being victims of the armed conflict compared to urban residents.

The findings of this study on Myanmar extend beyond its national context. The insights and framework developed in this study can be applied in other conflict-affected countries, and they are helpful to policymakers and practitioners working in similar environments. This study also has limitations, although I developed several valuable insights for improving the financial well-being of the people living in conflict-affected countries. First, this study applies the resident's perception of physical insecurity as a proxy measure of the armed conflict in Myanmar. However, these perceptions are shaped by factors like personal bias, community narratives, and media coverage, which can distort one's judgment and lead to a misalignment between perceived and actual security, either overstating or understating the real physical insecurity (Zhang et al., 2021; Tagliapietra, 2022). Thus, future studies should apply the direct measure of the armed conflict to examine the impacts of armed conflict on household indebtedness. Second, this study applies a fixed-effect model, which controls time-invariant heterogeneity but cannot estimate the effect of time-invariant variables. While this approach is effective for controlling unobserved characteristics, it may not fully address endogeneity. Thus, future studies could employ other advanced estimation models to validate the robustness of the findings and explore different dimensions of the

data. Third, this study only focuses on household indebtedness as an outcome. Future studies could investigate its link to broader socioeconomic consequences, such as educational attainment, health outcomes, or investment in small businesses.

Acknowledgment and disclaimer

I really appreciate Professor Makoto Kakinaka, Graduate School of Economics, Ritsumeikan University. Furthermore, I also really appreciate the International Food Policy Research Institute (IFPRI) and partner organizations for allowing us to use "The Myanmar Household Welfare Survey" in my study. The Myanmar Household Welfare Survey and Myanmar Agriculture Production Survey was undertaken as part of the Feed the Future Myanmar Agricultural Policy Support Activity (MAPSA) led by the International Food Policy Research Institute (IFPRI) in partnership with Michigan State University (MSU) and made possible by the support of the American people through the United States Agency of International Development (USAID). The opinions expressed here belong to the author(s) and do not necessarily reflect those of IFPRI, MSU, CGIAR or USAID.

Note

1) For round 5, the survey period is from Mar 30, 2023, to June 13, 2023. For round 6, the survey period is from Aug 31, 2023, to Nov 11, 2023. For round 7, the survey period is from Apr 2, 2024, to Jul 7, 2024.

References

Adelaja, A., & George, J. (2019). Effects of conflict on agriculture: Evidence from the Boko Haram insurgency. *World Development, 117,* 184-195.

Adelaja, A., George, J., Jayne, T., Muyanga, M., Awokuse, T., Aromolaran, A., & Liverpool-Tasie, L. S. O. (2023). Stepping-up: Impacts of armed conflicts on land expansion. *Journal of Agricultural and Applied Economics, 55*(4), 748-769.

Alhaj Omar, F., Mahmoud, I., & Cedano, K. G. (2023). Energy poverty in the face of armed conflict: The challenge of appropriate assessment in wartime Syria. *Energy Research & Social Science, 95,* 102910.

Aliyev, S., Seong, J., & Myint, M. (2023). *In the Dark: Power Sector Challenges in Myanmar. August 2023.* World Bank Group.

Allcott, H., Collard-Wexler, A., & O'Connell, S. D. (2016). How do electricity shortages affect industry? Evidence from India. *American Economic Review, 106*(3), 587-624.

Al-Saidi, M., Roach, E. L., & Al-Saeedi, B. A. H. (2020). Conflict resilience of water and energy supply infrastructure: Insights from Yemen. *Water, 12*(11), 3269.

Baker, B. (2017). Policing for Conflict Zones: What Have Local Policing Groups Taught Us?. *Stability: International Journal of Security and Development, 6*(1), 9-9.

Center for Operational Analysis and Research (COAR). (2022). *Situation update: Crisis amid skyrocketing fuel costs.*

Dorward, N. (2024). The urbanization of conflict? Patterns of armed conflict and protest in Africa. *African Affairs,* adae025.

Elfversson, E., & Höglund, K. (2021). Are armed conflicts becoming more urban?. *Cities, 119,* 103356.

Food and Agriculture Organization of the United Nations (FAO) & World Food Programme (WFP). (2023). *Myanmar: DIEM-Data in Emergencies Monitoring Brief, Round 4: Results and Recommendations. January 2023.* FAO.

Food and Agriculture Organization of the United Nations (FAO). (2016). *Peace and Food Security: Investing in resilience to sustain rural livelihoods amid conflict.* FAO.

Forsyth, T., & Springate-Baginski, O. (2022). Who benefits from the agrarian transition under violent conflict? Evidence from Myanmar. *Journal of Rural Studies, 95,* 160–172.

Fürst, T., Tschannen, A. B., Raso, G., Acka, C. A., De Savigny, D., Girardin, O., … & Utzinger, J. (2010). Effect of an armed conflict on relative socioeconomic position of rural households: case study from western Côte d'Ivoire. *Emerging themes in epidemiology, 7,* 1–17.

Gates, S., Hegre, H., Nygård, H. M., & Strand, H. (2012). Development consequences of armed conflict. *World Development, 40*(9), 1713–1722.

George, J., & Adelaja, A. (2022). Armed conflicts, forced displacement and food security in host communities. *World Development, 158.*

George, J., Adelaja, A., & Awokuse, T. O. (2021). The agricultural impacts of armed conflicts: The case of Fulani militia. *European Review of Agricultural Economics, 48*(3), 538–572.

George, J., Adelaja, A., & Weatherspoon, D. (2020). Armed conflicts and food insecurity: evidence from Boko Haram's attacks. *American Journal of Agricultural Economics, 102*(1), 114–131.

Global Initiative Against Transnational Organized Crime (GI-TOC). (2023). *Myanmar: Organized Crime Index 2023 country profile.*

Global Initiative Against Transnational Organized Crime (GI-TOC). (2024). *Myanmar's organized crime resilience: Findings from the Organized Crime Index.*

Graceffo. A. (2024). *Backgrounder: Ethnic Armies in Myanmar Civil War. February 2024.* Geopolitical Power. https://www.geopoliticalmonitor.com/backgrounder-ethnic-armies-in-the-myanmar-civil-war/

He, L., & Zhou, S. (2022). Household financial vulnerability to income and medical expenditure shocks: measurement and determinants. *International Journal of Environmental Research and Public Health, 19*(8), 4480.

International Committee of the Red Cross (ICRC). (1999). *Arms availability and the situation of civilians in armed conflict.* ICRC.

International Labor Organization (ILO) and Palestine Central Bureau of Statistics (PCBS). (2024). *Impact of the war in Gaza on the labour market and livelihoods in the Occupied Palestinian Territory: 1 Bulletin No. 3.*

Justino, P. (2011). The impact of armed civil conflict on household welfare and policy responses. *Securing Peace: State-Building and Economic Development in Post-Conflict Countries,* 19–52.

Justino, P., & Verwimp, P. (2013). Poverty dynamics, violent conflict, and convergence in Rwanda. *Review of Income and Wealth, 59*(1), 66–90.

Kafando, W. A., & Sakurai, T. (2024). Armed conflicts and household food insecurity: Effects and mechanisms. *Agricultural Economics, 55*(2), 313–328.

Khai, T. S. (2023). Vulnerability to health and well-being of internally displaced persons (IDPs) in Myanmar post-military coup and COVID-19. Archives of Public Health, 81(1), 185.

Market Analysis Unit (MAU). (2023). *Microfinance in Myanmar: The Impacts of Conflict on Livelihoods and Debt Repayment 2023.* Vision Fund Myanmar.

McIntyre, A. (2003). Rights, root causes and recruitment: the youth factor in Africa's armed conflicts. *African Security Studies, 12*(2), 91–99.

Minten, B., J. Goeb, K. Z. Win, & P. Zone. 2023. "Agricultural Value Chains in a Fragile State: The Case of Rice in Myanmar." *World Development* 167: 106244.

Myanmar Peace Monitor. (2022). *IDPs in Arakan State say they don't dare to return to their villages despite ceasefire.* https://mmpeacemonitor.org/en/en-news/idps-in-arakan-state-say-they-dont-dare-to-return-to-their-villages-despite-ceasefire/

Myanmar Peace Monitor. (2023). *Three including one officer killed in attack on Mokepalin junction police checkpoint.* https://mmpeacemonitor.org/en/en-news/three-including-one-officer-killed-in-attack-on-mokepalin-junction-police-checkpoint/

Myanmar Peace Monitor. (2024). *Joint PDF attacks Maung Ma Kan police station.* https://mmpeacemonitor.org/en/en-news/joint-pdf-attacks-maung-ma-kan-police-station/

Myanmar Peace Monitor. (2025). *Over 8,000 residents from 13 villages displaced by fighting in Pekon Township.* https://mmpeacemonitor.org/en/en-news/over-8000-residents-from-13-villages-displaced-by-fighting-in-pekon-township/

Nathan, E., & Joel Uche, W. (2023). Impact of Violent conflict on household income in rivers state, Nigeria. *Journal of Economics, Finance and Management Studies, 6*(3), 1026-1035.

Ozili, P. K., & Ozen, E. (2023). *Global energy crisis: impact on the global economy.* https://ssrn.com/abstract=4309828

Raleigh, C., & Kishi, K. (2024). *Conflict index: July 2024. Armed Conflict Location & Event Data Proj* ect. Armed Conflict Location & Event Data (ACLED). https://acleddata.com/conflict-index/index-july-2024/

Ray, A. (2017). Everyday violence during armed conflict: Narratives from Afghanistan. *Peace and Conflict: Journal of Peace Psychology, 23*(4), 363-371.

Sab, R. (2014). *Economic impact of selected conflicts in the Middle East: What can we learn from the past ?* (IMF Working Paper No. 14/100). International Monetary Fund.

Sánchez-Céspedes, L. M. (2017). The consequences of armed conflict on household composition. *Oxford Development Studies, 45*(3), 276-302.

Seid, A., Asresie, A., Muhie, S. H., & Hassen, S. (2024). Some impacts of armed conflict on agriculture: a case study from south Wollo, northeastern Ethiopia. *Chilean Journal of Agricultural & Animal Sciences, 40*(3), 563-575.

Sinha Roy, S., & Van der Weide, R. (2024). *Development reversed: Poverty and labor markets in Myanmar. May 2024.* World Bank Group.

Tagliapietra, A. (2022). *Media and securitisation: The influence on perception.* Istituto Affari Internazionali (IAI).

Takada, M., Haile, M. G., & Ambrosio-Albalá, M. (2022). *Myanmar-Food Security and Agriculture Monitoring Brief* (*English*). World Bank Group.

U. S. Department of State. (2022). *2022 Investment Climate Statements: Burma.* https://www.state.gov/reports/2022-investment-climate-statements/burma/

United Nations (UN). 2023. *Myanmar: Intense fighting spreads to cities, as civilians seek shelter.* https://news.un.org/en/story/2023/11/1143702

United Nations Development Program (UNDP). (2023). *Strengthening food security in Myanmar: A roadmap for localized action.*

Weinthal, E., & Sowers, J. (2019). Targeting infrastructure and livelihoods in the West Bank and Gaza. *International Affairs, 95*(2), 319-340.

Williams, N. E., Ghimire, D., & Snedker, K. A. (2018). Fear of violence during armed conflict: Social roles and responsibilities as determinants of fear. *Social Science Research, 71,* 145-159.

World Bank. (2022). *Myanmar economic monitor: Contending with constraints, January 2022*. World Bank Group.

World Bank. (2024a). *Macro Poverty Outlook for Myanmar: October 2024. Macro Poverty Outlook (MPO)*. World Bank Group.

World Bank. (2024b). *Myanmar-Agricultural Resilience Amid Deepening Food Insecurity: Agriculture and Food Security Monitoring Report. June 2024*. World Bank Group.

World Food Programme (WFP). (2022). *Myanmar: Market price update. May 2022*.

World Food Programme (WFP). (2023). *Armed conflict cause hunger: Unpacking relationships between conflict and rising food prices-Sudan, November 2023*.

Zhang, F., Fan, Z., Kang, Y., Hu, Y., & Ratti, C. (2021). "Perception bias": Deciphering a mismatch between urban crime and perception of safety. *Landscape and Urban Planning, 207,* 104003.

Zheng, Z., Wu, Z., Cao, Z., Zhang, Q., Chen, Y., Guo, G., Yang, Z., Guo, C., Wang, X., & Marinello, F. (2022). Estimates of Power Shortages and Affected Populations during the Initial Period of the Ukrainian-Russian Conflict. *Remote Sensing, 14*(19).

Zhou, L., Kori, D. S., Sibanda, M., & Nhundu, K. (2022). An analysis of the differences in vulnerability to climate change: A review of rural and urban areas in south Africa. *Climate, 10*(8), 118.

Zhu, L., Wang, C., Sun, W., Xing, H., Feng, C., & Su, Q. (2025). Impact of civil war on the land cover in Myanmar. *Environmental Monitoring and Assessment, 197,* 130.