



# **The Impact of Land Conflict on Land Productivity: Evidence from Liberia**

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## **Abstract**

This paper examines both the correlates of land conflict and the effects of this conflict on crop yields, farmers' investments in permanent trees and crops. The productivity effects of land conflict are estimated at the town-level considering the endogeneity of conflict. We use data from the Household Income Expenditure Survey (HIES) of Liberia and from the Innovations for Poverty Action (IPA) baseline survey for the same year. The main findings reveal that gender, distance from the farm to home or the road, soil quality, slope of the farmland, marital status, soil erosion, government extension services and age of the

farmers are all significantly correlated with land conflict. We find that land conflict increases investments in permanent trees relative to non-tree crops. Three policy implications of the study stand out. First, farm yields in Liberia can be increased by implementing comprehensive soil erosion reduction strategies that involve building of gabions, terraces, reforestation schemes, as well as mass education of farmers on proper agricultural practices, including, for example, ploughing along the contours or planting cover crops in areas with massive soil erosion or mass wasting of cropland. The second policy revelation of the study is that measures to avoid land conflicts should be designed and implemented as a matter of urgency because there is strong statistical evidence that conflicts drive farm productivity practically to zero. The third policy implication is that government extension services and the opening of remote areas via construction of access roads have large positive effects on agricultural productivity.

## Introduction

Previous research shows that conflict over land<sup>1</sup> induces sub-optimal and inefficient land use (Feder and Feeny, 1991; Wick and Bulte, 2006; De-Oliveira, 2008; Alston and Mueller, 2010). Beyond changing the composition of crops and livestock, land conflict can reduce the returns associated with portfolio allocations<sup>2</sup> (Deininger and Castagnini, 2006). For example, within agriculture sector, yields may decrease for a variety of reasons such as premature harvesting in response to reduce the risk of pillage, decreased fertilizer use that may result in lower soil quality and the inability to fallow fields in extreme conflict cases (Vlassenroot and Raeymaekers, 2008). Further, its presence in agriculture has greatly had a significant negative effect on farm productivity either directly or through influencing the behaviour of the farmer investment decisions (Place, 2009).

Conflict over land remains a sensitive matter that threatens the peaceful co-existence of communities in sub-Saharan Africa and has been associated with unrest and negative economic effects (Laird, 2004). Female farmers are the worst affected by this type of conflict as both African culture and customs in some countries with weak land rights continue to support male inheritance rights to land. The female gender, for a long time, has been regarded as strangers both in their natal home and marital clan, and as such, their fathers continue to transfer land to sons or wives. However, the wife's inheritance rights are not enforceable especially when they become widows, since there has been rising cases of dispossessing them by their in-laws and rendered homeless (Hellum and Derman, 2004; Bennett et al., 2006; Anyanwu, 2014).

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1 It is often caused by improperly defined property rights which either lack security or enforceability.

2 For example, returns to labour may decline as more remunerative permanent employment opportunities give way to casual labour.

Further, the wife's rights to husband's land are not guaranteed by formal institutions in sub-Saharan Africa. In the modern context, the adjudication and land titling process in most post-war nations is being conducted in favour of the already established male inheritance patterns, thereby denying female their share in family land. In some instances, female's land rights continue to be determined by their marital status and by laws of inheritance, succession, and divorce, and as such, they have limited economic resources in their hands and lack decision making power at the household level to buy land independently of their spouses.

Incidences of land conflict are high in countries characterized by weak institutions and fragile political systems and which risk being thrown into cycles of economic backwardness if resounding resolutions are not put in place. In most countries in Africa, property rights such as on land are protected using informal rules, practices, and norms (Zhang et al., 2012). However, the imperfections associated with informal rules<sup>3</sup> have led to high incidences of land conflict (Blattman et al., 2014). Such land conflict has a negative welfare implication both at the household level and the national level as well as on the general stability of the economy.

In this regard, this study sought to examine three specific questions: First, what household and farm characteristics influence land conflict among Liberian farmers? Second, what effect does land conflict have on crop productivity among farmers in Liberia? Lastly, what impact does land conflict have on farmer investment decisions on permanent trees? Little is known about the channels through which land conflicts affect agricultural investment behaviour and productivity. Though the impact of land conflicts on farm productivity may seem trivial, the channels through which its effects are transmitted are not known. Equally, there can be heterogeneous effects of land conflict on different types of investments based on farmer characteristics. For example, the rich may be more affected than the poor for long-term investments. Similarly, the effects may vary along gender dimensions as well as on spatial dimension.

This study, therefore, seeks to explore the heterogeneous effects along two dimensions; gender and spatial/regional. Results from these explorations will help policy makers better understand and appreciate the heterogeneity and channels through which land conflict affects investment behaviour and agricultural productivity. In this paper, we use the case of Liberia; a fragile and post-conflict state which, in addition to having had a long history of conflicts over land access has recently begun to undertake far-reaching reforms to develop proper land governance and administration system. For example, in the recent past, there has been approval and issuing of tribal land certificates that give consent of the

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3 Such as biasedness towards the powerful in the community and information asymmetry that leads to costly negotiations.

community to the sale or transfer of their land under customary arrangements. However, these tribal certificates have largely failed to materialize given that they heavily relied on anecdotal evidence.

This paper, therefore, contributes to the literature on the impact of land conflict on agricultural investment by seeking to bridge the gap in the literature by providing first account documentation of agricultural investment in the face of land conflicts in Liberia. In doing so, it extends the existing literature as follow. First, unlike previous studies that look at land tenure, titling and land insecurity and agricultural productivity, this study adds to the scant literature of the impact of land conflict on agricultural investment behaviour by households and more on the composition of portfolios (i.e., the choice of crops).

Second, we extended previous studies by analysing the impact of land conflict on land productivity through various channels (such as gender and spatial). For example, the gender channel informs us of the impact of land conflict if the household head is a female. By considering possible heterogeneity on the impact of land conflict on agricultural production, for which previous empirical works have largely ignored, the findings will provide policy recommendations to serve as a basis for policy makers to better understand and appreciate the heterogeneity and channels through which conflict affects investment behaviour and agricultural productivity.

## **Agrarian policy and land conflict triggers in Liberia**

In the global context, there are about 1.8 million agricultural producers, accounting for 22% of the global agricultural value chain (Deininger and Castagnini, 2006). However, the uneven distribution of land and its resources has exacerbated land conflict for over 50 years which, according to Sekeris (2010) and Wily (2011), land-related conflict stands at 48% globally. In sub-Saharan African countries, land is a fundamental resource which is approximated to be 630 million hectares of arable land—suitable for subsistence and commercial agriculture (Rukuni and Kambanje, 2011). Land remains important in achieving food security, poverty eradication, income stability, as well as a means of accumulating wealth and undertaking intergenerational wealth transfer, thus enabling them to evade human insecurity. Given the central role of land as a resource, secure access remains a top priority for the African continent (Yamano and Deininger, 2005). The desire to possess and have control over land, especially in an environment of deficit of proper property rights, triggers conflict over it.

According to UN-Habitat 2016 report, land conflict is an ordinary problem in almost all societies of the world, and it does not erupt without a cause (Kent, 2016). It is either inherently motivated or is anchored on the socioeconomic profile of the society,

societal injustices, and political patronage (Richards, 2005). Further, the USAID 2016 report highlights that the rapid population explosion in some countries, coupled with environmental problems such as land degradation, has increased pressure on land use and control escalating land conflict (Lombard and Rakodi, 2016).

Aside from environmental hazards, the global food crisis of 2007-2008 has been seen as a major factor motivating agribusiness investors to grab lands in least developed countries, as lands in poor countries are cheaper and are not covered by strong legal system (Christensen et al., 2018). In most instances, land conflict may arise due to contending views involving parties over issues such as decision making, equitable land distribution, and holding of land rights (Van Suu, 2007). When the justice system of a nation is paralysed and does not act in the interest of the people of that nation, they (the people) tend to resolve disputes in their own way, mostly through violence. Additionally, when lands are given to concession companies for investment purposes, at times those companies fail to perform their social corporate responsibilities. This leads to landowners reacting through violent means.

Despite all the efforts for peace advocated by various governments and other relevant bodies to resolve the civil conflict in Liberia, the prevalence of conflicts especially on land remains high<sup>4</sup> (Hartman, 2010). Source of this conflict mainly lies in the insecure land tenure system such as the customary land tenure system in which the state has not endowed the traditional leaders any authority to govern land-related issues. As such, there is always a conflicting claim given that the state considers customary tenure as mere “occupants” or “squatter” of the land (Unruh, 2009).

An estimated 90% of civil court cases in Liberia are related to land conflicts.<sup>5</sup> Additionally, as many as 63% of violent cases in Liberia have their roots in land rights issues with the main causes of land conflict in Liberia being five-fold<sup>6</sup> as indicated in the USAID 2016 report. As such, land conflicts have serious repercussions on agricultural investment decisions, agricultural productivity as well as on food security.

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4 For example, a baseline survey conducted by the Yale University and Innovations for Poverty Action in 2010 carried out in three rural counties of Liberia (Grand Gedeh, Nimba and Lofa) reveals that boundary conflict has a lion share in the cause of land conflict followed closely by conflict arising from land taken during the civil war. The survey further reveals that one out of every three most significant conflicts in the three counties was land-driven.

5 Arising either through the resale of land, encroachment by neighbours or lack of concession companies to treat locals fairly.

6 Improper transfer of land under the customary land tenure system; inadequate documentation of land transfers/sale to prove and protect claims; distrust among different stakeholders; large-scale concession of land previously under customary land tenure to private companies, as well as unclear and contested land boundaries.

# Land governance in Liberia

Land remains the main source of livelihood and cultural heritage for many citizens in Liberia, especially those in rural areas. However, effort to harness maximum benefit is constrained by frequent land conflicts, and particularly the catastrophic effect of the civil war that spanned over almost a decade and a half (1989-2003) — that resulted to loss of property and labour (i.e., approximately 200,000 people lost their lives). Since then, the Accra Peace agreement, entered in 2003, has seen over a million people—either internally or externally displaced returned home or resettled (Hartman, 2010).

In Liberia, the land is under customary land tenure system and thus claims over land—either seasonally or permanently through a larger group claim—is by virtue of being family members or sharing a common town. This form of ownership was, however, changed with the establishment of the Land Commission of Liberia<sup>7</sup> (LC). The Land Commission is intended to provide policy recommendations and draft laws addressing how land rights categories should be used, managed, and administered. As an autonomous body of government in the administration of land and land-related issues, the Land Commission, through the land rights policy, has introduced land right clusters which are sub-divided into four basic categories.<sup>8</sup> Currently, strategies to convert public land into private lands are underway. However, the process of conversion is very long and tedious and can take over seven years, which is linked to land conflict as most people only attained the tribal certificate and not the public land sale deed (Government of Liberia, 2012).

Access, ownership, rights to and use of land are widely considered to be structural causes of both past conflicts and of current tensions in Liberia. Efforts to resolve land disputes are complicated by many factors. A central problem is the relationship

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7 The overall mandate and purpose of the Land Commission are to propose, advocate and coordinate reforms of land policy, laws, and programmes in Liberia. Over the years, the Land Commission has instituted several reform clusters covering areas such as: Land Rights, Land Administration, Land Use/Management, and Land Dispute Resolution. These various clusters have their own role, though they are all intertwined.

8 These include: (i) public land; land which are not presently used by government for its operation and are also neither private nor customary lands, (ii) government land; land owned by the government, including but not limited to lands on which are located offices of government functionaries and owned by the Republic of Liberia and is to be conserved and managed for the common good of all Liberians. Areas such as national parks, beaches, and monumental sites, etc., make up the Government Protected Areas, (iii) customary land; land owned by a community and used or managed in accordance with customary practices and norms. They include wetlands, communal forestlands, fallow lands, etc., and (iv) private land; owned by private individuals. An additional sub-category of land right is also embedded in the policy reforms of LC.

between traditional land ownership systems and statutory laws. Formal records have limited value in rural areas where the traditional law is strong. In urban areas, specific problems include: limited formal records of ownership (and the destruction of deeds during the war); incomplete land registry and ownership systems; disputes over ownership of land following movement of people during the wars; growing competition for land; and environmental degradation (Paczynska, 2010). Conflicts occur in agricultural, urban, and forested areas. They involve local communities, local and national government actors, and increasingly business investors.

In some areas, land disputes are because of long-standing conflicts within communities (e.g., between the Mandingo and the Gio and Mano tribes in Nimba County) (Paczynska, 2010). New land disputes have also emerged: during the civil war, the land was often taken by squatters, or armed groups who would give them as rewards to their supporters (Paczynska, 2010). Since the end of the war, many displaced people have returned to reclaim their land, and conflict has ensued. These tensions are often exacerbated by the fact that those that took the land often belong to different ethnic or regional groups and may have been rivals during the war. In more unstable areas, such as the border with Guinea's Forestière region, land disputes are potentially more dangerous (Adolfo, 2010).

## Data sources

To explore the impact of land conflicts on farmers' investment decisions and agricultural productivity in Liberia, we rely on two sources of data. The first is drawn from the Household Income and Expenditure Survey (HIES<sup>9</sup>) of Liberia. The second data was obtained from Yale University, and the Innovations for Poverty Action (IPA) baseline survey conducted in Liberia in 2009-2010 in counties of Lofa, Nimba and Grand Gedeh. The analysis is done at the town-level. To construct the analytic sample, we first identified and summed up farm related conflicts in each town in the IPA data set; second, we assigned each household in the production data set (HIES) to a town; and third, we constructed farm productivity variable (proxied by crop yield per acre in local currency). Additionally, we created farm input investment variables (number of permanent trees planted in a farm) at the town-level. Land conflict was proxied by the number of farm households associated with land conflicts in each town.

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9 This data was administered to a sample of 8,350 randomly selected households between January 2016 and January 2017 by the Liberia Institute for Statistics and Geo-Information Services with support from the Government of Liberia, the World Bank, the European Union, the Swedish International Development Corporation Agency, the United States Agency for International Development, and the African Development Bank. The survey was nationally representative and collected detailed information at the household level on the following topics: education, health, employment, water and sanitary practices, household resources, grants, crime, conflicts, and recent shocks to household wealth.

## Conclusions and policy recommendations

Land conflict, even if small-scale in nature, may have considerable effect (impact) on incentive to invest in land productivity. With incidences of land conflict significantly increasing in post-war states of SSA, in places facing stiff demand of land resource because of population pressure as well as weak land governance in some of the SSA countries, there is a need to deviate from anecdotal evidence policy driven to empirical evidence policy driven. In this regard, this study sought to provide evidence for the channels through which land conflicts affect agricultural productivity in Liberia. Firstly, it sought to establish the household and farm characteristics influencing land conflict in post-war Liberia. Second, it sought to investigate the impact of land conflict on crop productivity and last, how presence of land conflict influenced a farmer's decision on investing in permanent trees and non-tree crops in Liberia. Two econometric estimations (OLS and 2SLS) are utilized. The key results from the analysis are discussed from the perspective of the pathway through which incidences of land conflict influence crop productivity and farm investment decisions.

The first pathway is through soil erosion. We found that eroded farms were less likely to experience land conflict but had a declining effect on farm productivity in Liberia. Intuitively, erosion was leading to relative scarcity of productive farms and thus increasing the demand for the scarce un-eroded productive farms. The policy response for this observation could be an elaborate intervention mechanism by either the government or development partners to reduce soil erosion in Liberia farming areas. This will certainly lead to a double desirable impact of reduced land conflict as well as improved farm productivity. There is need for a technical assistance to farmers to help them reduce soil erosion.

The second pathway is through distance from the farm to home or road. Farms with longer walking distance from farm to home or from farm to the road were more likely to experience land conflict but had a counter effect on farm productivity. Intuitively, improving road connectivity in the farming areas either through all-weather roads or feeder roads would likely reduce land conflict or improve crop productivity in Liberia. The third pathway is through soil quality: We observed that farms with good soil quality were more likely to experience land conflict but increased farm productivity than those that had degenerated soil quality. Intuitively, improving soil quality across all the farming areas could both reduce land conflict and increase crop productivity. We therefore suggest technical assistance to farmers on how to improve soil quality (say through practicing good agricultural practices or manuring their farms) by either the government or any development partners.

The fourth pathway is through government extension services. Interestingly, farms that reported having received government extension services were less likely to experience land conflict. Equally, evidence suggests that government extension services increased farm productivity. We, thus, recommend that the government extension services should be expanded to all parts of Liberia. There would be a need for non-state actors such as NGOs and development partners to increase extension services to Liberian farmers.

Lastly, we also found that less sloppy slopes (gentle slopes) were likely to accelerate land conflict among Liberian farmers. Equally, less steep slopes led to an improvement in farm productivity among the Liberian farmers. This could result from the fact that sloppy areas by nature are susceptible to mass wasting and mass movement leading to thin soils that cannot support crop production well. Intuitively, reducing the rate of mass wasting and mass movement through building terraces could reduce land conflict and increase crop productivity in Liberia.

Land conflict remains a sensitive matter that, not only threatens the peaceful co-existence of communities in fragile sub-Saharan Africa, but also has potential to result to negative economic effects. Evidence from this study suggests that land conflict has a potential to drive crop yield practically to zero. This is a concern especially in Liberia which is a net importer of food, with figures from the World Food Programme indicating that in about one-fourth of Liberian households, food accounts for 65% of their total expenditures. There is thus an urgency to tackle the correlates of land conflict.

To achieve the key pathways mentioned above with an aim of reducing land conflict and increasing crop productivity in Liberia, we recommend the following strategies to the government, NGOs, CBOs, and any other key stakeholder in this area:

- Comprehensive soil erosion reduction strategies that involve building of gabions, terraces, reforestations scheme as well as mass education on proper agricultural practices to the farmers such as “plough along the contours” or planting cover crops in areas with massive erosion or mass wasting through public media, community outreach or government extension services should be promoted;
- Opening remote areas through building of all-weather roads or feeder roads, especially in the farming areas to increase accessibility of far farms; and
- Increase the government extension services to all towns of Liberia farming areas with technical assistance designed to improve soil quality, control soil erosion as well as improvement in farm productivity.

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