

WHO BENEFITS FROM THE AGRARIAN TRANSITION UNDER VIOLENT CONFLICT? EVIDENCE FROM MYANMAR

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ABSTRACT

Agricultural commercialization and livelihood diversification have been proposed as ways to bring economic prosperity to rural zones after long-term violent conflict. Critics, however, argue that these market-based interventions exacerbate, rather than resolve, older social divisions, and that commercialization needs to be seen as part of agrarian transition processes. This paper contributes to the analysis of livelihoods-based interventions under violent conflict by presenting research from Kachin State, Myanmar. Drawing on 276 household surveys plus interviews, the paper argues that agrarian transition has only occurred within larger landholders who have been able to increase farm size by expanding commercial agriculture onto land historically used for shifting cultivation. Smallholders, however, have been unable to expand agriculture in this way, partly because of the reallocation of agricultural land to favored investors, including Chinese banana plantations. Meanwhile, access to non-agricultural livelihoods is largely restricted to laboring in Burmese army-controlled jade mines, or to traders arriving from outside the region. These findings indicate a different outcome to research elsewhere in Myanmar that suggests agrarian transition processes can benefit landless people; and instead supports evidence elsewhere in Asia that the agrarian transition can become “truncated” if smallholders do not participate. Making the agrarian transition inclusive requires greater attention to the ethnic, and other social barriers for participation by smallholders and rural landless, rather than facilitating commercialization alone.

KEYWORDS: agrarian transition, livelihoods, violent conflict, Myanmar

1. INTRODUCTION

In recent years, various development organizations have proposed using agricultural commercialization and livelihood diversification as ways to help overcome long-term violent conflict in rural areas (Lautze and Raven-Roberts, 2006; Young and Goldman, 2015). There are increasing concerns, however, that – similar to older debates about the agrarian transition – these market-based interventions fail to include smallholders and rural landless people (Cramer, 2006; Rigg et al., 2018, p. 327; Rigg et al., 2016). Accordingly, analysts have urged more attention to who can, and cannot, benefit from the agrarian transition under violent conflict, especially concerning smallholders and landless people (Bahn and Zurayk, 2018; Bhandari, 2013; UNHCR, 2018).

This paper contributes to the analysis of livelihoods-based interventions under violent conflict by presenting research from Kachin State, Myanmar, a region that has experienced commercialization and long-term violent conflict. Research on agrarian change Myanmar is still growing, and the military coup of 2021 and resulting conflict has impacted significantly on economic growth and democratization (Goldman, 2022). Before the coup, research in central Myanmar indicated that agrarian transition processes were indeed offering new opportunities for rural landless people, largely through the growth of non-agricultural livelihoods (Belton and Filipski, 2019, p. 175). This research, however, was located in a zone very different from Kachin State which has a higher proportion of smallholders engaged in traditional agriculture, ethnic differences, and more recent violent conflict, which has actually intensified since the 2021 coup (Kramer, 2021). Research in Kachin is therefore more likely to indicate the relationships between long-term violent conflict and agrarian transition processes, and the challenges for including smallholders and rural landless people.

The paper summarizes research about agrarian change and violent conflict in Kachin. Drawing on 276 household surveys plus interviews, the paper asks: Which social groups benefit, or fail to benefit from processes of agrarian transition? How does violent conflict influence who benefits? And, what are the

implications for understanding the general use of commercialization and livelihood diversification within approaches to addressing long-term violent conflict?

The paper starts by reviewing debates about the relationship of violent conflict and the agrarian transition, and the challenges for including smallholders and rural landless people.

2. CONNECTING AGRARIAN TRANSITION PROCESSES AND VIOLENT CONFLICT

For some years, development and humanitarian organizations have used livelihood-based strategies as part of a portfolio of approaches to help in overcome the impacts of long-term violent conflict and disasters (Lautze and Raven-Roberts, 2006; Young and Goldman, 2015). For example, the International Committee of the Red Cross (ICRC), the United Nations High Commissioner for Refugees (UNHCR), and non-governmental organizations (NGOs) such as CARE and Mercy Corps have promoted livelihood diversification and agricultural commercialization as part of post-conflict interventions in locations such as Afghanistan, Nepal, Sierra Leone, and Sudan, (Joshi, 2013; Lautze and Raven-Roberts, 2006; Wuyts, 2003). Meanwhile, national governments such as Sri Lanka and Myanmar have also tried to discourage insurgencies by making commercial agriculture more economically attractive (Joshi, 2013; Snyder, 2006, p. 995). According to one study, “livelihood approaches are often overlooked as a peacebuilding tool... by providing economic opportunities, promoting social equity, and most importantly, giving despairing populations a hope for a brighter future” (Young and Goldman, 2015, p. 10).

Various analysts, however, have treated these objectives with concern, and have cautioned against the “post-conflict make over fantasy” (Cramer, 2006, p. 245). In particular, analysts have argued that, rather than resolving long-term violent conflict, new market-based interventions are likely to exacerbate old social divisions, and create new inequalities of their own (de Haan and Zoomers, 2005, p. 45; Lautze and Raven-Roberts, 2006, p. 389).

In many ways, these debates echo the concerns voiced in long-standing discussions in rural studies about the agrarian transition. The agrarian transition is usually defined as the series of interconnected changes by which traditional, smallholder agriculture is replaced by larger, commercialized farms, and rural labor is attracted to more highly paid employment on other farms or in non-agricultural activities, often in cities (Graeub *et al.*, 2016; Hazell and Rahman, 2014, p. 3; Macours and Swinnen, 2002; Tsakok, 2011; Wiggins *et al.*, 2010). Classically, economists have portrayed the transition as an economically rational step towards modernization and the replacement of inefficient smallholder agriculture within food production (Collier and Dercon, 2014; Lewis, 1954). Political economists, however, have typically highlighted social divisions and class formation arising from the “unleashing of capital accumulation” (Byres, 2003, p. 55; Lerche, 2010). Under these conditions, smallholders and rural landless people might not be attracted to new activities because of economic opportunities, but instead might be dispossessed because of rising costs, decreasing returns to labor, or forcible evictions (Bernstein, 1979; Saad Filho, 1997; van Vliet *et al.*, 2015).

Much recent research has tried to identify the conditions under which different people can, or cannot, benefit from agrarian transition processes. This research, however, can also mean questioning whether such transitions actually occur. Evidence from Southeast Asia and Sub Saharan Africa has indicated that, despite widespread commercialization, the agrarian transition is apparently “truncated” because smallholder agriculture persists; overall numbers of farms are increasing; and average farm size is decreasing (Rigg *et al.*, 2018, p. 327; Rigg *et al.*, 2016). These findings raise two important questions. First, is the “transition” in itself actually occurring? And second, is the common understanding of the transition too dominated by economic rationality as the only motivation? Indeed, according to one study, the belief that the agrarian or farm-size transition is driven by economic rationality alone has “taken on an almost normative, teleological status” (Rigg *et al.*, 2018, p. 328) that takes attention away from other, more social motivations such as livelihood security (Ellis, 2000), cultural and personal preferences (Bryceson, 1999; Rigg, 2019), or state policies (Bernstein and Oya, 2014; Caouette and Turner, 2009).

A further factor is the ability of different households to participate in new commercialization opportunities. In Nepal, Bhandari (2013, pp. 128-130) hypothesized that households could participate more in agrarian transition processes if they had large labor supplies; family members willing to persist with farming; good education; proximity to urban centers; access to non-agricultural livelihoods; and natural and economic capital such as land and livestock. Ethnic ties can also increase access to livelihoods (Michaud and Forsyth, 2011; Turner, 2012).

These factors can also influence the adoption of non-agricultural livelihoods as an alternative to traditional land management and labor. Research in Vietnam and central Myanmar, for example, has noted that landless people have more flexibility for joining non-agricultural employment (Belton and Filipski, 2019; Ravallion and Walle, 2008). Other research, however, has suggested that reforms seeking to enhance agricultural commercialization have actually increased rural landlessness and poverty (although in China this outcome has been lessened by allowing smallholders continued access to land) (Akram-Lodhi, 2004; Forrest Zhang and Donaldson, 2010; Nguyen et al, 2020; Zhou, 1998, p. 19). Together, these changes can mean that rural households can divide labor and responsibilities between different individuals, meaning that younger people might migrate (on a permanent or circular basis) to cities for employment, leaving traditional agriculture to older farmers. Similarly, out-migration might also lead to a growth in women-headed households (Angeles and Hill, 2009; Sunanta and Angeles, 2013).

Violent conflict can affect these changes by influencing local agricultural and labor markets, as well as the risk-management strategies of households. Much research on violent conflict has focused on acute, high-intensity periods of warfare. Yet, violence can also be chronic or fluctuating over some decades, leading to long-term reduced investment, non-transparent governance, and the extraction of household members into local militias. These conditions can also impact on livelihood strategies by affecting land tenure systems, access to labor or agricultural markets, and other activities such as money lending and protection (Drahmoune, 2013; Jaspars and O'Callaghan, 2010; Kulatunga and

Lakshman, 2013). One trend observed in Cambodia, Mozambique, Myanmar, and Nicaragua has been the influence of politically connected monopsonies (limited number of buyers) under military or authoritarian regimes (Beban and Gorman, 2017) or the favoring of specific companies and militias in economic opportunities (Kramer, 2021; Spoor, 1990; Woods, 2011; Wuyts, 2003). Another trend is so-called “land grabbing” or allocation of land to selected actors while excluding pre-existing users (Diepart and Sem, 2018; White *et al.*, 2012). Unequal access to the politico-legal authority can be an additional determinant on how access to land or water are allocated (Beban and Gorman, 2017).

Under these conditions, it might be expected that smallholders and landless rural workers might seek to maintain traditional livelihoods rather than diversify into new commercial opportunities. Indeed, various analysts have now questioned whether the standardized household-focused livelihoods approaches such as the Sustainable Livelihoods framework are appropriate for conditions of violent conflict because “a livelihoods framework must be infused with and informed by the many ways that violence influences household livelihood resources, options, choices and outcomes” (Lautze and Raven-Roberts, 2006, p. 391; de Haan and Zoomers, 2005, p. 45; Sørbø, 2018). Instead, these approaches need to be complemented by a broader and less easily quantified set of capitals, such as how far different villages, or groups of people, can influence political authorities or gain access to new livelihoods under these conditions (Subedi, 2018, p. 247).

These concerns are already being acknowledged within some development agencies. One internal review of the UNHCR stated, “in nearly half of the livelihood programme contexts, UNHCR is attempting to promote livelihoods and self-reliance when it is politically/legally very difficult to do so” (UNHCR, 2018, p. 39). But there is still a need to understand more about how processes of agricultural commercialization and agrarian transition include or exclude different groups under conditions of violent conflict, and to draw lessons for making livelihoods-based approaches to conflict more effective and inclusive. This paper seeks to address this need by presenting research based on fieldwork in Kachin State, Myanmar.

3. THE STUDY

3.1 Research questions and methodology

Fieldwork was conducted in Kachin State before the 2021 coup to answer three questions:

- Which social groups benefit, or fail to benefit, from agrarian transition processes?
- What is the role of violent conflict in influencing agrarian change and benefits?
- What lessons can be drawn for understanding the relationship of agrarian transitions and violent conflict in general?

Information was collected in three zones of Kachin to reflect different circumstances of agrarian change and violent conflict (see Figure 1 and Table 1):

- Around Puta'O in the upper Ayeyarwady Basin: this zone is historically dependent on upland agriculture, including smallholders of farmland and taungya.
- Around Waing Maw, an agricultural zone close to Myitkyina, the capital of Kachin State. This zone has well developed commercial agriculture on floodplains.
- Around Indawgyi Lake in the lower catchment area of the basin. This zone has various villages engaged in agriculture and fishing, or working in the Hpakant jade mines nearby. As with Waing Maw, this zone has also received inward migration from other parts of Myanmar such as Shan State.

Seven villages were then selected in these zones to indicate typical locations where agrarian change and commercialization were occurring (see Table 1). It is worth noting that Kachin has an estimated 100,000 war-displaced people (Fortify Rights, 2018, p. 21). This project did not focus on these people, or camps for internally displaced people.

[FIGURE 1 MAP OF KACHIN AND SAMPLE SITES]

[TABLE 1: STUDY ZONES AND VILLAGES]

Information was collected by interviews and village surveys, including by two collaborating non-governmental organizations: the Shalom (Nyein) Foundation of Myitkyina, and Friends of Wildlife based in Yangon. These teams conducted research in Jingphaw (Kachin), Shan and Burmese languages, and undertook fieldwork in Puta'O where access for foreigners was restricted. The authors accompanied the research teams when possible in other zones, and undertook additional field surveys and interviews by themselves. Information was collected through meetings with village administrators, followed up by more focused group discussions and interviews with selected groups such as smallholders, landless households, women farmers, or households representing unusually large or low incomes. A total of 276 household surveys and 32 interviews were completed. The researchers also conducted two in-depth telephone interviews (encrypted) with two Kachin advisers to the project in 2022 to check the continued accuracy of the research findings, and to assess new challenges since the 2021 coup.

The research was also sensitive to ethical concerns, and especially the risks to informants if they were considered by others to be criticizing the government. All people surveyed or interviewed were offered papers forms to secure prior-informed consent. All comments from individuals were anonymized. The researchers avoided asking people questions that might be considered critical of authorities (either Burmese or Kachin); or if household members were engaged in violent conflict or illegal income – although taking notes if mentioned. Smaller, women-specific meetings were also convened in each village led by a female researcher. Research did not sample people according to different ethnicities, although ethnic politics was discussed if informants mentioned it.

After seeking advice from advisers in Kachin and elsewhere, it was decided not to anonymize the names of the villages. Advisers agreed that the survey's main topics of land use and livelihoods would not be considered high risk by Union or Kachin governments, and that precautions of avoiding discussing illegal or political topics, and anonymizing speakers, should be sufficient to allow the naming of villages.

3.2 Commercialization and conflict in Myanmar and Kachin

Until the military coup in 2021, Myanmar (previously Burma) had been described as undergoing rapid socio-economic transition following economic and political reforms since 2011 (Chachavalpongpun *et al.*, 2020; Okamoto, 2008; Ra *et al.*, 2021; Win *et al.*, 2018). Before 2011, Myanmar was characterized by political authoritarianism and sporadic warfare between the central (or Union) government and ethnically identifying border regions. This conflict arose after Burma's independence from Britain in 1948 and especially after a military coup in 1962, and the intention of the Burmese Army (or Tatmadaw) to occupy other, ethnically different, states (Sadan, 2015, 2016). Between 2012 and 2020, Myanmar undertook limited democratization firstly with by-elections in 2012, and then general elections in 2015 and 2020. A Nationwide Ceasefire Agreement was agreed in 2015 between the Union and 16 ethnic groups (although eventually signed by eight) (Thawngmung, 2017). In Kachin State, however, violent conflict has actually intensified. A ceasefire was agreed between 1994 and 2011, but broke down in 2009. In 2021, a new military coup led to renewed conflict in Kachin and other ethnic regions (Kramer, 2021; Sadan, 2016)

The period after 2011 also experienced important changes to investment and land tenure systems. In 2008, the national constitution declared all land to be the property of the state. In 2012, the Farmland Law and the Vacant, Fallow and Virgin Lands Management Law strengthened rules for classifying and laying claim to land, based on two older laws¹ (Mark and Belton, 2020; Oberndorf, 2012, p. 22). New investment laws in 2012 and 2016 allowed foreigners to lease land without a local partner (Ra *et al.*, 2021, p. 469). These laws, however, have been claimed to have caused pervasive *de jure*

dispossession because of their failure to acknowledge prior land claims (Human Rights Watch, 2018, p. 3). In particular, the reforms encouraged formal claims over higher-quality farmland, and paid less attention to traditional forms of smallholder agriculture, including so-called *taungya* (or *Shwe Pyaung taung ya*), typically comprising shifting cultivation on non-irrigated sloping land (Ferguson, 2014; Tint *et al.*, 2011). Later policies, such as the national Agricultural Development Strategy of 2017 also stimulated rapid change by encouraging smallholders to enter global value chains, including contract and wage-based farming (MOALI, 2018; Ra *et al.*, 2021, pp. 468-469).

These changes have been accused of facilitating large-scale rural dispossession (Ferguson, 2014). Myanmar's Farmland Investigation Commission received some 20,000 complaints between its establishment in 2012, and its closure in 2016 (Human Rights Watch, 2018, p. 2). Its initial report claimed that the Tatmadaw had "forcibly seized" about 250,000 acres of farmland from villagers nationally (The Irrawaddy, 2013). Other analysts claimed that this reallocation was frequently done in cooperation with other actors such as local authorities, government ministries, or selected business partners (Human Rights Watch, 2018, p. 1; Kramer, 2021, p. 489). Sometimes these reallocations occurred when smallholders (or sometimes specific groups such as widows) experienced difficulties in attaining correct certification (Form 7) to register land claims rather than old practices such as requiring tax receipts or recommendations from village heads (EMReF and Spectrum, 2019; Spectrum, 2015). In the words of Tom Kramer (2021, p. 490), following the Vacant, Fallow and Virgin Lands Management Law, "overnight, millions of people in the country were criminalized for living on their ancestral lands and practicing customary systems, but without formal land titles from the government." This law also declared nearly one-third of all land in Myanmar (18.2 million hectares) vacant, of which some 75 percent was in ethnic states (Kramer, 2021, p. 490). These declarations made it easier for external investors to undertake agriculture on land that was also claimed under customary tenure (Springate-Baginski and Kamoon, 2021).

Kachin is Myanmar's most northern state, characterized by mountainous areas with shifting cultivation and forest; and lowland river valleys and floodplains (including the Ayeyarwady River).

Violent conflict between the Tatmadaw and the Kachin Independence Organization/ Army (KIO/A) started in 1962. There as a ceasefire between 1994-2009, and the 2015 nationwide ceasefire did not include Kachin (Lahpai, 2020; Sadan, 2016). The war between the KIA and Tatmadaw continues especially in the hill zones near the Chinese border, and indeed has accelerated since 2009. Much of the state's accessible lowlands and roads have come under Tatmadaw control, including the areas around the state capital, Myitkyina. In other areas, especially uplands, the KIO/A remains the *de facto* authority, and there are many mixed control areas.

One focus for conflict is the Hpakant jade mine in central Kachin. Jade trading has a long history in Kachin (Chang, 2004, pp. 488-489), and Hpakant is widely considered the largest jade mine in the world (Global Witness, 2015). Prior to the 1994 ceasefire, the KIO/A largely funded their struggle by controlling jade production and trade around Hpakant (Woods, 2011, p. 750). After the ceasefire, the Tatmadaw allowed other groups (the Shan State-based United Wa State Army and Pa-O National Organizations) limited concessions in the Hpakant mine (Kramer, 2021, p. 481). Over time, the Tatmadaw monopolized production although both they and the KIO/A exploit the trade (Global Witness, 2015). The region around Hpakant is now a zone with occasional violent conflict, but where villages and towns have visible presences of armed forces from either Tatmadaw, KIA, or allied militias. These different groups can also demand informal taxes on fishing, logging, or other activities from local villages.

This shared military presence affects villages around Lake Indawgyi, some 50km south of Hpakant, which was one of the study sites for this paper. This area became a government-designated "brownzone" in the 1960s, which indicated shared control between KIA and Tatmadaw, sometimes with local militias composed of Shan Ni people. Local village headmen therefore have to report to the Tadmadaw and the KIA, and their allies. During the 1970s, the region experienced violent conflict including the burning of villages. Indeed, similar events across northern Myanmar have shaped inter-ethnic tensions between Bamars, Kachins, Shans, and other peoples, (Kiik, 2016). In 1970, the village

of Nant Mout Khan was burnt, killing four people and displacing about 40 households (a quarter of the village at that time).

The paper's other study sites have also experienced direct forms of violent conflict. Between 2011-2013, the road between Myitkyina and Puta'O was blocked because of conflict, reducing travel and increasing food prices. In the central Waing Maw zone, there have been skirmishes between the Tatmadaw and Kachin Independence Army east of Myitkyina. Indeed, people in Lamyang village told us that two villagers conscripted by the Tatmadaw as porters were killed in 2011, and used as human shields. Interviews with villagers also revealed that a nearby village was burnt at this time, and its inhabitants resettled in Lamyang. Conversations with informants in 2022 indicated that land around the Kachin capital of Myitkyina, such as the Waing Maw area, were highly patrolled by Tatmadaw soldiers, but that hill zones outside of the Ayeryarwady basin were largely dominated by KIA.

Despite this violence, Kachin has also experienced an increase in agricultural commercialization since the 2000s . Commercial crops also date from Christian missionaries in the late 19th century (Morse, 1975) and opium eradication schemes since the 1990s (Kramer, 2016). These changes have also seen control shift from local village elites to regional and national Burmese military officials, and Chinese investors, sometimes apparently including deliberately allocating land concessions to investors as a way to decrease the role of potential combatants (Woods, 2011, p. 752). Kachin, however, is comparatively less commercialized than Myanmar's Shan State, where a boom in contract farming to supply maize as a feedstock has been associated with small-scale "land grabs" in which smallholders are both coerced and consent to transferring customary land rights to larger investors (Debarry, 2017; Lambrecht and Belton, 2019, p. 17; Woods, 2020).

Evidence from elsewhere in Myanmar shows intermittent evidence for an agrarian transition. Various researchers have argued that the biggest barriers to food security and wellbeing lie in access to non-agricultural livelihoods rather than to land (Faxon, 2017; Pritchard *et al.*, 2019, pp. 99-100). This statement seems to be supported by some evidence. In central Myanmar (reported above) landless

workers have been observed to have replaced agricultural laboring for jobs in cities (Belton and Filipski, 2019, p. 175). And in Mon State (southern Myanmar) another study showed that half rural households have a migrant working in Thailand (MCESD *et al.*, 2016). In Kayah State (southern Myanmar), farmers benefited most when they were close to markets, and where they or the government had invested in capital projects such as irrigation (Aldebert and Meulle, 2013). Agricultural mechanization and rising wages have also been noted near Yangon, the capital (Win *et al.*, 2018). Yet, in Chin State, on the Indian border, farmers rejected development interventions aiming to introduce commercial crops because they did not want to change old lifestyles (Vicola *et al.*, 2018, p. 453). It is therefore important to understand the different motivations and benefits to smallholders and landless people when faced with commercialization.

4. FINDINGS: WHO BENEFITS FROM AGRARIAN TRANSITION PROCESSES?

This section now presents the research findings. It considers agricultural and non-agricultural livelihoods, although changes in each are connected.

4.1 Agricultural livelihoods

Farm size and commercialization

Increases in average farm size and agricultural commercialization are often taken used as indicators of agrarian transition (Rigg *et al.*, 2018). Assessing changes to farm size in Kachin was challenging, however, because there were virtually no formal records of landholdings before the 2012 Farmland Law and the Vacant, Fallow and Virgin Lands Management Law. Information was therefore based on how farmers described their own access to, or effective ownership of farm land.

Farmers in all three study sites identified two main categories of land: “farmland” (quality productive land, often irrigated and formally registered with the national or KIO government); and “taungya” (usually unirrigated land of lower quality, unregistered, and used for shifting cultivation at some

distance from villages). Farmland was more common, but both were used for commercial agriculture (see Tables 1 and 2). Unsurprisingly, Puta'O was the site with the smallest landholdings, as this zone was characterized by hilly land and relatively poorer villages. The zone with the largest landholdings was Indawgyi, a fertile floodplain.

[FIGURE 2]

The research showed that many landholdings remained under customary practice. In interviews, informants from all villages said the number of farming households were growing, but that only some households had increased farm sizes. Moreover, some informants also complained of land scarcity because of their inability to gain access to more land (discussed in the next subsection).

Evidence also indicated that the quantity and range of commercial crops were growing in all three regions. The main crops in the three zones were padi rice, dry-rice on taungya land, and various vegetables. In Puta'O, grapefruit was introduced by American missionaries in the late 19th century (Morse, 1975), plus the national government promoted beans and legumes since 2000 as opium substitution schemes. Waing Maw and Indawgyi were more fully engaged in high-value commercialized agriculture including Da Nyin² (a type of tree fruit), star (or winged) bean,³ as well as agroforestry or plantation products such as rubber, rattan, bamboo, banana, and medicinal plants. The research noted that some small farms in the Myitsone area north of Myitkyina produced maize; but this area was outside of the research's three study sites. Overall there was no evidence of widespread contract farming, unlike the Shan State (Woods, 2020). The research also noted three farmers who grew opium (although probably more were involved secretly): these were included under general agricultural income. The research did not inquire deeply about the driving forces for opium production. Other research indicates that opium production in Kachin is declining (Kramer, 2016), although in discussions with informants in 2022, it was reported that opium production was gradually increasing in Kachin and in neighboring northern Shan State.

Figure 3 shows the sources of household income per village. Figure 4 shows the relationship between ownership of farmland (excluding taungya) and annual cash income. Unsurprisingly, larger landowners generate higher incomes, especially when farmland is more than 20 hectares per household. For landholdings smaller than this (such as for Puta'O), the charts show a more varied relationship between land and cash income. Standard linear regression tests for the datasets in Figure 4 showed only limited associations of these datasets. (R-squared scores for the observed influence of farmland on cash income were 0.08 for Puta'O; 0.18 for Waing Maw; and 0.25 for Indawgyi).

[FIGURE 3]

[FIGURE 4]

Constraints on farm size and commercialization

The research identified two important constraints for farmers increasing their farm size and agricultural commercialization. First, larger landowners could shift commercial crop production onto taungya land. Secondly, farmers in Waing Maw in particular were prevented from increasing farm sizes because potential land was allocated by the Union government to other users in so-called “land grabs.”

Figure 5 shows the relationship between access to taungya land household cash income. The relationship show no overall association between these items in Puta'O and Waing Maw. But in Indawgyi, evidence showed that some households had access to up to 75 ha of taungya in some cases, which was associated with a growth in total household cash income. Evidence therefore suggested that households with access to large areas of taungya also had some of the highest household incomes.

[FIGURE 5]

The research investigated this finding statistically through linear regression tests, revealing only limited associations. (R-squared scores for the observed influence of additional taungya land on cash income were 0.01 for Puta'O; 0.05 for Waing Maw; and 0.14 for Indawgyi). In interviews, however, some of the larger landowners in Indawgyi explained that they saw the taungya land as an opportunity to increase their production of commercial agriculture, and that they were free to do so. Farms around Lake Indawgyi were significantly larger than in the other research zones. In Indawgyi, the average taungya claimed by households with existing farmland was 25.4 ha, compared with 4.1 and 9.0 ha respectively for Puta'O and Waing Maw (Table 1). Around Indawgyi, interviewees explained that, large landowners typically came from families who had lived in the region for years with access to land in the plains and low-lying hills around the lake. This trend was especially clear in the village, Nant Mout Khan, which was established in the 1930s. These families therefore had the local authority, and the available land, to increase agriculture by expanding taungya.

The other study sites had very different circumstances. In Puta'O, farmers typically complained about the restrictions of farm size – plus, farmers only used taungya land to grow hill-rice production for domestic consumption (or a traditional rice wine known as *sapi*). Meanwhile in Waing Maw, farmers frequently complained that taungya land was usually allocated to other users through alleged land grabs, and that the Union government closely monitored land used in villages. Moreover, all decisions about land use and changes to farm sizes in Waing Maw had to be agreed by village headmen, who often also requested benefits. It is likely that village headmen also sought benefits from land transactions elsewhere, but this restriction was only mentioned in Waing Maw.

“Land grabs,” especially for plantations exporting bananas to China, have been observed widely across Kachin (Hein Ko Soe and Dunant, 2019; Nyein Nyein, 2019). In 2018, the Kachin State Department of Agriculture measured 24,300 ha of plantations in Waing Maw township alone, and more than 40,500 ha in government-controlled areas of all Kachin State (Chan Thar, 2018). An different study by the Land Security and Environmental Conservation Networking Group estimated that plantations stood at 68,800 ha in Waing Maw township (Hayward *et al.*, 2020, p. 6). Researchers

have also noted that many joint ventures for banana often fail to have formal Land Rights Authorizations required under the Vacant, Fallow and Virgin Lands Management Law (2012) (Hayward *et al.*, 2020, p. 31). There are reports from elsewhere in Kachin of banana plantations being established after the investors offer local farmers lumpsums to transfer informal land-use rights, sometimes with the encouragement of a Baptist church leader (Fishbein, 2019).

One of these banana plantations had been established in Lamyang village in Waing Maw, and was particularly important for restricting local agricultural opportunities. Local villagers explained its origin. During the early 2000s, the Tatmadaw requested the villagers of Lamyang to resettle on nationally protected Reserved Forest land without formal tenure. This is a familiar pattern in many parts of Myanmar where villagers are encouraged to develop their new settlement as community forestry (Tint *et al.*, 2011). In 2009, the leader of the Kachin New Democratic Army– Kachin (NDA-K),⁴ a major Tatmadaw-aligned militia in Kachin, was given rights to use this land by the Burmese Army Northern Command without consulting local villagers. The militia then leased 200 ha of this the land to a Chinese company for banana production . Since then, villagers claimed irrigation water has been diverted, and they fear chemicals used on the bananas has polluted local land and water. Group discussions in Lamyang also revealed that people believed the company ordered cheap labor from Rakhine State to cut trees in the community forest; divert village water to the plantation; and repel local livestock by injuring them.

The research indicated that the trend towards banana plantations and “land grabs” was most marked in the Waing Maw study zone. Discussions with informants in 2022, however, indicated evidence of new allocations of land for plantations in Puta'O. The informants agreed that local Kachin farmers found it hard to access land to increase agricultural production, leading some to adopt informal artisanal gold mining (see next subsection).

These findings indicate that agrarian transition processes are occurring in Kachin, but on a selective basis. Large landholders with access to large areas of taungya (shifting cultivation) land are likely to

increase farm size and commercialization most. Yet, land scarcity remains for many smallholders, and the allocation of land to plantations, sometimes connected to the military, restricts access of land to local people.

4.2 Non-agricultural livelihoods

Mining and fishing

Classic approaches to the agrarian transition also propose that non-agricultural livelihoods will increase, especially for landless people previously engaged in rural waged labor. The research in Kachin generally found that this trend was not happening because of the inward migration of non-Kachin traders; the continued reliance on laboring in mines controlled by the Tatmadaw; and the cultural significance of fishing to specific new migrants to Kachin from other states.

For most people in the three study sites, the main non-agricultural livelihoods were mining and fishing, with a small proportion in shops, government offices, and small businesses. Mining usually involved labor in the Hpakant jade mines, where the most common engagement was payment on a daily basis. Working in jade mines, however, was also poorly regulated and hazardous because of landslides. Most day-laborers were local Kachin men; the mining operations however are governed by Tatmadaw authorities (Global Witness, 2015). Most jade traders – who travelled to buy and sell jade – were Burmese, including ex-Tatmadaw soldiers who had previously served in Kachin. Indeed, these traders were the highest earners of non-agricultural income (see Table 3). Discussions with informants in 2022 confirmed that demand for jade from China was increasing.

Another activity was artisanal gold mining, which traditionally has meant panning for gold at the side of the Ayeyarwady River, and digging speculative mines. A small number of men acted as entrepreneurs for gold mining by organizing other workers to undertake digging. This work, however, was considered financially risky (one respondent said he had been bankrupted). Since the 2000s, however gold panning has increasingly been replaced in the Indawgyi region by hydraulic mining, where miners use high-pressure water hoses to loosen clay deposits in floodplains. This activity has

eroded or flooded farm and grazing land, and caused siltation of river channels. In 2014, parts of Nyaung Bin were flooded for three days from hydraulic mining. Mercury is used to separate gold deposits, which is feared to contaminate soil, water and fish and directly affect the miners through inhalation. Villagers explained that these activities provide opportunities for paid labor when not farming.

The conversations with informants in 2022 indicated that hydraulic gold mining had increased throughout the three study zones, and especially around Lake Indawgyi. The village of Nant Mout Khan in particular has been affected, with significant damage to rice fields near the lake, adding sediment to fisheries. Mercury pollution was not mentioned. Informants advised that artisanal mining was attractive at a time when the military coup, and the effects of Covid-19, were depressing other economic opportunities.

Despite these activities, Table 2 suggests that overall income from fishing and mining were generally low compared with agriculture from good quality farmland. (It should be noted that these figures might have inaccuracies as respondents might be cautious reporting incomes, possibly to avoid tax).

[TABLE 2]

Fishing at Lake Indawgyi was dominated by families who specialized in fishing. In particular, some 84 households had migrated to Indawgyi from the neighboring Sagaing State in 2010 after the creation of the Thapanzeik dam (in 2001) had inundated rivers, and created a new state-run fishing monopoly that excluded local fishers. Since 2015, further households arrived from Inle Lake in Shan State. Although village heads had allowed these households to stay, they were still not well integrated. Engagement in fishing was therefore influenced by ethnic differences.

A further distinction was that more than 50 percent of people engaged commercially in fishing were women. Further discussions with villagers showed that fish catching was frequently undertaken predominantly by men, but women undertook the filleting, processing and trading of fish.

Landlessness and non-agricultural livelihoods

As noted above, other research has argued that landless people might benefit quickly from agrarian transition processes if they can gain access to new non-agricultural livelihoods. Indeed, in central Myanmar, landless people have been noted to benefit strongly (Belton and Filipski, 2019). In this research in Kachin State, however, findings suggest that the most wealthy landless people were specialist traders from outside Kachin, and that non-agricultural opportunities for local people had various restrictions.

First, the research compared the relationship of land ownership and non-agricultural income in general (Figure 6). Unsurprisingly, farmers with less land have a higher engagement with non-agricultural income, although the relationship is neither strong nor clear. The situation is especially complicated in the Indawgyi zone, where some relatively poorer households relied on fishing in the lake, while relatively richer households engaged in shopkeeping, commerce, and jade trading. Standard linear regression tests again showed limited associations. (R-squared scores for the observed influence of total land claimed on dependency on non-agricultural income were 0.03 for Puta'O; zero for Waing Maw; and 0.02 for Indawgyi).

[FIGURE 6]

The research also considered the activities of landless households, and those who had limited access to taungya rather than quality farmland. Table 2 shows that the villages around Lake Indawgyi was the zone with the highest proportion of landless people (35 percent of households surveyed), followed by Puta'O (15 percent), and Waing Maw (7.5 percent). In addition, Waing Maw and Indawgyi had farmers who used only taungya (28 percent and 16 percent respectively). In Indawgyi, interviews

revealed that a large proportion of landless people were Shan Ni or Bamar (Burmese) recent migrants to the region rather than Kachin, although precise figures were not gathered.

The circumstances of landless people was investigated further by looking at the incomes and livelihoods richest and poorest households across all zones. These groups were identified pragmatically as the top and bottom 20 percent of annual cash income (see Table 3).

Table 3 shows the richest 20 percent included households both with and without farmland. These findings show that the richest households with farmland had very little reliance on taungya, mining, or fishing, and drew only an average of 22.8 percent of income from non-agricultural activities. The richest households with farmland therefore relied chiefly on agriculture. Households without farmland showed a different situation: an average 68.2 percent of household income came from non-agricultural activities; but taungya cultivation contributed some 16.7 percent to income. These figures suggest that the households that are benefiting most from agrarian transition processes are those that already have large endowments of quality land; or those landless people who can gain access to jade trading (and who sometimes use that income to diversify into opportunistic cultivation on taungya land).

[TABLE 3]

Meanwhile, the poorest 20 percent of households was shared roughly half between smallholders with access to both farmland and taungya (56 percent) and landless households (44 percent). Most landless households (38 percent) came from Nyaung Bin in the Indawgyi zone, followed by Lamyang (Waing Maw) (16 percent) and Nant Mout Khan (Indawgyi) (14 percent). These villages had the most diverse economies among the different villages studied. Somewhat surprisingly, the contribution of fishing to households incomes in this quintile was very low: just 5.4 percent of households engaged in fishing, and it contributed just an average 4.2 percent to cash incomes. As discussed before, fishing can be a

source of food for poorer households as well as a commercial activity. But in terms of cash income, evidence suggests that fishing is not widely practiced by the very poorest households.

Similarly, Table 3 shows that the poorest households also did not engage much in mining. This was different from the richest 20 percent: here, mining contributed an average of some 24.4 percent of income for households without farmland. As noted above, this category includes jade traders who have returned to Indawgyi after serving as soldiers.

The research also investigated one site where villagers had been forcibly evicted from traditional land, and therefore had to engage with new opportunities for non-agricultural income. The village of Tang Hpre, in the Myitsone confluence area of Kachin, was forcibly evicted in 2010 because of planning for a dam project (later postponed) (Kiik, 2020). Most villagers now live in the Aung Myin Thar relocation village. This example is not directly related to armed conflict, but the research undertook ten additional household surveys to investigate how decisions had been made.

The surveys showed that villagers had still hoped to access their old farmland after being resettled, but that almost all of this land (16 hectares out of 20) was degraded by unregulated mining for gold using high-pressure hydraulic hoses. Local villagers even participated in this mining as they expected the land would be lost to the dam anyway. At the time of the research, the area remaining was only suitable for shifting cultivation.

Following these changes, however, a new “land grab” and investment decisions also restricted opportunities for local villagers. After the decision to build the dam was postponed, the Union government allocated 300ha to a rubber plantation company on land neighboring the old village site. Simultaneously, the Union government increased the size of an environmentally protected area at Inkhainbhum, and another company (allegedly linked to the state Union Solidarity and Development Party⁵) applied to create an ecotourism park. Together, these actions reduced available farm land and diminished options for diversifying into non-agricultural livelihoods. Discussions with the displaced

people from Tang Hpre showed that some 70 percent still used taungya on an opportunistic basis as a source of agriculture, but they have an average food security of just 8 months a year. Very few have engaged in mining as a livelihood. Half of the households questioned had household members who had resettled to larger towns in Myanmar or to China. Overall, villagers expected that the remaining households will gradually disperse to other villages, or where possible seek non-agricultural work in towns.

Together, these findings show various insights about who benefits from the agrarian transition. First, Figures 4 and 6 seem to support research elsewhere that not all smallholders engage in non-agricultural income (Rigg *et al.*, 2016). Yet, evidence also showed that agrarian transition processes are generally not providing new opportunities for landless people either. This finding is different to research in central Myanmar (Belton and Filipski, 2019). But there are some important clarifications.

First, landless people in Kachin includes recent migrants who specialize in non-agricultural income. This can include the relatively poorer fishing communities around Lake Indawgyi, as well as the richest group comprising jade traders and new investors. It would therefore be inaccurate to state that agrarian changes in Kachin have occurred simultaneously as a shift towards better paid, non-agricultural, livelihoods. Rather, the agrarian changes have occurred simultaneously as the attraction of workers from outside Kachin who have competitive advantage in non-agricultural activities.

Second, there are also apparent barriers to participating in some of the more accessible non-agricultural livelihoods such as mining or fishing. Evidence from Kachin suggests that the most successful routes to wealth are to gain access to high-value jade trading, or to achieve large endowments of quality farmland that can then be added to by using taungya land opportunistically (Figure 5). Fishing and mining have acted as safety nets for households who do not have large areas of farmland. But some of the poorest households do not undertake these activities (Table 3). Indeed, the poorest groups in this survey were smallholders, especially in Puta'O province, where both agricultural land and non-agricultural opportunities were limited (Table 2). This finding therefore

supports research elsewhere that smallholders are – still – not benefiting from agrarian transition processes, and consequently much traditional agriculture persists despite commercialization.

And thirdly, these findings indicate the overall significance of ethnic politics in agrarian transition processes in Kachin. During the research process, local people were invited to a public meeting in Nyaung Bin village in Indawgyi, in order to discuss land use and environmental challenges. These discussions took place alongside current and ex-Tatmadaw soldiers who attended as observers, or who had returned to Kachin as jade traders. In private, however, various local people expressed explained their unhappiness about how state-led development had focused mainly upon intensive jade mining rather than more holistic development. In two conversations, Kachin informants described how Kachin people were expected to labor in the mines, while trading in jade was restricted to outsiders.

In a later discussion with members of the Kachin parliament, parliamentarians expressed concern at the photographic evidence about the land grab in Lamyang village, especially because it resonated with local fears about Chinese investment. Military representatives in the parliament, however, insisted that due process had been followed, and even asked publicly for the personal details of Kachin members of the research team. This request was politely, if somewhat tensely, refused. After the public meeting had ended, various non-military parliamentarians repeated their complaints to the research team. These kinds of observations indicate that, unsurprisingly, the ongoing conflict between Kachin and the Union government influences economic opportunities and political discussion, and where the outcomes suggest that opportunities for Kachin people are restricted, despite the commercialization encouraged by the Union government (see also Kiik, 2020; Woods, 2011).

5. CONCLUSIONS

This paper has used evidence from Kachin State, Myanmar to consider how far processes of agrarian transition might be influenced by violent conflict, and vice versa; and who benefits from these changes. The paper's evidence suggests that – rather than agrarian transition and commercialization

acting as solutions to problems of violence – these processes are shaped by pre-existing political conditions, and can even contribute to the perpetuation of conflict. Accordingly this research supports debates that suggest that the success of agrarian transition processes depends on social and political factors, rather than on economic rationality alone (e.g. Cramer, 2006; van Vliet *et al*, 2015). Moreover, the research contradicts optimistic approaches to peacebuilding that see new commercial livelihoods as “providing economic opportunities, promoting social equity, and... giving despairing populations a hope for a brighter future” (Young and Goldman, 2015, p. 10). Instead, the evidence from Kachin suggests that commercialization is so constrained that it adds to resentment and limited opportunities.

There are various implications for understanding the relationship of agrarian transition and violent conflict. Perhaps most importantly in Kachin, processes of agrarian change, commercialization, and modernization are deeply embedded within long-term ethnic conflict between the Union government and Kachin authorities. Introducing markets and new commercial opportunities, therefore, is unlikely to benefit all smallholders and landless people equally, as proposed by economists such as Collier and Dercon (2014), but instead assist preferred actors investors more than those engaged in conflict with the central government. Indeed, earlier work in Myanmar has argued that new market reforms and state-led investment can form part of war tactics (Woods, 2011). Legal reforms such as the 2012 Vacant, Fallow and Virgin Land Management Law (revised 2018) has formed part of this process by facilitating the transfer of land rights from traditional customary claims to outside investors. This example adds to other research in Cambodia and Mozambique (Beban and Gorman, 2017; Wuyts, 2003) that has observed how new land tenure laws can reflect historic conflict, and feed new resentment.

Accordingly, it is unsurprising that smallholders and landless people tend to persist with older livelihood strategies. The proposed increases in farm-size, and other expressions of agrarian transition, become “truncated” because alternative newer livelihoods are neither secure nor attractive enough to persuade sufficient people to change traditional farming and laboring (Rigg *et al*, 2018).

Instead, evidence from Kachin suggests that smallholders and landless people adopt a variety of lowly-paid work in non-agricultural sectors such as artisanal gold mining or laboring in jade mines, but households still do not give up their smallholdings if they have them.

In Kachin, these factors have led to a situation where agricultural commercialization has been proceeding simultaneously with the continuation, and exacerbation of social divisions linked to long-standing violent conflict between Union government and Kachin authorities. In some parts of Kachin (notably the large flat land beside Lake Indawgyi), larger landholders have been able to expand farm size and engage more in commercialization by extending commercial agriculture onto land historically used for taungya (shifting cultivation). Elsewhere, smallholders have been prevented from expanding farm size by the granting of taungya land to banana plantations that benefit actors connected to the Union government and Tatmadaw (Union soldiers). So far, however, these commercialization processes have apparently led to stagnation and continuation of traditional land uses, rather than the actual displacement of smallholders.

The domination of jade mining and trading by the Tatmadaw has also limited non-agricultural opportunities for Kachin people. Consequently, Kachin smallholders and landless people have failed to benefit in overt ways from agrarian transition processes. This is a different situation from central Myanmar, where other research has suggested that the agrarian transition and rise in non-agricultural livelihoods have helped landless people in particular (Belton and Filipski, 2019). Yet, unlike Kachin, central Myanmar has not experienced violent conflict since the Second World War, and ethnicity is generally uniformly Bamar (Burmese), and therefore lacking the same intensity of ethnic conflict as in Kachin (Huard, 2020; Pritchard *et al.*, 2019). Yet, it is worth noting that the category of “landless” people can be misleading. Often this term is used to denote rural laborers with few assets. In Kachin, evidence suggests that the people with the smallest cash incomes were actually smallholders (especially in Puta’O). Many landless laborers earned more money than smallholders through mining and other activities. Meanwhile, some of the richest individuals in the survey were landless jade traders (but who were not local Kachin people).

Together, these concerns highlight the need to rethink how agrarian transition processes impact in zones with violent conflict, and especially the assumptions made about the agency of people affected. The evidence from this study indicates that introducing commercialization will not lead to wholesale increases in farming and labor-market efficiencies, but instead that additional work needs to be done on making these interventions inclusive. More attention needs to be paid to the political structures that prevent access to new opportunities, or which maintain the control of opportunities in certain hands. These factors also add to concerns about using standardized approaches to livelihoods such as Sustainable Livelihoods Approaches (SLAs) in the context of violent conflict. Much debate about SLAs have highlighted their historic emphasis on the agency of villages and households if provided with access to assets and capitals such as natural, social, or financial resources, rather than acknowledging how these agencies might be curtailed by wider structures such as the state and markets (de Haan and Zoomers, 2005; Lautze and Raven-Roberts, 2006, p. 391; Natarajan *et al*, 2022). The evidence from Kachin adds to these concerns about SLAs, and especially to what Natarajan *et al* (2022, p.11) refer to as the need to understand “influence and access” as an important determinant of who benefits from new economic opportunities. There needs to be more attention to how different assets and capabilities are allocated and used by different political and ethnic stakeholders, rather than seeing livelihood changes as universally available.

Seeking to transform agrarian economies inclusively through commercialization and modernization can only succeed if policymakers also ask who benefits from these changes. Reforms have to target the social and political barriers that prevent different groups, and especially smallholders, from benefiting. In part, making these changes ore inclusive means seeing “the agrarian transition” less as a prescription for what *will* happen following commercialization, but instead more as an empirical outcome *if* commercialization becomes inclusive. Based on the evidence from Kachin, engaging in agrarian transition process under conditions of violent conflict are more likely to perpetuate rather than resolve underlying conflict.

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Table 1: Study zones and villages*Source: fieldwork 2018. Locations checked on Google Earth.*

Area of Kachin	Village name	Location	Altitude	Estimated population	Established date	Ethnic groups (in order of size)
Putao	Nawng Hkai	27°16'06"N 97°35'05"E	399m	115 households 636 people	1880	Lisu, Nung-Rawang, Jinghpaw, Tai Khamti (or Hkamti Shan), Bamar
	Lung Sha Yang	27°10'06"N 97°32'58"E	461m	700 households 4,200 people	1951	Lisu, Nung-Rawang, Jinghpaw, Tai Khamti (or Hkamti Shan)
Waing Maw	Lamyang	25°22'15"N 97°31'09"E	158m	320 households 1800 people	1954	Jinghpaw, Shan, Bamar
	Gwi Rut Yang	25°22'47"N 97°36'23"E	170m	50 households 230 people	1930s	Jinghpaw, Lhaovo, Zaiwa
Indawgyi	Nyaung Bin	25°15'45"N 96°21'06"E	178m	572 households 2,616 people	1894	Shan Ni, Jinghpaw, Bamar
	Ma Mon Kine	25°03'41"N 96°17'10"E	196m	382 households 2,293 people	1891	Shan Ni, Jinghpaw
	Nant Mout Khan	25°08'16"N 96°22'52"E	182m	434 households 2,249 people	1930s	Shan Ni, Jinghpaw, Bamar

Source: fieldwork, 2017-18, locations and altitudes checked with Google Earth.

Table 2: Summary of statistics for each village in the four study zones

Source: fieldwork in Kachin, 2017-18

	Putā'O		Waing Maw			Indawgyi			
Village:	Nawng Hkai	Lung Sha Yang	Lamyang	Gwi Yang	Rut	Nyaung Bin	Ma Mon Kine	Nant Kan	Mout
Established	1880	1951	1954	1946		1894	1891	1934	
Population (2016)	636	4200	1880	382		2616	2293		2249
no. of households	115	700	300	53		572	382		343
Average household size	7	6.9	6.3	7.2		6.8	6.1		6.1
N sample	13	20	30	10		79	60		64
Average total income (m Ky)	2.1	1.82	5.13	2.58		4.95	7.84		10.76
Average farm income (m Ky)	0.65	0.87	1.2	1.34		1.55	4.29		8.53
Average non-ag'l income (m Ky)	1.46	0.92	3.97	1.24		3.39	3.52		2.21
Average quality farm land owned (ha)	7.4	6.7	15.4	8.3		23.6	30.1		70.8
% of sample with quality farm land	69.2	95	73.3	40		35.4	40.0		75.0
Average taungya owned (ha)	3.7	4.1	5.5	10.2		7.7	30.6		0
% of sample with taungya	7.7	30	30	70		32.9	38.3		0
% of households with land certificate	0	35	13.3	0		55	30		71.7
Average months food secure (out of 12)	9	11	11	10		12	11		11

Table 3: Summary of livelihoods for different types of landholdings

Source: fieldwork in Kachin, 2017-18

	Puta'O			Waing Maw			Indawgyi		
	With Farmland	With Taungya only	Landless	With Farmland	With Taungya only	Landless	With Farmland	With Taungya only	Landless
N of households	28	0	5	26	11	3	100	32	71
% of households in zone	84.9	–	15.1	65	27.5	7.5	49.3	15.7	35
Average size of households	6.9	–	5.5	6.5	7.8	6	6.7	5.9	5.7
Average total landholding (ha)	7.9	–	–	18.2	4.5	–	55.2	8.4	–
Average size of farmland (ha)	6.9	–	–	14.4	0	–	47.8	–	–
Average size of taungya (ha)	4.1	–	–	9	4.5	–	25.4	8.4	–
% of fishers in zone	12.1	–	6.3	0	0	0	1.5	6.1	5.4
% of miners in zone	3.0	–	3.2	2	0	0	3.5	12.1	3
Average cash income (mKy)	2.3	–	0.85	6.6	1	0.26	10.3	5.3	4.9
Average fishing contribution (%)	1.2	–	17.5	–	–	–	1	83.2	75.4
Average mining contribution (%)	0.4	–	17.5	2.1	–	–	4.8	76.3	95.5
Average food security (months)	10.7	–	7	11.5	8.4	8.7	11.7	11.8	10.9

Table 4: Household income and livelihoods in the top and bottom 20% of annual household income (all zones pooled). *Source: fieldwork in Kachin, 2017-18*

Household cash income	Bottom 20%		Top 20%	
	With farmland	Without farmland	With farmland	Without farmland
N of sample	19	37	44	12
% of each quintile	34	66	79	21
Average total household income (m Ky)	0.58	0.53	20.89	27.25
% with farmland	33.9	–	78.6	–
Average farmland (ha)	13.7	–	69.6	–
Number with taungya (% of this sample)	36.8	32.4	18.2	16.7
Average taungya (ha)	12.0	6.4	30.6	4.9
Number of fishers (% of this sample)	5.2	5.4	0	0
Numbers of miners (% of this sample)	0	8.1	6.8	25
Average contribution of all non-agricultural income (% of household income)	17.1	67.7	22.8	68.2
Average reliance on taungya (% of household income)	2.8	12.3	0	1.0
Average reliance on mining (% of household income)	0	4.2	5.1	24.4
Average reliance on fishing (% of household income)	0.3	3.7	0	0

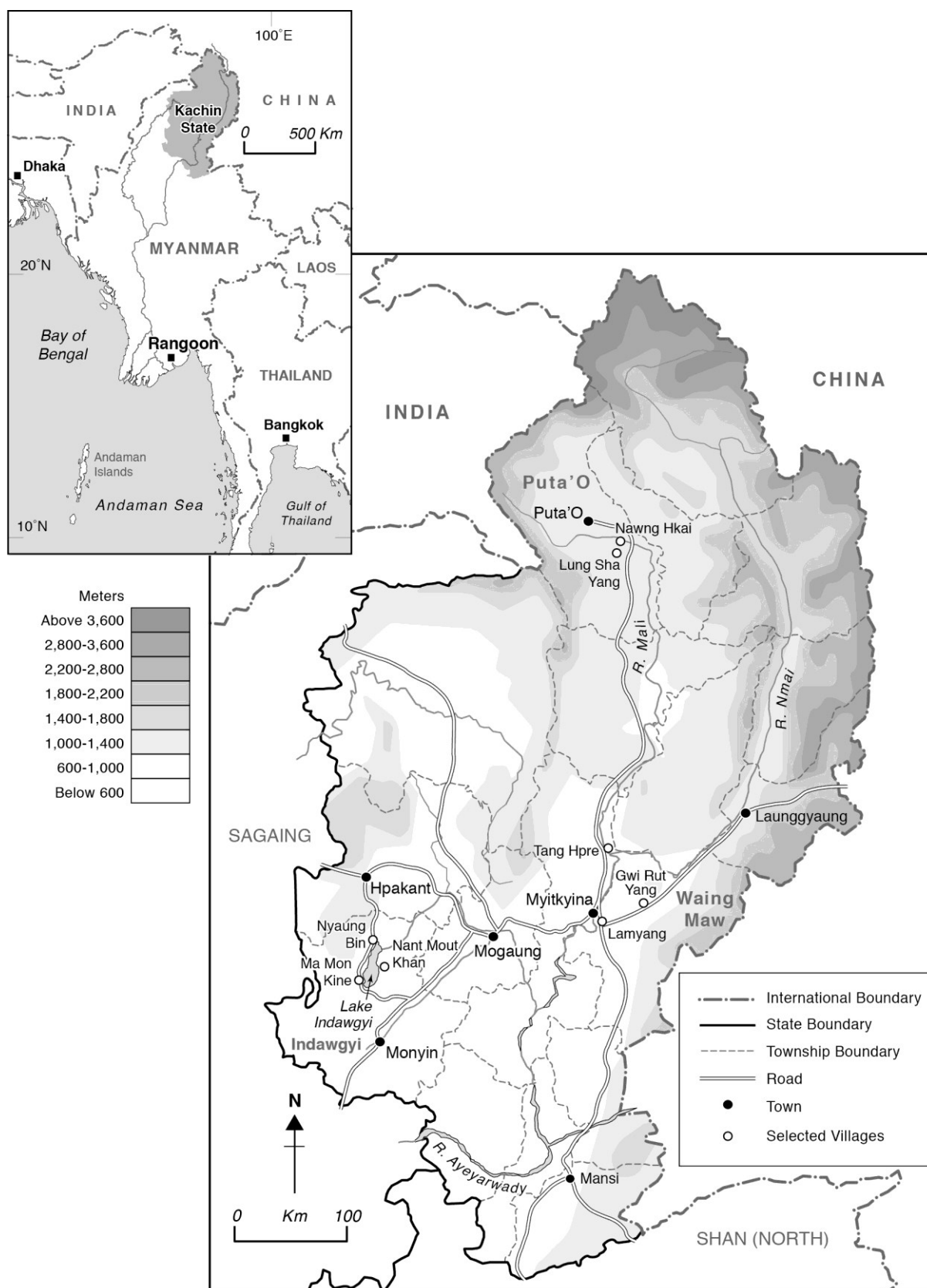


Figure 1: Map of Kachin State and Study Sites

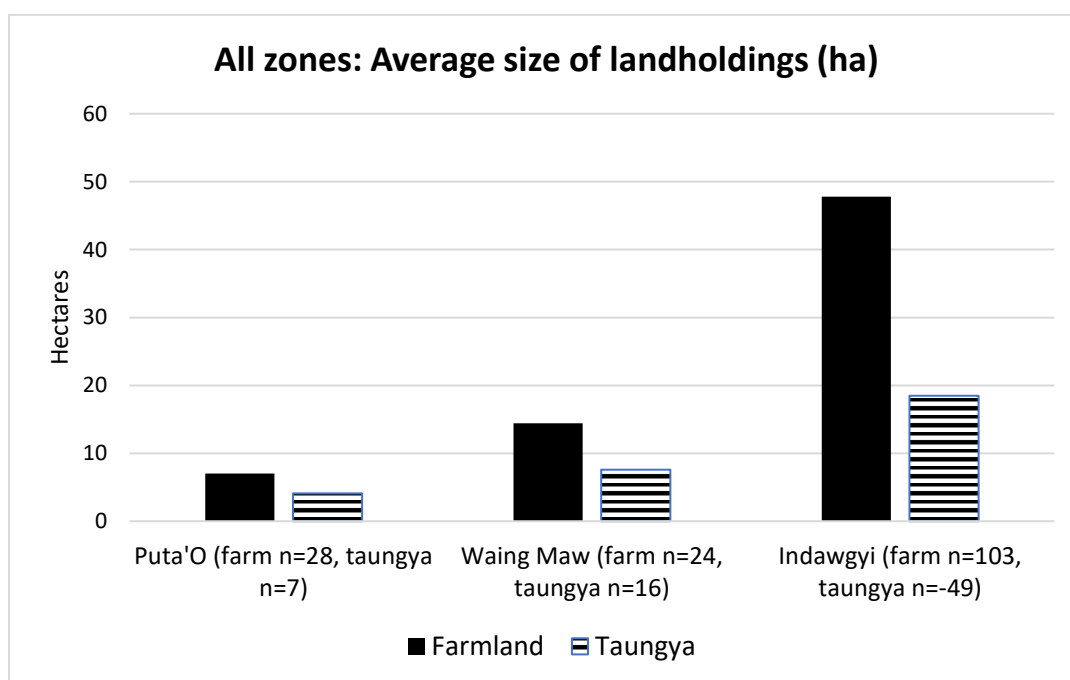
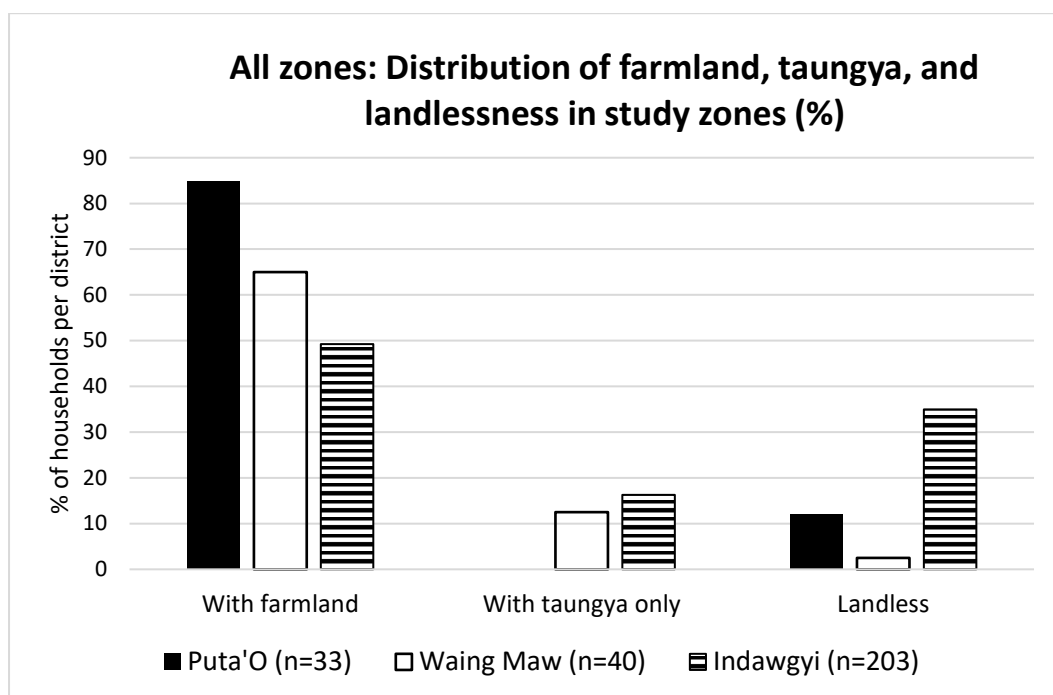


Figure 2: Distribution of size and type of landholdings
Source: field surveys 2017-18

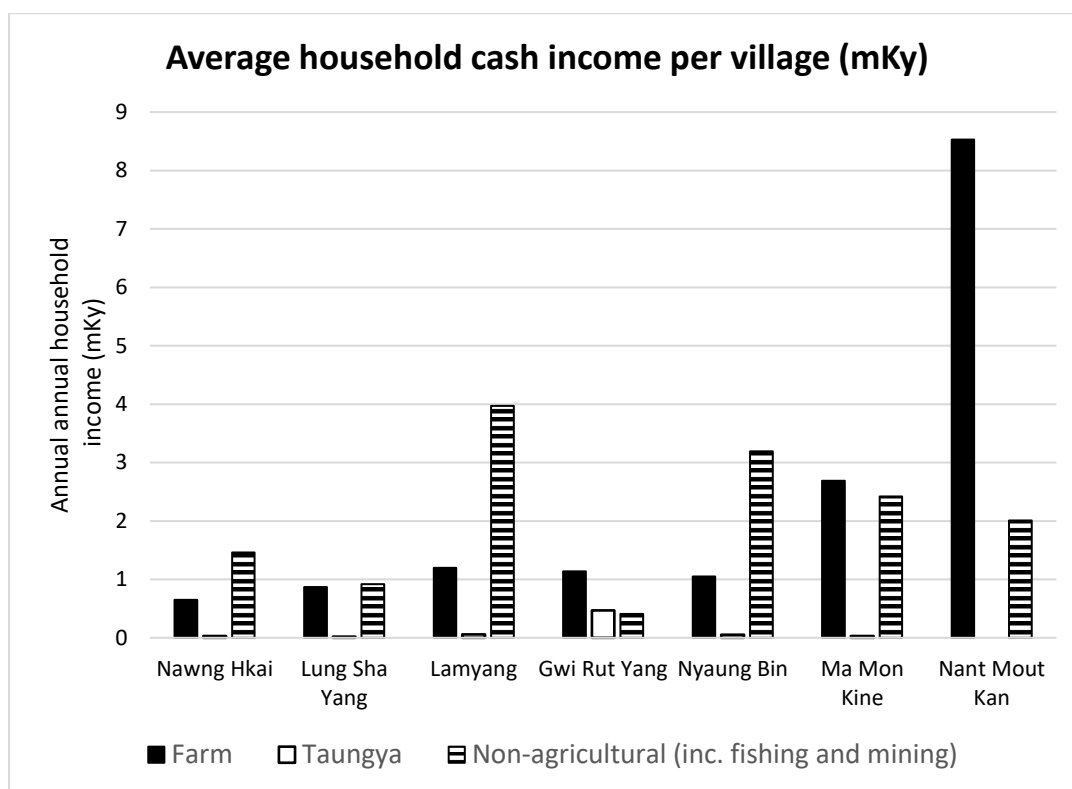


Figure 3: Sources and distribution of household cash incomes per village (n=276) *Source: field surveys 2017-18*

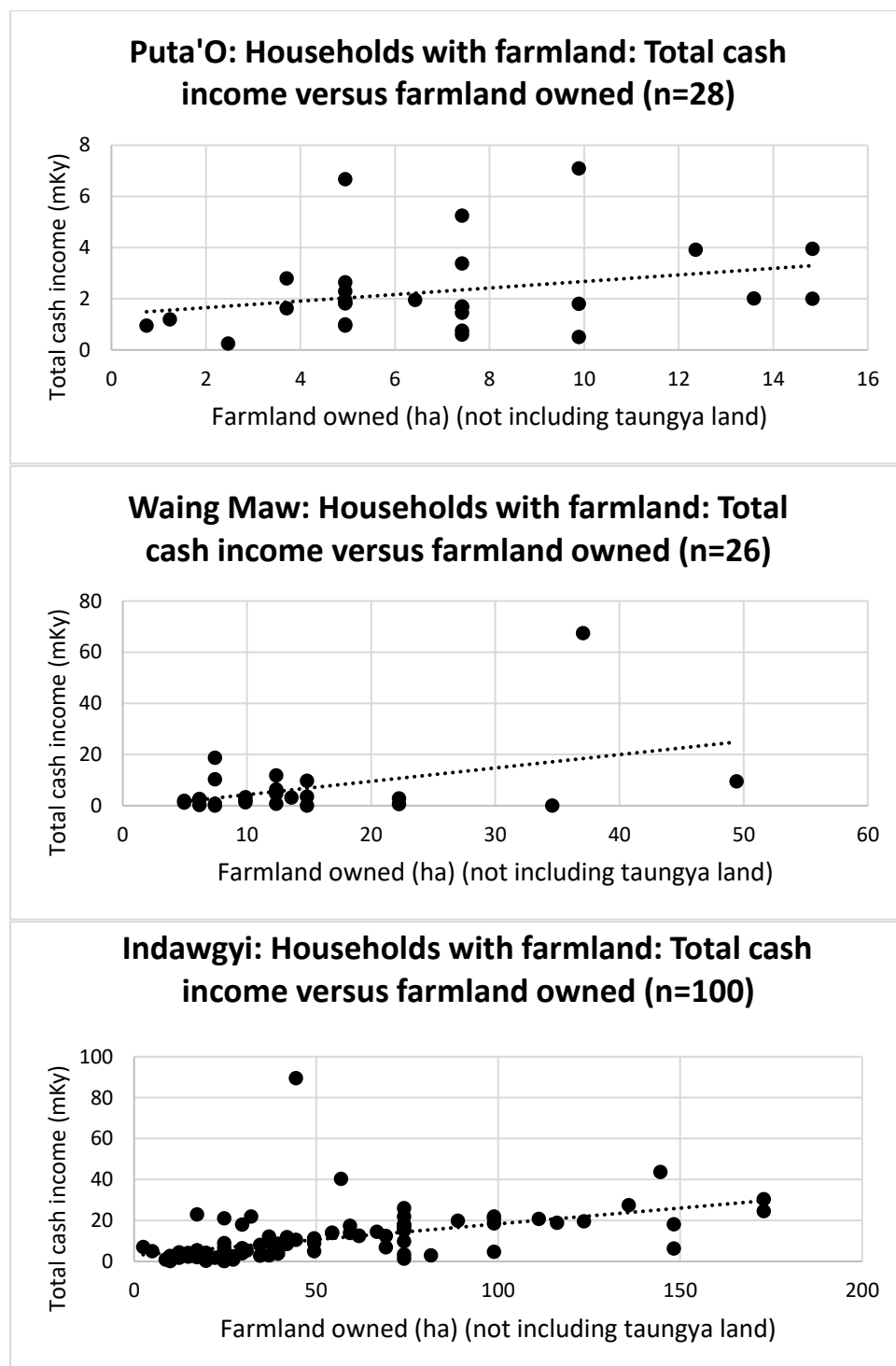


Figure 4: Relationship of farmland owned and total cash income (Households with farmland: total n=154) Source: field surveys 2017-18

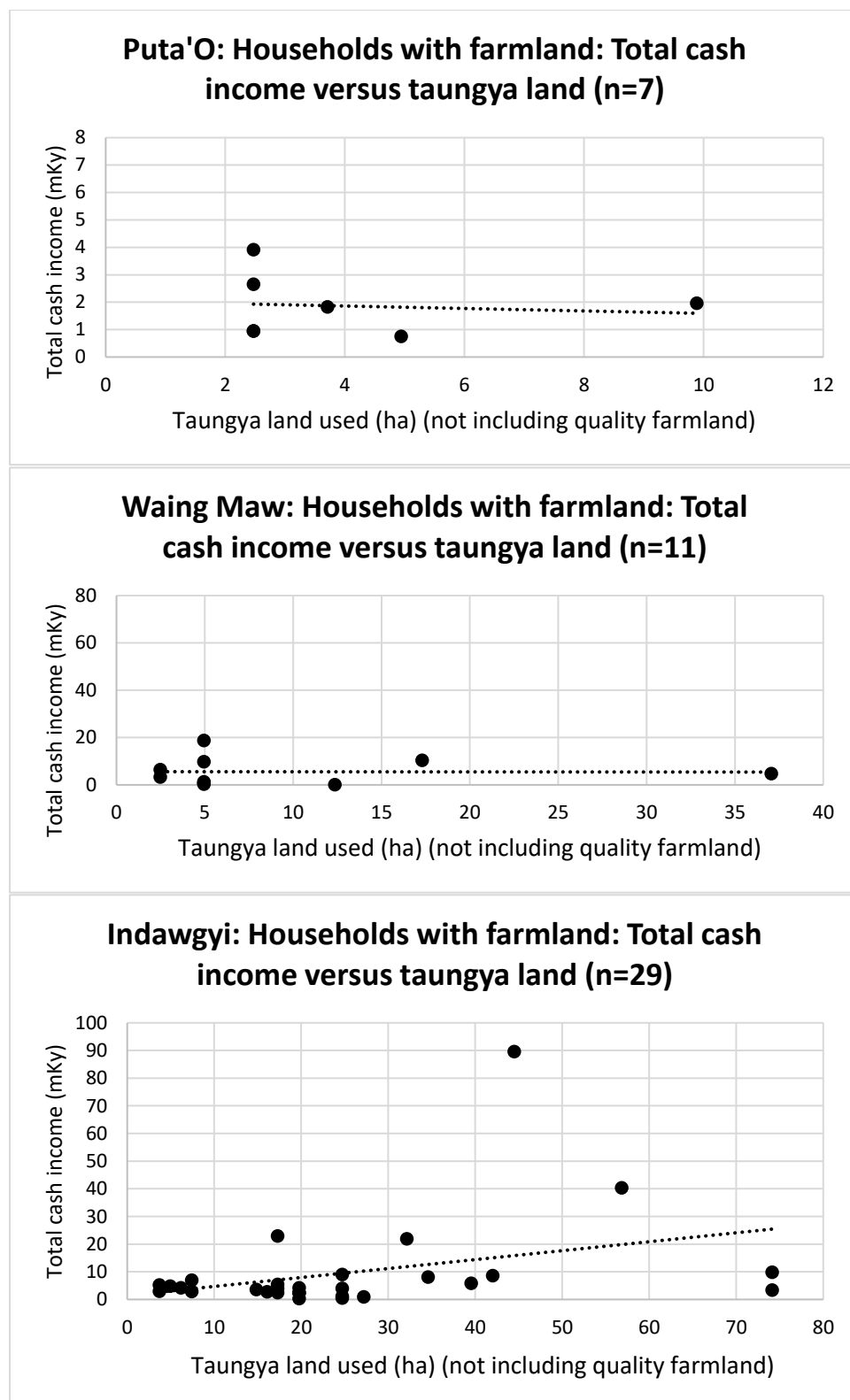


Figure 5: Households with farmland: Relationship of cash income and additional use of taungya (Households with both farmland and taungya, total n=47) Source: field surveys 2017-18

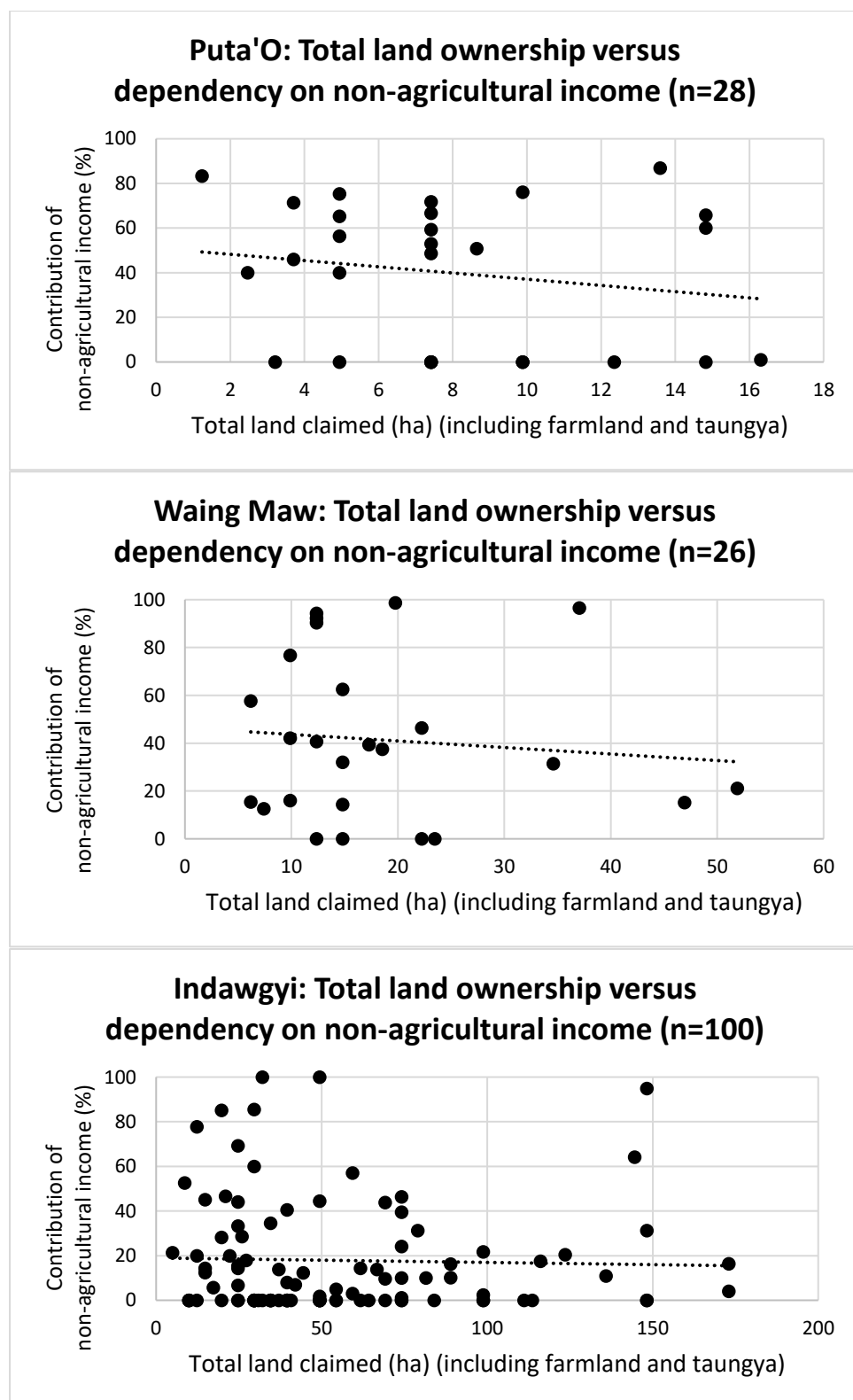


Figure 6: Relationship of land ownership and dependency on non-agricultural income (Households with farmland, total n=154) Source: field surveys 2017-18

¹ The 2012 Farmland Law and the Vacant, Fallow and Virgin Lands Management Law used existing frameworks from the Rules for the Grant of Waste Land (1861); and the Prescribing Duties and Rights of the Central Committee for the Management of Cultivable Land, Fallow Land and Waste Land (1991).

² *Archidendron pauciflorum*

³ *Psophocarpus tetragonolobus*

⁴ The leader was Zahkung Ting Ying.

⁵ Source: interviews with resettled people in Aung Myin Thar.