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**Working Paper
No. 516**

**Incorporating perceptions and experiences of violence
into livelihood decision-making: a micro level study in
the Chittagong Hill Tracts of Bangladesh**

*Mohammad Badiuzzaman**

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Acronyms

AHM	Agricultural Household Model
BBS	Bangladesh Bureau of Statistics
CBN	Cost of Basic Needs
CHT	Chittagong Hill Tracts
CHTDF	Chittagong Hill Tracts Development Facility
DCI	Direct Calorie Intake
DFID	Department for International Development
FGD	Focus Group Discussion
HDRC	Human Development Research Centre
IDP	Internally Displaced Person
KII	Key Informant Interview
LPM	Linear Probability Model
NGO	Non-Government Organization
OLS	Ordinary Least Squares
2SLS	Two Stages Least Squares
PCJSS	Parbotto Chattragram Jana Samhiti Samiti
PRA	Participatory Rural Appraisal
UNDP	United Nations Development Programme
Unicef	United Nations Children's Fund
UPDF	United Peoples Democratic Front

Abstract

This paper analyses the influence of perceived violence on livelihood decision-making of indigenous households in post-conflict Chittagong Hill Tracts of Bangladesh following a formal peace treaty in 1997. The study results suggest that households perceiving high risk of violence spend less on consumption expenditure and are sending children to school more, cultivating more land and engaged more in producing mixed subsistence and cash crops. Using both quantitative and qualitative data this study finds decreasing emphasis on present consumption, long term investment in human capital, using land more intensively to earn more cash and move towards creating surplus instead of producing for subsistence, which suggests perceived violence is producing decisions which are similar to those advocated in a classical 'modernization process'. Findings of this paper are similar to the argument of 'post traumatic growth theory' and indicates a post-conflict 'phoenix' factor may be in operation at the household level in which some income raising livelihood decisions are made as a consequence of fear of renewed violence. In the short run, the 'phoenix' factor appears to operate through both increased land use and cash crop cultivation and in the long run through increased human capital.

Keywords

Post-conflict, perception of violence, livelihood decisions, land use, schooling

Incorporating perceptions and experiences of violence into livelihood decision-making¹

a micro level study in the Chittagong Hill Tracts of Bangladesh

1 Introduction

The possibility of recurrence of conflict justifies household-level perceptions of threats of violence in the post-war period. Perceptions of threats of violence may influence decision-making by households since perceptions of violence undermine both micro and macro level security for both households and their wider community. Micro level studies in other locations have explored the case that war influences economic behaviour either directly by individuals or through collective actions. Empirical evidence has revealed that influences of war on individual economic responses can be either positive or negative. Experience of post war economic performance varies between contexts. Negative impact of civil war on economic growth is quite obvious through destroyed infrastructure and reduced human capital formation. Post war positive economic performance is explained by 'Post-traumatic growth theory' and suggests that a 'Phoenix Factor' exists. Tedeschi & Calhaoun (1996), Bellows & Miguel (2009), Blattman (2008), Voors & Bulte (2008), Powell et al. (1993) and Nillesen & Verwimp (2010) provide empirical evidence of positive economic performance in post war periods (Nillesen & Verwimp 2010 and Koubi, 2005).

The Chittagong Hill Tracts (CHT), a region of Bangladesh historically inhabited by non-Bengali speaking indigenous people came into armed conflict with the Bangladeshi State² due to a number of reasons; namely demand for regional autonomy, ethnic recognition in the Constitution by the State, withdrawal of both transmigrated people (commonly referred as 'Settlers' by state-sponsored settlement programme from other parts of Bangladesh) and the army. A two decade long armed conflict between the ethnic rebels (*Parbatya Chattagram Jana Samhati Samiti-PCJSS*) and the State formally came to an end by signing 'CHT Peace Accord' in 1997. Formal end of armed conflict through surrender of the military wing of PCJSS is considered as the most vital success of the 'Peace Accord'. However, pessimism regarding the full implementation of the 'Peace Accord' is the major underlying grievance factor and complaints underlying this conflict (e.g. land dispute) have not yet been addressed (Adnan, 2004 and Mohsin, 2003).

¹ I am thankful to Prof. Syed Mansoob Murhsed and Dr. John Cameron for their comments and suggestions on earlier drafts of this paper. I wish to acknowledge the financial contribution of Nuffic for enabling this study at ISS.

² The conflict in the CHT of Bangladesh is internationally designated as 'Minor armed conflict' as per intensity and categorized as 'Internationalized internal armed conflict' occurs between the government of a state and one or more internal opposition group(s) with intervention from other states (secondary parties) on one or both sides. For detail see <http://www.prio.no/CSCW/Datasets/Armed-Conflict/UCDP-PRIO/Armed-Conflicts-Version-X-2009/> (accessed on November 05, 2010).

Several studies show that successful implementation of a peace treaty is a challenging issue. Murshed (2010a) found that after the Cold War (between 1991 and 2005), 148 peace settlements have been signed and about 70% (104) of these treaties appear to have been implemented successfully. The other 44 treaties (30%) are reported to have failed. Even treaties appearing to be implemented required several rounds of negotiations and involved risks of renegeing by some groups. There is an absence of knowledge about the incomplete peace process and its impact on changing livelihoods after the signing of the peace accord. This paper aims to investigate the relationship between threat perceptions of violence as a proxy of experiences of violence and indigenous peoples' livelihood decision-making processes in the post-conflict³ situation in the CHT.

Post-conflict societies usually experience two distinct types of challenges - economic recovery and reduction of risk of recurrence of conflict. Post-conflict societies are likely to revert to conflict within a decade in a typical low-income country (Collier et al. 2008). Successful implementation of a peace accord requires continuous efforts that are not present in the CHT. Conflict between the State and the indigenous people of CHT took place in the land-hungry context of the most densely populated, large population country in the world, which is also a low-income developing nation where agriculture continues to be the main source of the population's livelihoods. Thus, neo-Malthusian factors may be at work in Bangladesh. Population growth adds to land scarcity, which can be further exacerbated by environmental degradation, and can fuel conflict driven by greed/need for ever scarcer land and environmental resources (Homer-Dixon, 1999). It is often difficult to reach a solution to land disputes, and it is especially complex and challenging in Bangladesh where various types of negative economic and political experiences are associated with land holding disputes (for details see Barkat & Roy 2008 and Barkat & Huda 1988).

Peace building process gained an additional complex dimension following the Accord with non-recognition of the 'Peace Accord' by one section of indigenous peoples and consequently this group's mobilization for a different political front, 'United Peoples Democratic Front (UPDF)' to continue the struggle for full autonomy (Mohsin 2003). Continuing land disputes, non-withdrawal of army, poor rehabilitation of refugees and internally displaced persons (IDP) along with opposition to the Peace Accord make the post conflict situation of CHT more vulnerable. As a consequence, indigenous population living in this area have been experiencing various types of violence, misrecognition and mistrust from settlers. These are manifested through continuing acts of low intensity violence like arson, abduction, extortions, insecurity of women and children, low intensity armed conflict, and restricted mobility, but overall it does seem acceptable to see the situation as being post-conflict with fear of future violence being a stronger influence than present actual experiences (Barkat et al. 2009).

³ It is difficult to find true 'post-conflict' situation as conflict can be more or less violent, more or less manifest or latent but rarely stop altogether. Here post-conflict is referred as residual of formal armed conflict, where open armed conflict has come to an end through a peace accord (Junne and Verkoren 2005).

The analysis of shock of civil war is a new phenomenon in the literature on livelihoods' impacts of shocks, the common feature of these studies is inclusion of actual violence exposure during war and post war. As an extension to this literature, this study intends to estimate influences of perceived threats of violence in a post-conflict situation on livelihood decision-making by indigenous households of CHT.

1.1 Research questions

The key objective of this paper is to understand the micro-level foundations of household decision-making by indigenous people living in the post conflict CHT. This research is designed to examine the relationship of household livelihood responses to different levels of perceived threat of violence in a post-conflict situation. The main research question is to answer how indigenous households are adapting their livelihoods in the formal post-conflict situation of CHT.

More specific research questions are as follows;

1. Whether different perceived threats of violence influence households' livelihood decision-making in the current post-conflict situation?
2. What are the motivational factors functioning behind the influence of perceived threat of violence on households' livelihood decision-making?

1.2 Justification and relevance

There is a dearth of empirical evidence regarding economic performance of households in response to differing perceived threats of violence in the post-conflict literature (Verwimp, Justino and Brück, 2009). This study aims to contribute to the recent academic literature by analysing influences of shocks caused by perceived threat of violence on the basis of post-conflict data on violence and livelihood decision-making. This has similarities to the findings of Nillesen and Verwimp (2010) in the context of rural Burundi, where conflict can result in the increased production of cash and export crops for the market displacing subsistence cultivation.

Influence of perceived threats of violence is worth investigating since the perception of violence may be more influential on development because perceptions of violence may be more frequent than violence that is actually experienced and this can have a significant widespread impact on household decision-making (Rizal and Yokota 2006).

Generally in the conflict literature, households are considered to be passive victims of violence. In this study, households are assumed to be active rational agents taking various livelihood decisions in response to differential perceived threats of violence. This will add to the existing literature on impacts of violence on development.

The knowledge to be gained from the analysis of influence of perceived threat of violence on households' livelihood decision-making may help to understand that the impact of threat of violence as a shock is different from weather-related shocks, illness, development interventions and other influential factors affecting poverty over time.

The methodology used in this research combines quantitative data collected in a large questionnaire survey with qualitative insights from focus group interviews. Finally, this study is an experiment in the literature of empirical livelihood analysis as it incorporates threat of violence as a component in the orthodox sustainable livelihood framework.

1.3 Background and context of the Chittagong Hill Tracts conflict

Bangladesh is the one of the most densely populated (1,229 people/sq.km) countries in the world where the amount of arable land was only 0.1 hectare per capita in 2007. It is a low income developing country with about 50% of the population (using the international poverty line of below \$1.25 per capita per day) living in poverty (World Bank; 2010). Over last two decades, Bangladesh's economy experienced real growth rates of around 5.5% per annum, but still a large part of GDP emanates from subsistence agriculture (World Development Indicators). A few ethnic communities with different languages and religions from the Bengali speaking, Muslim are concentrated in the CHT region (Roy, 2000).

This section will document a brief profile of the CHT and its people with distinguishing between the indigenous population and the Bengali speaking majority population of Bangladesh. The shared 'identity' of a self-identified group of people is important in other studies of violence and development nexus as it assumed to reduce the costs of collective action on shared grievances (Murshed, 2010b).

In CHT land grabbing and dispossession is the central issue of conflict between indigenous and immigrant Bengali speaking communities (Chakma, 2006). Two districts of this region are recognized as the most backward districts in Bangladesh in terms of conventional development indicators (Unicef 2010). The proportion of non-indigenous population (Bengali speaking) in CHT has been increasing over time. As per 1991 population census of Bangladesh, indigenous population constitutes 51.4% of the CHT total population of about one million (Adnan 2004, Mohsin 2003 and Roy 2000).

The CHT occupies one-tenth (13,189 sq.km) of the total territory of Bangladesh and is mostly mountainous and therefore suitable for guerrilla warfare. This region is situated in the southeastern part of Bangladesh and is covered with lush green hills, innumerable *jharnas* (scattered springs) and hundreds of *choras* (mountain streamlets). The area is divided into three administrative districts; Bandarban, Khagrachari and Rangamati. From economic and strategic point of view CHT is important for national policy makers. It is adjacent to two Indian states Tripura on the north and Mizoram on the east and by Myanmar on the south and east. Insurgency in the Indian north-east states and Myanmar raises the military importance of this region (Barkat et al. 2009 and Mohsin 2003).

The CHT region enjoyed its autonomous status (largely a self-governed independent territory) until 1860 when the British took it over as their vassal. 'Chittagong Hill Tracts Regulation of 1900' declared CHT as an 'Exclusive

Area' and put an embargo on 'outsiders' (people other than indigenous ones) to settle or purchase land in this territory. Under this act people of this region enjoyed substantive autonomy until 1962 when the 'excluded area' status of CHT was replaced with that of a 'tribal area' through constitutional amendment. This amendment was aimed at paving the way for an influx of non-indigenous people into the region in large numbers. Consequently the indigenous leadership (*Raja*, Headman, *Karbari*) lost control over land allocation.

A pluralistic legal and judicial system now prevails. Legal pluralism is evident in application of customary, regional, and national laws to the region. Judicial pluralism is reflected through the co-existence of traditional and state courts and functioning of traditional institutions in the land revenue management of this region. Property rights in the CHT are not well defined and complex, for land in particular (Barkat et al. 2009, and Roy, 2000).

According to population censuses of Bangladesh there are eleven ethnic groups Bawm, Chak, Chakma, Khumi, Khyang, Lushai, Marma, Mro, Pangkhua, Tanchangya, and Tripura. Their appearance, languages, and cultural traditions are significantly different from the Bengali speaking majority population of Bangladesh. They are closer in appearance and culture to their neighbours in north-eastern India, Myanmar and Thailand. Buddhism, Hinduism, and Christianity all are practiced in CHT. They have their own language in both oral and written form though many of the scripts are under threat. The indigenous population of CHT is often identified as *Jumma* people as it is derived from the word *jum* (swidden cultivation) which served as the corner stone in the life of the indigenous people. They are officially recognized as 'Hillmen', 'Tribal', or '*Jumiya*' (Swidden cultivator)⁴.

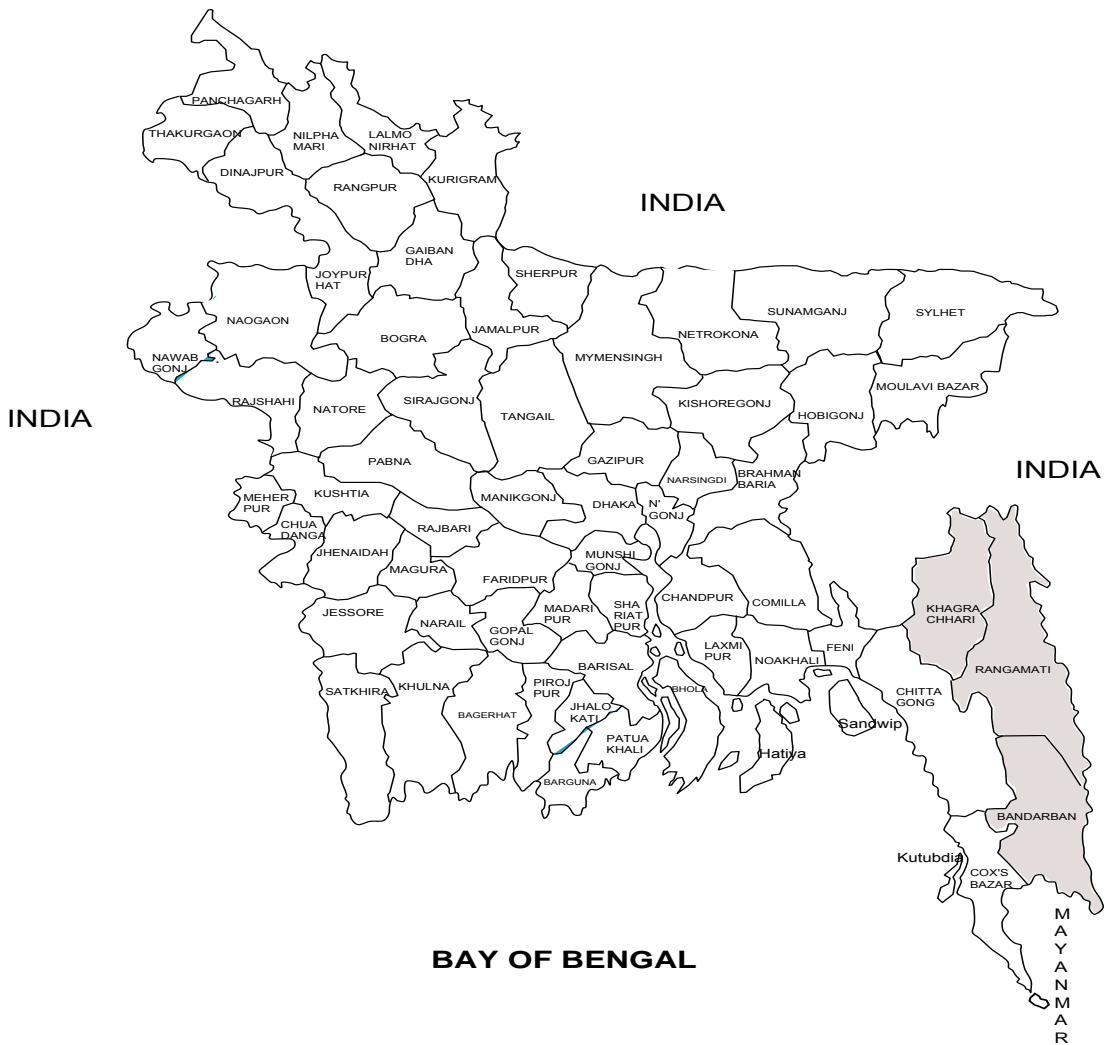
Land is the key factor of production in the CHT economy. The relation of indigenous people to land is deeply rooted. Traditionally, almost all the communities were engaged in subsistence *jum* or swidden cultivation (also referred as slash and burn or shifting cultivation). Besides *jum* cultivation, there exists small scale plough cultivation as well. The indigenous peoples were also enjoying self sufficiency in terms of food production in earlier times despite only 23% of the land being arable (Adnan 2004, Barkat et al. 2009 and Roy 2000).

The land ownership patterns as well as types of land in CHT differ from that of plain regions. Customary ownership of land exists here. Also about one-fourth of the total CHT land is occupied by reserve forest which restricts cultivation and extraction by indigenous people. Indigenous people are permitted to use the rest of the land recognized as Unclassified State Forest (USF) in addition to the 'District Forest (DF)' under the discretion of the administration. Due to the construction of an artificial reservoir by damming the river Karnafuli at Kaptai in the 1960s, approximately 1,036 square kilometres were submerged including the main urban centre of CHT and

⁴ In this study the term 'indigenous' is used to indicate the tribal and/or ethnic population of CHT without reference to the debate on the indigenous status in official documents of Bangladesh. For detail about the debate on recognition of indigenous status of this tribal population, see Ahmed (2010).

54,000 acres of highly prized cultivable lands in the river valleys. The loss of productive lands, along with displacement and uprooting of people, increased demographic and economic pressure leading to impoverishment and insecurity which gave rise to resentment among the indigenous people against the State and motivated them in their struggles in the following periods. Finally, state sponsored migration program settled about 400,000 landless Bengali in the CHT during 1979-1986. It led to dispossession of thousands of acres of lands claimed by indigenous people (Adnan 2004, Barkat et al. 2009 and Roy 2000).

MAP 1
Chittagong Hill Tracts in map of Bangladesh (shaded area)



During the liberation war of Bangladesh in 1971, some indigenous leaders were not in favour of Bengali nationalism which gave a basis for long lasting mistrust between the then national politicians and the indigenous peoples. Soon after independence of Bangladesh, a delegation of the CHT people led by M. N. Larma, member of the Constituent Assembly and a veteran fighter in the Liberation War, submitted a memorandum to the government of Bangladesh demanding constitutional recognition of the indigenous communities living in the CHT and regional autonomy for protection of their distinct ethnic and cultural identity. However, neither the recognition of the communities nor regional autonomy received constitutional recognition in Bangladesh (Adnan 2004 and Barkat et al. 2009).

Due to lack of understanding of the gravity of CHT problem, successive governments undertook a number of strategies including military solution and state sponsored population transfer programmes. A huge amount of financial allocation was made to make these programs successful. In 1976 armed forces were also deployed in 'Aid to Civil Power' which triggered tension in the region. A few indigenous political groups (e.g., PCJSS) undertook the policy of armed struggle against the authorities. Under the counter insurgency strategy, demographic engineering interventions aimed at settling a large number of Bengali speaking households in CHT were undertaken to enhance the size of population loyal to the state, and these fresh settlements would act as a counterweight to the population demanding indigenous peoples' rights and regional autonomy. However in the subsequent period, government tried to find a political solution to the problem (Adnan 2004 and Barkat et al. 2009).

1.4 Organization of this paper

This paper is organised in a logical sequence in line with the research objectives and questions. This paper comprises five chapters where the first chapter has commenced with an introduction along with research questions, and justification of this research, and the background and context of CHT. The second chapter deals with theoretical and analytical approach of the study. Epistemology, methodological issues and data used in this research are discussed in chapter three. Study findings on the influence of perceived threat of violence on households' livelihood decision-making are documented in chapter four. Finally, the concluding chapter (chapter five) focuses on the contribution of the study in the broad academic literature besides the key findings. In addition, two appendixes provide data tables, and data collection tools.

2 Theoretical and analytical approach

2.1 Introduction

This chapter aims to provide a brief discussion on the theoretical and analytical approach followed in this study. The chapter has been structured on the basis of literature review of some specific issues like post conflict economic performance, causes of conflict and violence, and individual decision-making

under uncertainty. This chapter aims to provide a brief discussion on the theoretical and analytical approach followed in this study. The chapter has been structured on the basis of literature review of some specific issues like post conflict economic performance, causes of conflict and violence, and individual decision-making under uncertainty. The empirical approach is based on the sustainable livelihoods framework.

2.2 Literature review

2.2.1 Post civil war economic performance

It is widely believed that civil wars in developing countries retard progress, and help to perpetuate poverty. Indeed there is a vicious cycle linking the risk of conflict to poverty. Civil war and its aftermath impact economic performance at both the macro and micro level. Empirical studies on the relationship between civil war and subsequent economic growth demonstrate three different scenarios where either positive or negative and even no relation can exist. Several studies found that civil war has widespread negative effects on subsequent economic performance. The obvious immediate negative impacts of civil war include destruction of human and physical capital through killing, destruction of physical infrastructure, and dispossession of assets. The post-war estimated effects of civil war violence are substantial through reduced human capital formation, increased health problems, displacement of population, and impediment of economic sector development (Nellison and Verwimp, 2010 and Koubi, 2005). Hoeffler and Reynal-Querrol (2003) estimates that involvement in civil war for five years can reduce economic growth rate by not less than 2 percent annually.

Other studies on implication of civil war also provide evidence that civil war has a disastrous or growth retarding effect. Murshed (2010a) discusses the impact of civil war on economic growth and cited Murdoch and Sandler's study (2004) which finds that civil war at home can reduce economic growth of a country by 31% in the long run and this adverse effect can increase to 85% in the short run. They also show that countries adjacent to civil war are also adversely affected. Combined inter-state war and civil war affects growth adversely in general (Koubi 2005).

But several studies on the consequences of war for economic growth in a large cross-section of countries found that the overall relationship (non-causal) between war and economic growth is negative but the causal effect of civil war (considering different characteristics of war) shows positive impact on post war (subsequent) economic performance. Organski and Kugler (1977, 1980) focused on the fact that nations that suffered serious damage to their industrial capacity during the war rebuild afterwards. Such reconstruction and rebuilding productive capacity requires a higher level of investment compared to pre war period which by itself raises the growth rate of output. Nations can get the opportunity to rebuild a more technologically advanced basis for the economy. Their arguments are similar to the argument for a 'Phoenix Factor'. They also found a differential impact of war on growth for both parties of a war; winners and losers. They argued that the losers are more likely to have a larger phoenix factor than war winners and therefore it grows faster since they may have

suffered the larger destruction. Similar results are presented by Collier (1999) where he conditions various war characteristics on economic growth and it is revealed that prolonged war has significant positive association with higher growth.

However, alongside claims for both positive and negative impacts of civil war on post war economic growth, other studies also revealed an ambiguous relationship. Barro and Lee (1994) studied the determinants of economic growth in a large cross section of country for a period of 1965 to 1985 and they found that the estimated coefficient for war effects is insignificant on economic growth. But they acknowledge the poor quality of data rather than importance of war is responsible for getting such results. Moreover there is a huge problem of reverse causality in this type of estimation.

According to 'post-traumatic growth theory', people experiencing violence can have positive responses to trauma and be successful in transforming negative events into something positive at both individual and community levels. Empirical evidence from Sierra Leone and Uganda shows that participation in politics and community affairs and contributions to local public goods are higher among war victims than non-victims. In Sarajevo it is found that war victims were experiencing more personal income growth than others. A recent study finds that in rural Burundi farmers who were exposed to civil war violence increase exports, cultivation of cash crops, investment in public goods and reveal higher levels of subjective welfare evaluations. However, several studies also found that rural households return to subsistence agriculture as a response to risk of potential shock and move away from more risky activities (Nillesen and Verwimp, 2010).

2.2.2 Causes of violent-conflict

This paper aims to analyse influence of post-conflict perceptions of potential violence on livelihood decision-making. But, to understand the context of the post-conflict period, it is necessary to discuss briefly the causes of conflict.

Recent studies on causes of internal violent conflict or civil war finds a wide variety of factors which may be broadly categorised as *greed* and *grievance*. The term *greed* indicates acquisitive activities similar to crime or in other words it is a disguised form of political grievance while the term *grievance* refers to a sense of injustice experienced by a well-defined social group (language, ethnicity, religion and colour) with a historical dimension.

Murshed (2010a) discussed the influential work of Paul Collier and Hoeffler (2002, 2004) where *greed* is considered as a prime cause of conflict. *Greedy* as a motive for conflict has mainly arisen in the context of abundance of mineral resource endowment which increases the risk of experiencing conflict. It suggests that conflict reflects elite competition over valuable natural resources like diamond, and oil. Organizing an insurgency against the government originates from the greedy behaviour of a rebel group. In the context of CHT, this greedy factor is not relevant to analyse the causes of conflict as there is no conflict due to any valuable minerals exploitation by the State or the rebel groups.

Grievance is another central concept within the conflict discourse. It points to a motivation driven by a search for justice. Relative deprivation, polarization and horizontal inequality are three major driving forces in theories of *grievances*. Ted Gurr (1970) defined relative deprivation as the discrepancy between aspirations and achievements (discussed in Murshed 2010a).

Polarization is another crucial concept where two or more groups exhibit great inter-group heterogeneity and intra-group homogeneity. Polarization can be economic, ethnic or both. Strong feelings of identity plus alienation can explain polarization. Murshed (2010a) cited Montalova and Reynal-Querol (2005; 2007) in claiming that polarization is functional for explaining both incidence and duration of civil war. Indigenous community and Bengali speaking settler communities are polarized ethnically (Adnan, 2004 and Roy 2002). The notion of horizontal inequalities was proposed by Frances Stewart (2000) and is seen as an important cause of contemporary civil war. It focuses on measuring inequality between groups based on an ethnic group identity (Murshed 2010a).

Bringing these causes together, it can be argued that identity is influential in shaping conflict as it reduces cost of collective actions (e.g. group formation for violence). An ethnic dimension is a common feature of most contemporary civil wars in developing countries where well-defined and ethnically distinct groups fight one another. Organized group conflict can happen in a situation where individual and group grievances merge because of easier collective action. In general, group grievances are often associated with historical injustices and may be also related to immediate inequalities and inequalities of opportunities. For instance, the Maoist insurgency in Nepal, one of the highest intensity internal conflicts in recent times, has been claimed to be motivated by horizontal inequality (high Gini Index and Polarization index scores) with a spatial dimension meaning the most disadvantaged areas faced most intense conflict (Murshed and Gates 2005:121-122, and Murshed 2010a).

Growth failure and economic mismanagement can enhance civil war risk. It is also true that successful economic growth can also increase the violence propensity amongst those who are left behind. Estimates show a non-linear relationship (inverted-U-shaped) between violence and development in terms of income and education (Tadjoeddin and Murshed, 2007). Both economic growth and contraction can produce instability and violence as argued by Olson (1963). An inverted-U-shape relationship between economic prosperity and level of violence was established by Bates (2001). He argued with historical evidence that violence and increasing prosperity go hand in hand at initial stage but decline afterwards.

Incentives that shape interaction between two distinct social groups determine the nature of social capital in conflict prone circumstances. Social capital between two distinct social groups has a crucial functional role in either creating or stopping violence. A study on communal riots between Hindus and Muslims in India found that a sustained legacy of religious tolerance resulted from the differences in the degree to which medieval Hindus and Muslims could provide complementary, non-replicable services and a mechanism to share the gain from exchange. Muslims had advantages in Indian Ocean shipping, high incentives for trading across ethnic lines in medieval trading

ports leading to develop an institutional mechanism that further supported inter-religious exchange. This study found that medieval trading ports are 25% less likely to experience a religious riot between 1850-1950 and these medieval trading ports are continuing to exhibit less widespread religious violence during the Gujarat riots in 2002. The interpretation of these differences is the persistence of institutions (social capital) that emerged to support inter-religious medieval trade (Jha, 2008).

In CHT, the indigenous population of CHT is the poorest, relatively deprived segment of Bangladesh as well as having substantial polarising social differences from the majority population of Bangladesh (Barkat et al. 2009 and Adnan 2004). Indigenous people also have a grievance of justice from the State as they claim that to be the owners of the land historically and the State grabbed their land for settling Bengali speaking population of other parts of Bangladesh (Adnan, 2004 and Roy 2002).

In the CHT context, it seems that land grabbing (due to settlement of Bengali speaking immigrant, accusation of land under forest department and military base) is motivated by a sense of a *need* rather than a *greed* factor. This is closer to the argument of Homar-Dixon type neo-Malthusian explanation where competition for land, water and other inputs has been increasing day by day due to increased number of population without access to modern sector employment.

2.3 Theoretical tools: integrated livelihood decision-making under uncertainty

Micro level studies of conflict focus on ‘individual’ decision making processes where decisions are considered as outcomes of reflections on individual experiences plus interactions between individual agents conscious of differing private interests. In real life experience, individuals usually have to take these decisions under conditions of risk and uncertainty. In this situation, an individual has to take a decision from a set of alternatives where each alternative may result in an uncertain outcome. Under such uncertainty, the individual decision maker is expected to have a rational preference relation over the set of uncertain outcomes. Expected utility is one model to explain individual choice under risk (Mas-Collel et al. 1995). However applicability of this probability approach of risk is criticised by Shackle (1958) as it is applicable only to replicable experiments. He argued that if a decision is non-repeatable, probability or expected utility theory cannot be applied. He noted that mathematical expectation calculations actually ignore uncertainty. Another crucial argument against expected utility theory is the notion of importance of safety perceived by individuals. Decisions may be more concerned with the most disastrous situation rather than a marginal increase in gain or satisfaction. For many people it is arguably more preferred to reduce the chance of the occurrence of a catastrophe (Roy, 1952). Generally individuals may be loss averse in a wide variety of domains of uncertainty; people may be more averse to losses than attracted to the same financial amount of gain.

Additionally, most households in developing countries usually take simultaneous livelihood decisions about production (output level, demand for factors of production, and the choice of technology) and consumption (labour supply and commodity demand). The complex mixture of the economics of the firm and the households is a salient feature of the situation of most households in the developing countries, particularly in contexts of widespread small scale farming. An Agricultural Household Model (AHM) can be used to explain such decision making processes where households engage in production and consumption at the same time.

In a simple rural economy, households have E^A amount of land and L^m and L^f amount of labour where L^m and L^f stands for amount of labour used for wage earning (wM) and own production respectively. Since M means the maximum amount of labour a households can sell; thus L^m cannot be greater than M ($L^m \leq M$). Households will maximize its utility;

$$\text{Max } U(c, l); c, l \geq 0$$

$$\text{Subject to } c = F(E^L - M - l, E^A) + wM,$$

where E^L = Total amount of labour hour

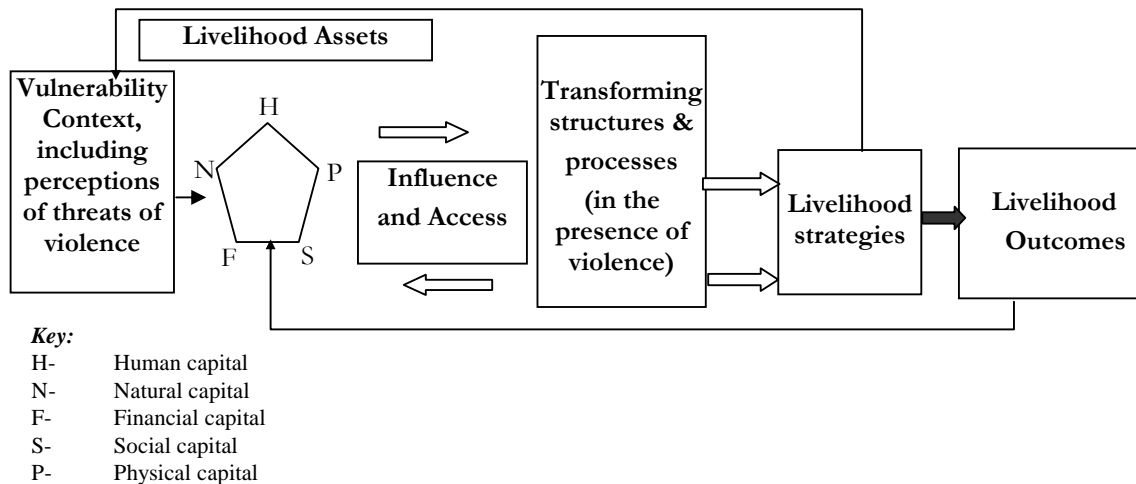
l = amount of leisure and

c = amount of consumption.

Under this condition if households maximize utility at the point where household works $M + L^f$ hours and consumes $c = wM + F(L^f, E^A)$. Now it becomes clear that a household's production choices depend on its preference and endowment (Bardhan and Udry 1999).

This theoretical rational choice approach, household decision making processes and/or livelihood responses will be empirically developed within the sustainable livelihoods framework developed by Michael Scott and Diana Carney and used by DFID (Solesbury 2003:10-11). The original framework is a bit modified by incorporating violence and threat of violence and its associated uncertainty in the framework. Experience of violence and threat of uncertain conflict is considered as a shock which creates a vulnerability context for households in the orthodox livelihood framework which may be different from the more usual vulnerability contexts of weather related shocks and ill-health.

FIGURE 2.1
Sustainable livelihood framework



Source: Adapted from Solesbury, 2003

3 Research epistemology, methodology and data sources

3.1 Introduction

This chapter provides discussion on how this paper acquired answers to the research questions. It gives a picture of the epistemological assumptions, methods used and data sources. It has a special focus on the strengths and weaknesses, including reflexivity, challenges of the quantitative and qualitative data collected and used for analysis. A brief discussion on analytical tools used for analyzing quantitative data is made here. Finally, it also documents the limitations of the study data.

3.2 Epistemology

The primary focus of this study is to analyze household livelihood decision-making under perceived threats of violence within a constrained rational choice framework. Theoretical and analytical approach used in this study shows that this paper is strongly influenced by ‘positivist’ epistemology. This epistemology advocates the application of methods of natural sciences to the study of social phenomena (Grix, 2004). Positivist epistemology claims to observe ‘truths’ in an objective and independent way by the researcher without having been influenced by the re-searcher’s values and assumptions. This resembles the scientific search for ‘truth’ through an objective procedure as in physics. This positivist epistemology is very compatible with quantitative data analysed using econometric statistical techniques. Such an objective positionality is claimed in neo-classical economics, such as when Friedman (1953) wrote “Positive

economics is in principle independent of any particular ethical position or normative judgements. It provides a system of generalizations that can be used to make correct predictions about the consequences of any change in the circumstances.”

Positivist epistemology asserts the possibilities of unbounded inquiry and possibility of knowing natural laws without taboos or references to any supreme authority in the natural world. There is no scope for influence of values and assumptions of researcher in this study beyond the rational choice theoretical approach and sustainable livelihood framework. In line with this epistemology, regression exercises on the relationships between perceived threats of violence and livelihood decision-making are used. The validity of logical induction combined with regression techniques and an unbiased sample is not beyond question. Popper (1972) rightly recognised this problem which is evident in his work “According to my reformulation, the central issue of the logical problem of induction is the validity (truth or falsity) of universal laws relative to some ‘given’ statements.” But for the purposes of this research, a positivist epistemology will be adopted.

3.3 Methodology

This research aims to analyse the influence of perceived threat of violence on livelihood decision-making quantitatively along with in-depth qualitative interpretation. Therefore both quantitative and qualitative approaches have been chosen to address the research questions. In the quantitative approach both descriptive and analytical statistics will be used using a cross sectional dataset from a questionnaire survey at household level. Under qualitative approach, applied group data collection techniques were used such as Focus Group Discussion (FGD) and Transect Walk type of a participative approach (PRA). In addition, Key Informant Interviews (KII) and Direct Observation techniques offer in-depth and meaningful explanations of people’s decisions and behaviour.

The quantitative analysis of influence of perceived threat of violence on livelihood decision-making is drawn from a CHTDF-UNDP survey of indigenous households living in CHT for the year 2007, while the qualitative insights came from the fieldwork conducted in 2010. The quantitative data used and analysed can be treated as an outsider (etic) view of the reality while the qualitative data may be considered as the insider (emic) view of the same. In this research the household is considered as unit of analysis and the operational scale is the CHT region as a whole.

3.4 Quantitative data and source⁵

Data generated by “Socio-economic Baseline Survey of Chittagong Hill Tracts” has been used in this study. This survey was commissioned in 2007 and the survey report was published by CHTDF-UNDP in 2009. Survey was

⁵ This section is written on the basis of information documented in the survey report written by Barkat et al. (2009).

conducted by Human Development Research Centre (HDRC) and this researcher was a member in the study team. Data was collected for the year 2007 from a cross section of households (both Bengali speaking settler and Indigenous population) living in CHT. According to the purpose of this paper, a part of the dataset considering only indigenous households was used. Because of personal involvement, the researcher had a deeper understanding of the data collection tools and insights into the dataset. This researcher was involved in questionnaire designing, training of the enumerators, supervising field data collection process, data coding, cleaning and finally writing the survey report. Since the data set is not available in the public domain, due permission was taken from the organization (CHTDF-UNDP) to use the data set.

3.4.1 Sampling and data collection

Sample design of the survey captured the whole region of CHT and the diversity of indigenous population. The total number of sample households was 3,238 and the number of indigenous households was 1,786. The sampling procedure carefully considered the geographical and ethnic diversity of CHT and its population. The survey is representative for households in CHT as a whole and also by ethnicity. It used random sampling technique to select the primary sample unit (PSU) - called *para* in CHT - and the households in each contacted PSU. To ensure random selection of households a complete household listing was done in each selected *para* to ensure unbiasedness.

The survey included variables on socio-economic characteristics of CHT population. The broader categories of measurable variables are demographic, economic, social and cultural, infrastructure facilities, and peace-confidence building. The survey followed a long and rigorous process of developing data collection tools. A detailed instruction manual was prepared to fill-in the questionnaire and clarifications regarding the questions. The language of the questionnaire and manual was Bengali, but the language of the community is non-Bengali. To meet this challenge, the survey recruited University students as enumerators who belonged to the indigenous community and conducted repeated piloting of data collection tools to minimize language problems. However, accuracy of data may have suffered because of lack of proper supervision of enumerators (e.g. geographic setting created problems of communication) and there were still language problems in interpreting questions at the time of interviewing which was discovered in the feedback sessions after completion of survey.

3.4.2 Quantitative data on perception of threat of violence

The original survey was not designed to analyse violence issues in CHT. However, data on different types of violence in the form of either household's experience or perceptions under the categories of 'obstacles to peace' and 'element of confidence-building' was collected. Data on real life experience of violence were collected for the period of ten years (1998-2007) after the Peace Accord; whereas perceptual data on violence was for the year 2007 only. This study primarily uses the variables which are based on household perception on

different types of violence for the year 2007. The reason for choosing the perceptual data on violence is that the survey collected data on violence perception and socio-economic or livelihood status for the single year 2007 which makes the data set compatible with straightforward cross-sectional regression analysis. Also the data on experiences of violence was collected for post peace accord period (1998-2007) and there is a strong possibility of under reporting of the actual violence events faced by individual households due to safety and security considerations. In this formal post conflict situation, household perceptions of general threats from different types of violence can work as proxy for household specific ‘threat of violence’ at household level (Rizal and Yokota, 2006).

A composite index variable for threat perceptions of violence was constructed as part of this research, as the original survey used 31 indicators to show the present status of threat of violence in CHT perceived by households. Likert scales were used in the questionnaire to collect data on threats of violence. Under the broad heading of ‘obstacles to peace’ data was collected by using three point qualitative value scale while under broad heading of ‘element of confidence-building’ a five point qualitative value scale was used. Each scale was devised as per the specificity and nature of each variable. The scale contained qualitative value labels (Likert scale) and quantitative (numeric) interpretations for each of the threat levels. In the present study, 13 indicators have been selected from the 31 indicators used in the original survey to construct a composite violence index.

To ensure consistency in the value level of the Likert scale used for all the indicators under ‘obstacles to peace’ and ‘element of confidence-building’, an adjustment has been made by re-coding the qualitative value level with new numeric interpretation. The new Likert scale contains three point values scale where low=1, Medium=2 and High=3. The new value scale with numeric interpretation has been done by re-coding of original values used in the survey. On the five point scale, the minimum value level (0 or 1) represents lowest/worst status while the maximum value level (3 or 4) indicates highest/best situation on ‘constraint of peace’ and ‘element of confidence-building’. This re-coding process involved rigorous discussion with the team leader involved in the survey for validation (for detail see Appendix B).

The value of composite index for perceived threat of violence is the summation of the numeric values achieved by each household against each indicator. All the indicators are assigned equal weight. The formula of this construction of threat of violence index is as follows;

$$\text{Composite violence index, } X = \sum_{i=1}^{13} x_i$$

Where, x_i denotes the value of indicators of violence
($i=1,2,3,\dots,13$)

From the estimation it is found that the lowest value for the composite violence index is 13 while the highest value is 32. Thus an individual household can get any value between 13 to 32. At this stage households are grouped into

three distinct, equal interval categories according to the level of value of violence index. The categorization is as follows;

Category 1: Household perceiving low violence scores 13 to 19 in composite violence index

Category 2: Household perceiving medium violence scores 20 to 26 in composite violence index

Category 3: Household perceiving high violence scores 27 to 32 in composite violence index

From the above categorization, a new variable 'Perception of violence', a categorical variable was created with a value level ranging from 1 to 3, with the low violence perception dummy serving as the reference point. This categorization of households shows that 55% of indigenous households perceived low levels of violence, 36% households perceived medium level of violence, and 9% households perceived high violence (see Appendix A).

3.4.3 Data on household livelihood decision-making

Consumption Expenditure

Data on consumption expenditure was collected by using separate format on food and non-food expenditure from households. The original survey collected the data on amount of food consumed by items for a (average) representative week by household and average price for these food items was also collected from the village level by interviewing the knowledgeable people of the village. Later on, the study team extrapolated the weekly data for a year and calculated the amount of expenditure on food consumption made by each household. The non-food expenditure includes expenditure on clothing, housing, education and health. Calculation procedure for both food and non-food consumption expenditure used the imputation methodology to monetize the expenditure where the consumption item was not bought or domestically produced. Extrapolation of consumption expenditure did not consider the seasonality issue of food security. Extrapolation and monetization methodology may compromise the accuracy of the data. Although the researchers acknowledged the problem of measurement error, they did not give any indication of extent of measurement error. The average per capita annual cash-equivalent consumption expenditure for a household was Tk. 11,838, with Tk. 11,087 and Tk.4,309 for food and non-food consumption respectively.

Investment decision; enrolment of children

Data on total number of children enrolled in both primary and secondary school was collected at the household level. It is difficult to use this household level data on enrolment as the regression model needs child specific variables like age, sex, and type of school in relation to enrolment status. Household background information was used to generate enrolment data as it kept all demographic and education related information for all the household members. Children included were in the age bracket of 6 to 18 years and were identified as currently being students in the data on enrolment. The age bracket

of 6 to 18 years which is a bit higher than the standard age for this level of education was used because of the fact of late enrolment of children in the region. Estimate showed that 41% children in this age bracket are enrolled in school.

Production decision; type of crop produced

Data on types of crop produced show that 35 different types of crops are produced by indigenous households in CHT. At the first stage of data processing, these crops are grouped into food and cash crops. This grouping exercise is problematic because some crops can be considered as both cash and food crops. Households are then categorised into one or other or 'mixed'. Purpose of growing particular crops is considered as the basis of such grouping. It is found that about 36% households grow only food crops and 1.5% households grow only cash crops while about 62% households are growing mixed crops (both food and cash).

3.5 Qualitative data and source

Qualitative data collected in the present study is to complement the quantitative analysis and assist interpretation of quantitative results. Group data collection techniques such as FGD, transect walk type PRA and in-depth interview technique such as KII were used. PRA was used to get into the community and FGDs were used to understand people's motivations and aspirations behind decision-making. KIIs were used to get insight into the livelihoods of indigenous peoples with people like *karbari* (*village/para chief*), *Headman* (*mouza chief*) and personnel from NGOs and development partners. In addition, academic researchers and activists who were working on indigenous peoples issues in and outside the CHT were consulted as key informants. Moreover, direct observation was a helpful technique to get primary insights into local context.

The locations for the qualitative research were selected purposively. Selection of the locations in the three district of CHT was made according to violence intensity. The primary results from quantitative data on violence show that the district Bandarban is the lowest violence prone area compared to Rangamati and Khagrachari districts. The numbers of FGD and PRA sessions (5) were distributed among the three districts as per the violence intensity. Two transect walk type PRA and FGD were conducted in Khagrachari and Rangamati district while one transect walk type PRA and FGD each was conducted in Bandarban. In most of the cases FGD sessions were conducted in NGO schools situated in the village and established with the help of villagers. For conducting qualitative research, a three member team was formed with a composition of a facilitator and a note taker along with the researcher. The recruited facilitator and note taker for PRA and FGD were University students from the indigenous communities as they knew the local language.

Transect type of PRA exercise helped to get into the community, get accustomed with the situations and provide wide scope for observations. It gave the researcher the opportunity to interact with the local community leaders and other community people and build up a rapport with them. During

transect walk, discussions concerned the present situation of livelihoods and threats of violence in the community. A semi structured guide line was followed in FGD session (Appendix-B). During FGD sessions, indigenous men and women discussed their experience on livelihood decision-making under threat of violence freely. Though they participated in the discussion with openness, we could not discuss few sensitive issues regarding conflict with the military and role of the groups opposing the Peace Accord. I had planned to record the conversations but the participants did not allow me to do so. Note taking was done in Bengali language by the facilitator and note-taker who knew both of the languages. The researcher translated the necessary parts of transcribed Bengali conversation into English as where and when necessary. Finally, observations during the researcher's stay in villages were documented by diary method which helped interpret the reality.

3.6 Reflexivity

Reflexivity is an important issue in conducting field research especially qualitative investigation where certain personal characteristics and relationships of the researcher can influence the information provided by respondents. These include ethnic identity, my relationship with indigenous community and language. My ethnic and religious identity belongs to the Bengali speaking settler community with whom the indigenous community has conflict relation. The relation between me and the indigenous community can be referred to as 'etic'. Therefore, it was a tremendous challenge for me to get their trust and confidence. I believe that I have overcome the challenge with the help of my two indigenous friends with whom I worked earlier also in the same region. I along with my friends stayed at the village and shared the same food. Before going to the villages, the local community leaders (e.g. *headman and karbari*) were contacted and had to be convinced about the objectives of my research. However, at the beginning of each FGD session I faced a lot of questions regarding my identity and purpose of the research. My indigenous friends and local community leaders helped me overcome the situation. For ice-breaking, I showed my photographs taken during my previous work with indigenous peoples of the region and sometimes tried to use some of their language.

Another challenge faced during field work was language. PRA, FGD sessions and interviews with indigenous community leaders were conducted in indigenous language. As data collection process requires proper understanding of respondents, clarification of different terms, words, expression, concepts and interruption; asking for frequent clarifications in conversation can make the data collection process more complex and laborious. Moreover, transcription of the interview and conversation into Bengali and afterward in English was also a daunting task. When necessary, I called or sent English transcription or summary of conversation or interview to the facilitator and note-taker to get their validation of an expression.

Finally, regarding disclosure of information provided by the indigenous people I assured them that they would remain anonymous in the write up of the research paper to ensure their security.

3.7 Analysis technique for quantitative data

Descriptive and analytical statistical tools have been applied to analyze quantitative data. Quantitative analysis primarily focuses on the relation or association between perceived threat of violence and livelihood decision-making. At the first stage, statistical tools such as bi-variate analysis and non-parametric tests were used. In the later stage, appropriate econometric models (regression techniques) were devised to explain relationships by using OLS, LPM, Logit and Probit models.

Using cross-section data meant the regression model had to be carefully specified on the basis of empirical studies related to the present topic to address endogeneity problem in estimation procedure. However, the estimation procedure suffers from a specification problem due to absence of time variant unobserved variables plus lack of data on some variables in the dataset which are omitted variables in the model (Wooldridge 2003).

For consumption decisions an Ordinary Least Squares (OLS) and Two-stage Least Squares (2SLS) model, and for investment in children's education and production (cropping) decisions a Logit or Probit model, were specified. The latter two tools measure the probability or chance of an event occurring. The standard regression equation is as follows:

$$Y_i = a + \beta_1 HSE_{ij} + \beta_2 H_{ij} + \beta_3 C_{ij} + \beta_4 S_{ij} + \beta_5 V_{ij} + \beta_6 PV_{ij} + \varepsilon_i$$

Where the dependent variable, Y_i refers to various livelihood decision-making variables, consisting of consumption expenditure (continuous variable), child enrolment in both primary and secondary school (dummy variable) and type of crop produced (dummy variable) for house-hold i measured at the survey. The explanatory variables are as follows: HSE_{ij} are household-level demographic and socio-economic variables, C_{ij} is a set of child characteristics (age and sex), H_{ij} is the household heads' characteristics (age, sex and education), S_{ij} denotes school level variable, V_{ij} means variables for perceived threat of violence, PV_{ij} indicates pre-peace accord experience of violence and ε_i is a random error term. One of our dependent variables, child enrolment, will be related to lagged explanatory variables used in interaction form.

Table 3.1 shows the summary of specifications for household livelihood decision-making represented by consumption, investment and production decision on the basis of empirical studies related with the present topic.

3.8 Triangulation

Combining both quantitative and qualitative data analysis should be considered as strength of this study. Findings from different methods and analysis techniques have been used to answer the research questions. Combining both quantitative and qualitative data analysis allows triangulation. The regression results show the association between the threat of violence and household livelihood decision-making while the qualitative data is used to interpret and substantiate the quantitative findings.

TABLE 3.1
Summary of variables included in regression model

Endogenous variable	Consumption Decision Equation	Investment decision: Child Enrolment Equation	Production Decision Equation	
			Amount of land cultivated	Type of crops produced
Per capita annual consumption expenditure (food and non-food)	LHS			
Child enrolment in primary and secondary school		LHS		
Amount of land cultivated			LHS	
Type of crops produced				LHS
<i>Exogenous variables</i>				
Household size	√	√	√	√
Age of household head	√	√	√	√
Sex of household head	√	√	√	√
HH head never attended school*	√	√	√	√
HH head completed primary school	√	√	√	√
HH head completed secondary School	√	√	√	√
HH head completed above secondary School	√	√	√	√
Age of child		√		
Age square of child		√		
Sex of child		√		
Proportion of enrolled children	√			
Government school		√		
NGO school		√		
Private school		√		
Other type of school*		√		
Language of book		√		
Medium of instruction in school		√		
Per capita HH asset	√	√		
HH electrification status	√			
Food crop*			√	√
Cash crop			√	√
Both food and cash crop			√	√
Plough cultivation*			√	√
Jum cultivation			√	√
Both Jum and plough cultivation			√	√
Amount of land cultivated				√
Perception of violence	√			
Low level of perceived violence*	√	√	√	√
Medium level of perceived violence	√	√	√	√
High level of perceived violence	√	√	√	√
Experience of armed conflict before peace accord	√			
Casualty before peace accord	√			
Interaction variables		√		

Notes: LHS indicates that a variable is included as endogenous variable in the left-hand-side of the equation. '√' indicates that a variable is included as exogenous variable. * denotes reference category

4 Livelihood decision-making under threat of violence

4.1 Introduction

The current analysis is going to assess the influence of different levels of perceived risk of violence as on livelihoods' decision-making assuming this decision-making has produced intended outcomes, which were accurately observed in the survey. This chapter presents the findings based on quantitative and qualitative analysis of the influence of perceived violence on livelihood decision-making at household level. In the present analysis households' perceptions of violence can be treated as potential, though uncertain, shocks faced by households which may influence their decisions. Analysis aims to find if livelihood decision-making varies with the changing perception of violence using the sustainable livelihood framework. For ease of analysis, livelihood decision-making elements (variables) are grouped into three different and distinct categories which are consumption decision, investment decision and production decision. Under consumption decision I have considered both food and non-food consumption expenditure as the proxy for the consumption decisions taken by households. Long term investment decisions have been represented by children's school enrolment. Finally, decisions on involvement in types of cultivation, amount of land cultivated and type of crop produced have been considered under the production decision.

4.2 Influence of perceived violence on household consumption expenditure

The indigenous population living in CHT is relatively poor as compared to the people living in other parts of Bangladesh according to commonly used poverty measurements; cost of basic needs and direct calorie intake methods (Adnan 2004 and Barkat et al. 2009). Socio-economic and cultural structure of indigenous society have important roles in determining household decisions regarding consumption. In structure the CHT indigenous society is still largely governed by the customs and culture not by market forces (Adnan 2004). Cash equivalent non-food expenditure (6%) has been found to be extremely low compared to the food expenditure (94%) in CHT. According to the BBS 2007, nationally share of food expenditure and non-food expenditure are 54% and 46% respectively. History suggests that as society develops (moving from subsistence economy to surplus economy with structural transformation) the share of food expenditure decreases while the non-food expenditure increases. The indigenous communities are still producing their own clothing and food and therefore the price for these commodities is relatively cheap (the Survey used local market prices). Education and health expenditure is also low because of low enrolment rate of children in school and low rate of using State and marketised health facilities (Barkat et al. 2009).

Average amount of per capita annual cash-equivalent consumption expenditure is Tk. 11,838. A variation in the amount of per capita annual consumption expenditure in relation to various levels of perceived violence has been found. The amount of per capita annual consumption expenditure is inversely related with the levels of perceived violence where it is estimated that

an average household perceiving low violence spent an amount of Tk. 12,027 per person per annum while a household perceiving high violence spent an amount of Tk. 10,760 which is 10.5% lower as compared to those household who perceived low violence (Table 4.1). Between the groups of households perceiving low and medium violence there is small (2%) variation in consumption expenditure. Compared to an average household's annual consumption expenditure per person, the household perceiving high violence spend 9% less.

TABLE 4.1
Per capita annual consumption expenditure in relation to perceived threat of violence

Perceived violence level	Per capita annual consumption expenditure (Tk.)	Standard deviation
Low violence	12,027	4505
Medium violence	11,783	4682
High violence	10,760	3464
Overall	11,838	4518

Source: Author's estimation based on the data collected by Barkat et al. 2009

With regard to household consumption decisions, we examine the influence of violence perception on consumption expenditure as a whole and for food and non-food consumption expenditure separately. There may be endogeneity between consumption expenditure and perception of violence and therefore the OLS coefficient for perception of violence in consumption expenditure (total consumption expenditure, food consumption expenditure and non-food consumption expenditure) regression can give biased estimates (annex table 5 for the OLS estimate). This is because households with more economic capacity can perceive more violence, and vice versa. To get consistent coefficient estimates for consumption expenditure regression we use a two-stage least squares (2SLS) estimation approach where at the first stage we are in need to choose an instrumental variable to solve this endogeneity problem. There are a few variables in our dataset that are potential candidates for instruments. We choose the variable 'previous experience of armed conflict'. This is the active participation of any household member in and/or exposure to armed violence before peace accord of 1997 (i.e during 1977-1997). In regression equation for non-food consumption expenditure our instrument 'previous experience of armed conflict' was found ineffective, and we therefore used 'previous casualties' as our instrumental variable. This refers to whether any member(s) of household was wounded or killed during the war. The identified instrumental variables were found exogenous by Durbin-Wu-Hausman test (F statistics). Experience of previous armed violence and the incidence of casualties are likely to be highly correlated with current violence perception, but less with consumption for two reasons. The first reason is the time gap between participation in previous armed conflict (1977-1997) and current consumption expenditure. Secondly, the violence level in CHT happened before peace accord (1997) is considered to be low intensity violence and did not do much damage to the already low amount of infrastructure. Verwimp and Bundervoet (2008) review evidence suggesting that welfare and

TABLE 4.2
Determinants of consumption expenditure: OLS estimation

Explanatory variables	Dependent variables					
	Total consumption expenditure		Food consumption expenditure		Non-food consumption expenditure	
	1	2	3	4	5	6
	Violence perception: 1 st stage	Total consumption expenditure IV-2SLS	Violence perception: 1 st stage	Food consumption expenditure IV-2SLS	Violence perception: 1 st stage	Non-food consumption expenditure IV-2SLS
HH size	0.00201 (0.00928)	-0.0490*** (0.00473)	0.0120 (0.00814)	-0.0498*** (0.00442)	-0.00336 (0.0100)	-0.0980*** (0.00631)
Age of HH head	-0.000933 (0.00137)	-0.00101 (0.000697)	-0.00149 (0.00122)	-0.00122* (0.000663)	-0.000294 (0.00147)	0.00116 (0.000932)
Sex of HH head	0.0177 (0.0370)	0.0511*** (0.0189)	-0.00113 (0.0331)	0.0283 (0.0180)	0.00259 (0.0399)	0.0627*** (0.0252)
HH head completed primary education	0.0584 (0.0432)	0.00880 (0.0222)	0.0178 (0.0386)	0.0225 (0.0210)	0.0918** (0.0464)	0.0206 (0.0408)
HH head completed secondary education	0.0713 (0.0475)	0.0357 (0.0245)	0.0304 (0.0428)	0.0365 (0.0233)	0.102** (0.0510)	0.00405 (0.0469)
HH head completed above secondary education	-0.0883 (0.219)	-0.0592 (0.111)	-0.248 (0.174)	-0.0658 (0.0945)	0.0683 (0.235)	0.251* (0.149)
HH electrification	0.142*** (0.0470)	0.0236 (0.0244)	0.0427 (0.0411)	0.0151 (0.0223)	0.129** (0.0506)	0.0646 (0.0507)
Per capita asset	-7.20e-07 (6.59e-07)	1.48e-06*** (3.39e-07)	-5.86e-07 (6.46e-07)	1.83e-06*** (3.52e-07)	-1.10e-06 (7.12e-07)	1.94e-06*** (5.98e-07)
Proportion of enrolled children	0.351*** (0.0454)	-0.0430 (0.0269)	- -	- -	0.390*** (0.0487)	0.0203 (0.127)
Previous experience of armed conflict	0.540*** (0.0379)	- -	0.542*** (0.0350)	- -	- -	- -
Previous casualty	- -	- -	- -	- -	-0.167** (0.0839)	- -
Perception of violence	- -	-0.0837** (0.0358)	- -	-0.0741** (0.0350)	- -	-0.266 (0.317)
Constant	1.223*** (0.0866)	9.712*** (0.0652)	1.435*** (0.0691)	9.616*** (0.0668)	1.360*** (0.0931)	7.299*** (0.430)
F	0.2663	-	0.3090	-	0.5784	-
Observations	1,285	1,285	1,629	1,629	1,285	1,285
R-squared	0.185	0.113	0.134	0.103	0.058	0.190

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

Source: Author's estimation based on the data collected by Barkat et al. 2009

past shocks, including conflict are highly correlated, but not after the passage of a decade. But, subjective perceptions of violence are likely to be related to actual experiences of violence, however long ago. Our results (2SLS estimation) suggest that there is significant negative relationship between perceived violence and consumption expenditure decisions. The IV coefficient for perception of violence in column 2 of table 4.2 indicates negative influence of 8.4% on total consumption expenditure and this IV coefficient for perception of violence is almost double of the corresponding OLS estimate. The adverse influence is also found significant for food consumption expenditure. Household perceiving violence reduces their food consumption expenditure by about 7.5% (column 4 of table 4.2) which is higher than the corresponding OLS estimation (4.1%). Such rise in the value of coefficient after using instrumental variable indicates a negative correlation between the errors in the total as well as food consumption expenditure equation and the perception of violence equation. The IV estimation does not show significant influence of perception of violence on non-food consumption expenditure, although the sign is negative. In the OLS estimate the relationship is negative and significant (annex table 5). We have to bear in mind that food has a much more significant weight (94%) compared to non-food items (6%) in the average household's consumption basket (see the descriptive statistics in annex table 1). As expected, household size influences the amount of per capita consumption expenditure (total, food and non-food) negatively and per capita household asset (in monetary terms) influences the same positively. In addition, male headed household spend more on consumption expenditure compared to female headed households which is found statistically significant for total and non-food consumption expenditure. Households where the head has above secondary education spend 25% more on non-food consumption expenditure.

This negative influence of perceived violence on consumption expenditure can be understood by considering perceived violence as an anticipated 'shock' factor in decision-making. More importantly, the relationship between different levels of perceived violence and amount of consumption expenditure is interpreted here by considering households as active decision makers rather than passive victims of violence. From the investment and production point of view, the households perceiving higher level of violence can then be seen as more interested to save or to invest on production and on developing human capital compared to those households who perceive less violence. Such a motivation for investment and production may lower consumption, especially monetary expenditure. This may not be a general picture but it can be more applicable for relatively affluent households. The higher influence of perceived violence on non-food consumption expenditure decision can be explained by the fact that when households face any type of adverse situation they will first reduce their non-food monetised expenditure.

In the qualitative research, household decision-making experience on consumption spending was found to be complex among the households. Households explained their experience of consumption expenditure decisions in a number of ways in FGD sessions and at various interactions with the indigenous peoples during my stay in the villages. It has been found that some households are frustrated about their future and therefore pessimistic in their

decision making. An FGD participant from Chakma community who is also an internally displaced person because of land dispossession by new settlers expressed his feelings about the future and the challenges of the present in the following terms:

whatever amount (of course small) we earn we are earning to consume or to survive. There is no matter of conscious decision. We do not have any guarantee of our lives and assets because of conflict with Bengalee settlers and army. We do not know when we can see our bright future.

On the other hand, there are some people who have been trying to make their lives in a better way and they are slightly optimistic about the future in the post peace accord period. A young couple perceiving high risk of violence in Khagrachari district shared their feelings about expenditure decision-making in an interaction with this researcher as “we are not earning much but we have to be careful about the amount of consumption expenditure as we do not have another resource for our future. We are just eating to survive, not spending for availing any luxury in our lives.”

An indigenous community leader in Khagrachari district, a violence prone region, argued that “after the peace accord a number of reconstructions and development work is underway in the CHT. NGO workers are working with us to raise our consciousness. They are motivating us not to consume everything else rather to try to save for the future. Slowly people are moving towards savings and careful consumption decision”.

4.3 Influence of perceived violence on investment decision

Investment in human capital in CHT is especially important since improvement of human capital enables people to possibly increase their future productivity, to participate more remunerative employment and potentially migrate (UNDP, 1995). In terms of time horizons, investment can be short term and long term while in terms of livelihood framework investment can be made for developing physical capital, human capital, social capital, natural capital, and political capital. Decisions to enrol children in school can be a proxy of investment decision on human capital development at micro level. Considering children enrolment as an investment, decision is arguably correct in developing countries in particular, since the enrolment of the children is not free of cost from economic point of view. Households need to pay educational expenses incurred as well as to sacrifice the economic contribution of children as child labourer where child is doing household chores or in paid work outside the household (Bedi and Marshall 2002).

Bangladesh has gained remarkable progress in achieving universal primary education due to substantial programmatic interventions started in 1990s. In the year 2006, 81% children (6 to 10 years) were enrolled in primary school while it was 60% in 1990. The overall primary school enrolment scenario in the whole Chittagong division (83%) was slightly better than the national scenario in 2006. However, estimates (on the basis of secondary data used in this research) on enrolment scenario in CHT is discouraging as only 41.5 %

children are enrolled in primary and secondary school (6 to 18 years)⁶. However, some people of the indigenous communities (e.g. the Chakma) have made remarkable progress in education (Adnan 2004).

Descriptive statistics show that 33% households perceiving low violence are sending their children to school while the statistics is 39% for households perceiving medium level of violence. The proportion of sending children to school increases to 43% among the households perceiving high level of violence. The difference in child enrolment rates between household with low and high level of violence perception is about a third of the lower figure. The estimated variation in children enrolment in relation to different level of perceived violence is found to be statistically significant in a non-parametric test (Table 4.3).

TABLE 4.3
Influence of perceived violence on children enrolment in school

Perceived violence level	Children enrolment (%)
Low violence	33
Medium violence	39
High violence	43
Overall	41
* Pearson chi2 Pr = 0.027 (to three significant places)	

Source: Author's estimation based on the data collected by Barkat et al. 2009

Our Probit regression results in table 4.4 indicate that variation in the likelihood of children's enrolment is not significantly explained by differences in perceived violence as the coefficient is statistically insignificant. The variables on actual experiences of violence (displacement, land dispossession and experience; participation in or victim of armed conflict) are also found to be insignificant. But introducing interaction terms for variables on pre-peace accord experience of violence and post-conflict perceived violence engenders statistical significance. The statistical significance of the interaction term points to the existence of a more complex mechanism linking fears of violence to local child enrolment. In other words, current perceptions of violence do impact on whether households choose to school their children locally, but it is related to other factors such as earlier experiences of violence, emigration and land dispossession.

The interaction between displacement (which means the household left during the conflict and subsequently returned) and current perceived high violence is positive and statistically significant. This suggests that the households who were displaced before the peace accord, and currently perceive high violence, are more likely to send children to school (32.5%) compared to households who also migrated but perceive low violence levels.

⁶ Data on the both primary and secondary school enrolment for the CHT is not available in the published national statistics and Chittagong division is not representative for the CHT. Therefore the estimate on enrolment (primary and secondary) made by author on the basis of survey data can be a better representation of the situation for indigenous people.

TABLE 4.4
Determinants of child enrolment in school: regression result

Explanatory variable	Dependent variable; Child Enrolment	
	Logit, mfx	Probit, mfx
	1	3
Age of child	0.147*** (0.0140)	0.139*** (0.0129)
Age square of child	-0.00571*** (0.000747)	-0.00535*** (0.000705)
Sex of child	0.0167 (0.0358)	0.0263 (0.0332)
Age of HH head	0.000459 (0.00124)	0.000447 (0.00119)
Sex of HH head	0.0241 (0.0344)	0.0250 (0.0331)
Primary education of HHH	0.0475 (0.0403)	0.0438 (0.0383)
Secondary education of HHH	0.0420 (0.0445)	0.0421 (0.0425)
Above secondary education of HHH	-0.345*** (0.0585)	-0.364*** (0.0587)
Government school	0.0769** (0.0362)	0.0746** (0.0347)
NGO school	0.154*** (0.0575)	0.146*** (0.0547)
Private school	-0.0132 (0.0926)	-0.0198 (0.0916)
Language of book	0.437* (0.261)	0.427* (0.244)
Medium of instruction	-0.367* (0.190)	-0.373** (0.185)
HH size	0.00582 (0.00886)	0.00620 (0.00858)
HH asset	2.61e-07 (2.75e-07)	2.49e-07 (2.57e-07)
Perceived medium violence	-0.0121 (0.0416)	-0.0117 (0.0400)
Perceived high violence	-0.184** (0.0752)	-0.189** (0.0771)
Migration	-0.0710 (0.0717)	-0.0718 (0.0705)
Land dispossession	0.148** (0.0624)	0.140** (0.0586)
Past armed conflict	-0.0101 (0.0677)	-0.00360 (0.0658)
Migration and perceived medium violence	0.0280 (0.119)	0.0385 (0.112)
Displacement and perceived high violence	0.326** (0.140)	0.325** (0.139)
Land dispossession and perceived medium violence	0.00373 (0.0916)	0.00480 (0.0860)
Land dispossession and perceived high violence	-0.285*** (0.0681)	-0.293*** (0.0746)
Past armed conflict and perceived medium violence	0.0358 (0.0911)	0.0271 (0.0872)
Past armed conflict and perceived high violence	0.267** (0.124)	0.258** (0.119)

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

Source: Author's estimation based on the data collected by Barkat et al. 2009

Similarly, households that experienced armed conflict before the peace accord, and currently perceive high violence are more likely to school children (26%) compared to households who experienced armed conflict and currently perceive low violence.

This mutual reinforcing element in the combined violence variable is not applicable to households who experienced land dispossession before the peace accord. Our estimates suggest that households who experienced land dispossession before the peace accord, along with a high violence perception are less likely to school their children (29%), compared to those who also experienced land dispossession before the peace accord, but perceive low violence. The experience of land dispossession is traumatic, and creates huge economic vulnerabilities, as land is the most productive asset. This may lower the likelihood of their sending their children to school, possibly due to rejection of Bengali culture. There are limited economic incentives for school enrolment in the few educational institutions with free food and residential facilities established with the support of government and donors in CHT to enhance human capital development (Shelley 1992). But the primary 'investment' motivation for schooling children is to allow future generations to acquire credentials so that they can escape the conflict and are less dependent on agriculture. This includes increased prospects of gaining formal and public sector jobs for their children.

The difference among the households perceiving different levels of violence in sending children to school is mostly driven by economic considerations. Indigenous people pointed to the increasing challenge to earning livelihoods from crop production and extraction of forest resources because of rapid growing population of both indigenous and the settler population. Statement from one FGD session claimed: "traditionally we were dependent on land and it was sufficient for producing our subsistence but day by day it becomes more difficult to get required amount of subsistence. In some villages we do not have enough land to allocate for our next generation who are newly married and forming new households. We are sending our children to school so that they can find their employment in somewhere other than *jum*".

Key informant interviews and interactions with the people working in development sector at the grass-root level explored reasons why households perceiving high violence are more determined to get permanent and secure employment or earning source. A NGO worker born in a highly violent area told of his experience as "my parents were displaced from their ancestral land and always afraid of complete eviction from the village. They sent me to school soon after signing of peace accord and I completed my higher secondary education in the recent past. My parents did a lot for my education so that I could get a job and support my life without fear of losing anything."

Indigenous people fearing violence perceive the relevance of education as the most precious resources since nobody can steal it. An indigenous woman from Naniarchar Upzilla (violence prone area) of Rangamati district narrated her feelings during FGD session as "our land is grabbed, our crop is stolen or damaged and even our household movable assets are robbed or burnt. But if

we educate our children, nobody can destroy this resource. Our children are studying at school to have a secure livelihood option in the future”.

However; sceptical attitudes towards the ultimate expected benefit to be gained in future from investment on education of children was also disclosed by few of the indigenous leaders in their conversation with me during my stay at their communities. In Dighinala Upzilla of Kha-grachari District (highly violence prone area) I met an indigenous community leader who donated land for establishment of a local primary school. He expressed his views as “unemployment is not only a serious problem of CHT but also for Bangladesh as a whole. A few numbers of indigenous students has got job what they expected but most of them do not. We have a quota in government job but it is so limited that even the relatively advanced indigenous community does not get employment. A new phenomenon of corruption (giving bribe) along with nepotism for getting government job has been appeared in the employment market which makes me anxious and pessimistic. However; we cannot escape from sending children to school”.

A few indigenous people also expressed their grief regarding the negative impact of education on their traditions, customs and culture. They were discussing issue of cultural change that is happening through education in their society. They raised their voice in the FGD as saying “sending children to school may be good for future income earning but it is destructive for our culture. Our children who are going to school they are wearing the dress of Bengali speaking people. They mingle with Bengali speaking children and carry their culture to our community. Now we are using a variety of commodities in our house which is not produced by us”.

4.4 Influence of perceived violence on production decisions

Historically, economic activities of indigenous people have been concentrated in agriculture and forest resource extraction. Agricultural activities include crop production, fishing, cattle rearing, and raising poultry. In addition, livelihood activities included weaving and making clothes, and brewing alcohol and handicrafts. Non-agricultural activities are not widely available in this region and extent of market participation as well as exchange is also affected by cultural norms prevailing in the society (Adnan 2004).

Own-farm agricultural production especially crop production is the main production (economic) activity for indigenous people. In this research, production decisions will be discussed in terms of crop production decisions. Three decisions regarding agricultural production are considered. These decisions are involvement in forms of agriculture (cropping own land), amount of land actually cultivated in 2007, and types of crops produced. An attempt is made to analyze to what extent different intensities of perceived violence are affecting decision making processes on these three production decisions.

4.4.1 Influence of perceived violence on involvement in cultivation

Historically the main component of consumption basket of indigenous people is rice which they produced as much as possible themselves. Rice is needed for everyday subsistence plus for festivals, entertainment of guests and other socio-cultural obligation. Rice is mostly grown in *jum* or swidden cultivation on hill slopes which are typically covered with shrubs and various kinds of trees when not used for cultivation. Besides this dominant type of cultivation, some members of indigenous communities, namely Chakma, Marma and Tripura, also produce wet rice by using plough cultivation on the plains in the CHT. Because of the technical nature of *jum* farming, cultivated land needs to be left fallow for a period of several years to regain fertility.

Transmigration of Bengali speaking population, takeover of land by various government agencies in the name of development of physical infrastructure and protection of forest has up-rooted parts of the indigenous population from their ancestral land which in turn restricts their use of land for cultivation (Adnan, 2004). A large number of indigenous households (more than 90,000) as refugees and internally displaced persons (IDP) did not get back their dispossessed land as had been promised in the peace accord. Against this backdrop, an attempt has been taken in this research to explore the scenario of household involvement in cultivation work in relation to household perceptions of violence in the post-conflict CHT.

A majority of indigenous households (60%) engage in cropping their own land. House-holds not cropping own land are engaged in such activities as wage employment for plough cultivation, producing handicrafts, hunting and gathering, collecting forest resources (firewood and timber) and wage working in local semi-urban market places. The survey estimates that a lower proportion of households perceiving medium and high violence are engaged in cropping own land. More than one-third of the total households with perception of low violence (31%) are not cropping their own land. The proportion of ‘non-cropping’ households perceiving medium violence increased to 50% while the same is 47% for those household perceiving high violence. The variation in the proportion of household without cultivation with respect to variation of perceiving different levels of violence is statistically significant (Table 4.5).

TABLE 4.5
Household involvement in agriculture by levels perceived violence

Perceived violence level	Household involvement (%)	
	Cropping own land	Not cropping own land
Low violence	69	31
Medium violence	50	50
High violence	53	47
Overall	60	40
* Pearson chi2 Pr = 0.000 (to three significant places)		

Source: Author's estimation based on the data collected by Barkat et al. 2009

Further investigation into the choice of cultivation techniques among the households with cropping own land revealed that the proportion of *jum* cultivation relative to the use of the plough decreases with perceptions of violence. The former is the more traditional farming technique, employed by the indigenous peoples of CHT. The variation in use of production techniques in relation with different levels of perceived violence is found to be statistically significant (Table 4.6). *Jum* as a type of cultivation technique is used by 28% to 31% of households perceiving medium and high violence, while the figure is 52% for households perceiving low level of violence. On the other hand, plough cultivation is applied by 73% to 75% of households perceiving medium and high level of violence, whereas 67% households with low levels of threats employ plough cultivation as their production technique.

It appears that the fear of violence draws indigenous households away from swidden (*jum*) cultivation to the use of the plough. This can also mean that they are forced to relocate in plain lands, and are compelled to intensify use of land as *jum* cultivation is more extensive in land use. Another plausible explanation can be increasing plough cultivation among the indigenous peoples may be associated with a shorter fallow period. Also declining *jum* cultivation creates pressure on indigenous people to use more previously uncultivated plains land, such as in the Kaptai valley.

TABLE 4.6
Households reporting differing techniques of cultivation with respect to perceived violence

Perceived violence level	Technique of cultivation (%)		
	<i>Jum</i>	Plough	Both
Low violence	52.3	66.6	19.0
Medium violence	28.4	72.6	1.0
High violence	30.7	75.3	6.0
Overall	31.0	56.4	12.6

* Pearson chi2 Pr = 0.000 (to three significant places)
**Note: The reported proportion of households using *Jum* and plough as technique of cultivation considers the 'both' as additive.

Source: Author's estimation based on the data collected by Barkat et al. 2009

Results from the quantitative analysis are quite consistent with the findings of qualitative research. Almost all the participants in FGD are of the opinion that indigenous people are increasingly choosing options other than cropping own land as their primary occupations because of increasing scarcity of cultivable land. According to them, at present it is not very difficult to find an indigenous household not cultivating crop which would have been a rare phenomenon in the past. They also reported that choice of non-cultivation of any types of crops is not happening because of pull factors (where other economic activity is more profitable) rather it is a reluctant decision for them. They also pointed that households living in the areas more vulnerable to violence are trying to find different occupation other than cultivation as most of the violence is associated with land. Those who perceived high risk of violence expressed their feelings in a FGD in Rangamati district as “It is safer

to choose non-cultivation type of occupation for our livelihood, our children need to survive in the struggle against occupying population”.

They also narrated their stories how they are more and more constrained to take up activities other than cultivating crops. An indigenous person perceiving high risk of violence during my visit in a village at Dighinala Upzilla of Khagrachari district expressed her pain in the following way; “We have already passed more than a decade after signing Shanti Chokti (peace accord), nothing is happened to bring the peace. Bengali speaking Settlers and army are still living here and creating fear for us. To earn my livelihood I have started a petty shop in Upzilla (sub-district) town to avoid violence. However, still I am afraid of safety of my shop in the town.”

Even the few who are earning significant sums of money by engaging in timber or logging businesses or gaining employment in development agencies like NGOs may not be happy with current changes. One commented that “*jum* is not only our livelihood options but also an in-separable part of our culture. Alienation from land cultivation and *jum* in particular, is destroying our cultural identity”.

4.4.2 Influence of perceived violence on amount of land cultivated

Amount of agricultural land is not large compared to the total area of CHT. Estimation shows that only about 6% of land area is used for crop production (all purpose and terrace agriculture) and about 15% is used for mostly horticulture and on-farm forestry while rest of the land is occupied by natural forest, settlement and water bodies. *Jum* cultivation requires land to be kept fallow for a few years to get back the productivity of the soil for future cultivation. The policy and program of Forest Department also makes forest resource extraction difficult for the indigenous people. Due to settlement of non-indigenous people in this region there is tremendous pressure on land which has aggravated the scarcity of cultivated land (Shelley 1992, Adnan 2004, and Dhali 2008).

Indigenous people’s experience of violence resulting from displacement and land dispossession by the State for settlement of Bengali speaking people from the rest of Bangladesh induces negative impact on amount of land cultivated by indigenous households. About 22% of indigenous households experienced land dispossession and internal displacement because of conflict with settler community and the security forces before the Peace Accord, 1997. Land disputes between indigenous and Bengali speaking settler community has been expected to be re-solved through the establishment and functioning of land commission which was created by the Peace Accord but still the incidents of land dispossession and grabbing is continuing (Adnan, 2004 and Barkat et al. 2009). Against this backdrop, this research explores whether decisions on amount of cultivated land shows an influence from different levels of perceived violence considering both the absolute size of the cultivated land and relative size of cultivated land to total amount of land.

According to the results of descriptive statistics (Table 4.7) there is an increase in the absolute amount of land cultivated with the different levels of perceived violence. An average indigenous household cultivates 2.6 acre of

land while household perceiving high level of violence is cultivating more than 3 acre of land which is 16% higher than that of average household. In comparison with households perceiving low and medium level of violence, a household with perception of high violence cultivates 14% and 7% more land for crop production respectively. But household perceiving medium risk level of violence are cultivating lesser amount of land in comparison with both average households and household perceiving low violence. Considering proportions of amount of cultivated land to total land provides an unclear picture. Households perceiving low violence may be cultivating slightly higher percentage of their total land holding (12%) land as compared to the households perceiving medium and high violence (about 11%).

TABLE 4.7
Total amount of cultivated land in relation to perceived violence

Perceived violence level	Total amount of cultivated land (Acre)	Standard deviation	Proportion of amount of cultivated land to total land (%)	Standard deviation
Low violence	2.64	412	12.0	46.2
Medium violence	2.46	259	10.5	26.3
High violence	3.03	334	10.9	41.2
Overall	2.60	354	11.4	39.3

Source: Author's estimation based on the data collected by Barkat et al. 2009

To get more accurate and precise estimation of influence of violence perception on amount of land cultivated regression technique was applied. Regression results (Table 4.8) for the influence of perceived violence on proportion of cultivated land to total land (land use) indicate that households (cropping own land) perceiving medium levels of violence cultivated 30% more land as a proportion of the total land they possess compared to households perceiving low levels of violence, and the result is statistically significant (Table 4.8). Apart from perceived violence, growing both food and cash crops statistically significantly raises land use by 43%.

We obtained significant result for high level of perceived violence in case of regressing absolute amount of total cultivated land. Households perceiving high risk of violence cultivated about 19% more land compared to the amount of land cultivated by households perceiving low level of violence and it is found to be statistically significant. For households perceiving medium level violence cultivated about 14% more land compared to the amount of land cultivated by households perceiving low level risk of violence and this result is also statistically significant. Apart from perceived violence, growing both food and cash crop also raise the proportion of cultivated land to total land by 43% which is found to be statistically significant (Table 4.8).

TABLE 4.8
Determinants of amount of land cultivated: OLS Estimation

Explanatory Variables	Dependent variable	
	Proportion of land cultivated to total land	Amount of land cultivated
HH size	-0.0111 (0.0264)	-0.0152 (0.0124)
Age of HH head	0.000460 (0.00403)	0.000104 (0.00207)
Sex of HH head	0.101 (0.112)	0.0615 (0.0554)
Primary education of HHH	-0.153 (0.131)	-0.0232 (0.0658)
Secondary education of HHH	0.0836 (0.141)	0.0249 (0.0711)
Above secondary education of HHH	0.417 (0.627)	0.0771 (0.257)
Cash crop	-1.343*** (0.420)	-0.850*** (0.280)
Both food and cash crop	0.430*** (0.116)	0.549*** (0.0528)
Jum Cultivation	0.155 (0.114)	0.0564 (0.0649)
Both Jum and plough cultivation	0.0536 (0.242)	-0.0217 (0.0985)
Perceived medium violence	0.306*** (0.115)	0.136** (0.0560)
Perceived high violence	0.0870 (0.176)	0.190* (0.0970)

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

Source: Author's estimation based on the data collected by Barkat et al. 2009

Discussion with the indigenous peoples revealed that after peace accord there has been an increasing tendency to use all of their resources in a way so that no resource is left unused. As land is the most vital livelihood resource they try to intensify its use. During a transect walk, this researcher observed that people are cultivating various types of vegetables and fruits in the small piece of land adjacent to their homestead (kitchen garden). People are growing more food than earlier as now they are also producing for market not only for household needs. To gain cash money through market exchange they are more interested to produce surplus which induces them to cultivate more land. During FGD in Khagrachari a traditional leader; Karbari (who is the head of a village) expressed his view as “still we are living in threat of violence however after peace accord communication facilities has been developed and mobility of businessman and traders has been increased. People are becoming more encouraged to cultivate more land to produce more. Now we can sell our products to the traders from our village and we are getting higher price for our goods than before.”

Previous research and discussion with the indigenous people suggests that because of restricted access to land due to the forest policy and settlement, they are reducing the duration of fallow cycle for land used for *jum* cultivation (Adnan 2004). Informal discussion suggested that the households perceiving higher violence are spending more time in economic activities compared to others and they are more motivated in trying to use their all sorts of resources (where land is the main resource) for production which can be a plausible reason for increased proportion of cultivated land to total amount of land. However, it was reported that there are some households who are traumatized due to fear of violence, which may retard them from engaging in production process.

Development organizations working in improving livelihood of indigenous people have a positive role recognized by the community people. Indigenous people reported that NGO workers are working to make them more conscious and motivate them to engage more in productive work which resulted in more intensive cultivation of land. During my discussion with one NGO worker, he mentioned that their program is trying to motivate people who are living in high violence prone area to involve in production process more by using their existing resources along with some skill development training and access to micro-credit.

4.4.3 Influence of perceived violence on type of crops produced

It might be expected that indigenous households are very concerned about their food security and that is why still a significant proportion of households only produce food crops. Independent of perceptions of risk of violence, the tendency is to produce food crop first with highest priority and then go for cash crop either independently or along with food crop. Usually in *jum* cultivation most of the households are producing mixed crops. In *Jum* cultivation rice is grown along with local variety of oil seed, cotton, maize, small millets, pulses, vegetables and fruits. It was also reported that when mixed crops are grown in the *jum* plot it does not involve a large extra effort or cost. A few indigenous communities grow fruits like orange, mandarin and pineapple in the ridge-top areas, terraced hill slopes and hilltop islands dotted across the Kaptai Lake. Apart from *jum* cultivation indigenous households grow wet-rice, tobacco, winter vegetables, mustard, chilli and water melon in the plain lands of the CHT (Adnan 2004).

Though the share of crop production in gross regional product was reportedly declining (16% in 1985-86 to 11% in 1997-98), but the role of crop production in the hill economy is still relevant because of the subsistence nature of the economy and inseparable place of crop production in the socio-cultural aspect of the indigenous peoples' life. The subsistence crop of rice is cultivated in both *jum* and plough cultivation and it is the cornerstone of their traditional economy. Besides rice cultivation, a number of other crops including various types of vegetables, oil seeds, cotton, tobacco and other cash crops are cultivated (Adnan 2004). Because of subsistence nature of the society the dominance of producing food crop is obvious though, in the past, indigenous households used to produce both food and cash crop in the *jum* as the cultivation type supports mixed crop production. They also practiced

mixed crop production as they try to earn the highest revenue from *jum* field. Literature shows that in post-civil war period people are found more willing to grow cash crops which resulted in higher monetary benefits (Nillesen and Verwimp, 2010). In this section, the variation in type of crop produced by the households considering the fact of perceiving violence is analysed. For this analysis, households producing various types of crops are categorized into three different groups; only food crop, only cash crop and mixed crop. It is worth mentioning that data does not show at what proportions food and cash crop exists in the ‘mixed crop’ category.

In the CHT, the majority of indigenous households who crop their own land (62%) produce mixed crops, with 36% engaged in only food crops. It has to be borne in mind that cash crop cultivation involves more risk of physical and economic loss, and we might expect more subsistence food cultivation following conflict, and the trauma of violence. The proportion of household producing only cash crops is negligible (Table 4.9). Regression techniques using logit and probit regression were run where the endogenous variable *mixed crop* is in the form of a dummy variable (0 and 1), and the results are reported in Table 4.10. When we relate these figures to the subjective experience of violence the proportion of households producing mixed crops is 63%, 61% and 58% for those households perceiving high, medium and low levels of violence respectively. It appears that the propensity for mixed cultivation may rise slightly with subjective perceptions of violence (Table 4.9). Regression techniques using OLS, logit and probit regression were run (Table 4.10 reports the probit result) where the endogenous variable *mixed crop* is in the form of dummy variable (0 and 1).

TABLE 4.9
Type of crops produced by households in relation to perceived violence

Perceived violence level	Type of crop produced by households (%)		
	Only Food	Only Cash	Mixed Crop
Low violence	40	2	58
Medium violence	37	2	61
High violence	35	2	63
Overall	36.4	1.4	62.2

Source: Author’s estimation based on the data collected by Barkat et al. 2009

The estimated coefficient (at 1% level) for medium level of perceived violence suggests that this type of households are more likely to produce mixed crops by about 8% in comparison with the households perceiving low level of violence. Similarly, households perceiving high levels of violence are producing more mixed crop by 8%, compared to the households perceiving low levels of violence, this result is statistically significant at a 5% confidence level. The variables, different levels of perceived violence (both medium and high) are found positively related with the mixed crop production with statistical significance across the logit and probit regression models. Our findings are qualitatively similar to that of Nillesen and Verwimp (2010) for post-conflict rural Burundi, where the cultivation of cash crops increased. In addition to the variable of interest (perceived level of violence) it also found that there are

some other explanatory variables; age of household head, sex of household head, household head passed secondary education, amount of land cultivated, and plough cultivation which also have significant association with the dependent variable, mixed cropping. We find that greater education and age in the head of house-hold enhances the probability of mixed crop cultivation, arguably a riskier activity than food crop alone.

Our apparently anomalous results, with respect to rising risk taking in cropping patterns following greater subjective feelings of violent experiences, can best be explained by less well known theories about risky behaviour. Conventional wisdom would suggest that individuals become more risk averse after an adverse shock, such as conflict and the fear of violence. This is also the prediction of expected utility theory in conjunction with the concavity property of standard utility functions leading to the properties of diminishing marginal utility of income, as well as absolute risk aversion. The standard precepts of expected utility do not, however, hold in many contexts. In our case, we can argue that both land dispossession and subjective perceptions of violence amount to ‘trauma’, which has a pecuniary counterpart that may be characterised as one where the concerned individual or household has sustained a large unexpected financial loss.

TABLE 4.10
Determinant of production of mixed crop: regression results

Explanatory Variables	Dependent Variable : Mixed Crop	
	Logit, mfx	Probit, mfx
HH size	-0.00637 (0.00625)	-0.00700 (0.00648)
Age of HH head	0.00177* (0.000976)	0.00179* (0.00100)
Sex of HH head	-0.0467* (0.0267)	-0.0463* (0.0273)
Primary education of HH head	0.0153 (0.0306)	0.0137 (0.0315)
Secondary education of HH head	0.0733** (0.0318)	0.0737** (0.0332)
Above secondary education of HH head	0.00974 (0.145)	0.00255 (0.146)
Amount of land cultivated	0.000579*** (7.83e-05)	0.000517*** (7.07e-05)
Type of cultivation; Plough	0.0607** (0.0264)	0.0642** (0.0270)
Type of cultivation: jum and plough	-0.0334 (0.0536)	-0.0323 (0.0546)
Perceived medium violence	0.0735*** (0.0263)	0.0782*** (0.0269)
Perceived High violence	0.0815** (0.0378)	0.0803** (0.0402)

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

Source: Author's estimation based on the data collected by Barkat et al. 2009

Markowitz (1952) suggested that starting from a state of loss; individuals are wont to engage in more risk taking to regain their previous valued position, than when their wealth portfolio is exhibiting positive growth (profit) and their expectations are over-fulfilled. Secondly, he also pointed out that what may matter more for decisions to engage in risky projects is the distribution of possible profit or loss it may entail, rather than the absolute (expected) value of risky prospect. In other words, the direction of change in the individual's asset position and the possibility of regaining a highly valued asset in monetary or social terms are more salient than its level.

Following Kahneman and Tversky (1979) we may utilize 'prospect' theory to explain our empirical findings with regard to cropping patterns, bearing in mind that cash crop cultivation is more risky, as it does not guarantee the household's subsistence and is more subject to market fluctuations. Prospect theory represents a departure from expected utility in that it is a two stage process, and risky ventures are weighted not just by (subjective) probability of the different risky states, but by a more complicated 'decision weighting' process. The first stage of the decision involves, an editing phase where a reference point is chosen to evaluate the likely effect of the actual risky investment framed in terms of specific characteristics highly valued by the decision maker, e.g. regaining a previous state. As has been indicated, following the trauma of eviction and/or violence, individuals may feel that the key value of assets have diminished and must be replaced as a priority. In the second stage of evaluation, when the household decides on its type of crop investments, it may take more risks, if the risky project has a high enough decision weight compared to the less risky alternative.

Decision weighting is related to the probability of an uncertain project bearing fruition, but it also includes the subjective desirability of the outcome, a property that alters less readily in the mind than the pure probability of success. The point being that taking on more risks is understandable if there is a substantial chance that more risky investments will lead to recuperation of particular erstwhile losses. This may explain why households with a greater perception of violence are slightly more likely to invest in the more risky cash crops, as well as intensify land use in agriculture.⁷

Discussion with knowledgeable indigenous community leaders on issue of growing more mixed crops by the people who perceive more violence suggested that it is not the general picture of the whole CHT. This kind of change may be found easily in the villages which are either close to the market place and urban location or have good communication facilities. However, they

⁷ Following Kahneman and Tversky (1979), let the value (V) of the household's risky prospect be:

$$V(x, y, p, L) = v(y) = \pi(p, L)[v(x) - v(y)]; \cdot \text{or}, \pi(p, L)v(x) + [1 - \pi(p, L)]v(y) \cdot \cdot \pi_1, \pi_2 > 0.$$

Here $v(x)$ is the value of the risky project; $v(y)$ is the value of the less risky project; p refers to the probability of success of x , π is the decision weight which is a positive function of both the probability of success, and losses (L) previously sustained. It is immediately apparent that an increase in losses due to perceptions of violence will raise the attractiveness of the risky project by weighing the decision weight more heavily in favour of x .

also mentioned that households perceiving more violence are in general, greater risk takers than others and they are increasingly involving themselves in producing cash crop to earn more money. I had an in-depth discussion with an indigenous community leader during field visit and he tried to give me a picture why people are moving toward cash crop. He narrated his experience as

we have a good amount of land to produce our food and we do it. I asked my other brothers to make a fruits garden in one part of the *jum* plot but they are not agree with me as they are more concern about their rice only. I try to make them understood that if we produce fruits in one part of our land we can earn more money to buy our food grains and we may have surplus to do other things. Finally they agreed with my argument.

Some FGD participants pointed that after signing of peace accord presence of non-indigenous traders and businessman who are coming from outside or adjacent districts of CHT has considerably been increased. Now it becomes easy to sell products (with relatively higher price) - earlier the vegetables and fruits rotted just because of absence of traders. However, they also raised their voice against surplus appropriation by most of the Bengali speaking traders. They also expressed their concern regarding increased economic crime like extortion and mugging on the street at night made by some unidentified groups (both indigenous and settlers are accused) because of presence of cash money in their economy. Examples of experiences of extortion are also found in previous study conducted in the CHT (Barkat et al. 2009 and Adnan 2004).

5 Conclusion

This research was designed to investigate household livelihood decision-making under continuing fear of violence in an uncertain post-conflict situation, despite a formal Peace Accord. Households were treated as active rational agents who optimize their short and long term interests in a bounded rationality context and who achieve their intended outcomes. The aim of this study is intended to explore micro-level behaviour (at household level as a localized phenomenon) in a post-conflict scenario. Using an empirical livelihoods framework this paper discusses the influence of different levels of perceived threat of violence on three different but interlinked households' livelihood decisions; consumption (both food and non-food) expenditure decisions, decisions on long term investment, and current production decisions. Consumption decision is indicated by the per capita annual cash or cash-equivalent consumption expenditure. Long term investment decision is proxied by decision to enrol children in primary and secondary schools. Decisions to engage in one of two forms of cultivation techniques, amount of land cultivated and type of crop produced are three decisions proxied to indicate general production decisions.

Households' livelihood decision-making is observed through livelihood outcomes assuming decision-making, influenced by differing household perceptions of risk of violence, has produced intended outcomes. Investigating the influence of perceived violence on household livelihood decision-making

seeks to answer the question of what types of changes are being induced in the post-conflict situation among the indigenous people of the CHT. It is also hoped the insights from CHT will have substantial methodological implication for researching formal post-conflict situations elsewhere.

Construction of violence index to indicate perception of threat of violence proved a challenging task. Threat of violence is defined by household's perception of different types of possible violence happening in post-conflict CHT. Analysis, informed by both quantitative and qualitative data, suggests that some household livelihood decision-making has been significantly influenced by different levels of perceived risk of violence. Findings presented in this paper have similarities to the models of 'post traumatic growth theory' and 'phoenix factor' where improved economic performance is positively associated with decreasing violence. However, the results shown here should be treated as a 'short run' phenomenon since according to Bate's vision of an 'Inverted-U-shaped' relationship between violence and prosperity over time in which the long term results of continuing growth will tend to diminish the threat of violence. It is important to note that the 'phoenix factor' economic improvement, though welcome, is very limited in absolute terms for the indigenous people of CHT.

The nature and degree of influence of perceived risk of violence varies across the different livelihood decisions and across households. Cash-equivalent consumption decisions are negatively related to perception of risk of violence with less consumption associated with higher violence perception. This negative relationship to the amount of spending on consumption expenditure made by the household suggests increased perceived risk of violence as a stimulus to save. FGD findings suggest that decision on the amount of consumption expenditure among the households perceiving different levels of violence is the outcome of a decision-making process where households are more interested in keeping assets in more fungible forms.

Data on decisions to enrol or not to enrol children in school as a proxy for long term investment decision suggested that households perceiving higher threats of violence have higher school enrolment rates. Motivations for gaining permanent increases in human capital as a resource which is movable and difficult to be destroyed plus reducing the pressure on land appears to be functioning behind this type of investment decision.

Under the production decision, regression results show that households perceiving high and medium risk level of violence are cultivating more land proportional to total land owned as compared to households perceiving low level risk of violence. This result implies that households perceiving higher levels of violence are making more intensive using of the land and possibly reducing the fallow period. Another finding is that households perceiving higher levels of violence are producing mixed crops (both cash and food crops) more frequently compared to the households perceiving low level of violence. Instead of producing only food crops households appear to be moving towards production of both cash crops and food crops with a motivation of gaining more cash and therefore, investing in human capital development for long term future gains. This indicates that a post-conflict 'phoenix' factor may be in operation at the household level in which some

income raising livelihood decisions are made as a consequence of fear of renewed violence. In the short run, the factor appears to operate through both increased land use and cash crop cultivation and in the long run through increased human capital.

Livelihood decision-making experiences influenced by different levels of perceived threat of violence at household level explored by this paper appear to be disturbingly consistent with ‘modernization’ as advocated for rural households in neo-liberal development strategies. Decreasing emphasis on present consumption, long term investment in human capital, using land more intensively to earn more cash and move towards creating surplus instead of producing for subsistence suggests perceived violence is producing decisions which are similar to those advocated in the ‘modernization model’.

Overall this research provides evidence that nothing substantial has happened in the post-conflict CHT to reduce pressure on land as the key livelihood asset. Though indigenous households are trying to avoid violent incidents and they are moving towards non-land related livelihood options, settlers from outside CHT are maintaining pressure on the land. According to the Malthusian trap theory, increasing population (both indigenous and Bengali speaking settlers) and diminishing marginal productivity of land (especially in *jum* cultivation with shorter fallow periods) and absence of industrialization along with absence of well-defined property rights (often confined to usufructory rights) has crucial implications for continuing tension and maintaining the risk of a recurrence of ethnic conflict in the region and related rational fears of future violence among indigenous households in CHT.

Moreover, data on various indicators regarding perception of violence and qualitative research suggest the amount of social capital between indigenous and the settler population has not been increasing in a positive direction which also creates vulnerability in terms of peace-confidence building in CHT – interacting greed/need and grievance processes are both still active. The role and function of indigenous and settler households does not appear as complementary to each other in the livelihood decision-making process where land is the key livelihoods’ resource for both groups of people.

The findings suggest that generally there may be possible that there is a positive household level economic response to high fear of violence after an imperfect accord claiming to end a low-intensity conflict aimed at autonomy and not secession. This fear of violence may make some people bolder and less risk averse in order to enhance their long-term future in the context of continuing likely macro-political uncertainty with significant fear of future violence at the household micro level. Prospect theory may also be useful in understanding this reaction, as people frame their decisions in the light of socio-economic priorities to regain a past situation that precedes any valuation of the consequences of greater risk taking. But exploration of these behavioural economics claims must await further research.

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Appendix A - Summary statistics and data tables

Table 1: Summary statistics

Variables	Mean value	Standard deviation	Number of observation
Per capita annual consumption expenditure (in Tk.)	11,838	4496	2651
Per capita annual food consumption expenditure (in Tk.)	11,087	4309	2651
Per capita annual non-food consumption expenditure (in Tk.)	751.0	426.1	2651
Child enrolment in primary and secondary school	0.41	0.492	1987
Proportion of children enrolled of total children in HH	0.72	0.384	1285
Involvement in agriculture	0.60	0.489	1786
Type of cultivation			
Plough cultivation	0.19	0.391	2651
Jum cultivation	0.34	0.474	2651
Both Jum and plough cultivation	0.08	0.265	2651
Amount of land cultivated (Decimal)	282.24	383.96	2143
Proportion of cultivated land of total land	11.37	39.33	2011
Type of crops produced			
Only food	0.364	0.481	2143
Only cash	0.014	0.119	2143
Mixed (Both food and cash) crop	0.622	0.485	2143
Per capita asset (in Tk.)	10,366	2575	2651
HH electrification	0.17	0.3775	1633
Household size	5.18	2.028	2651
Age of household head (in years)	38.8	13.54	1629
Sex of household head (Male=1)	0.62	0.486	1629
HH head never attended school	0.58	0.494	1629
HH head completed primary school	0.23	0.420	1629
HH head completed secondary School	0.18	0.388	1629
HH head completed above secondary School	0.01	0.091	1629
Age of child (in year)	7.13	4.758	1987
Age square of child	73.5	83.67	1987
Sex of child (Male=1)	0.64	0.481	1987
Type of School studied			
Government school	0.57	0.493	1987
NGO school	0.29	0.455	1987
Private school	0.09	0.298	1987
Other type of school	0.03	0.165	1987
Language of book (Mother tongue)	0.21	0.410	1633
Medium of instruction (Mother tongue)	0.22	0.412	1633
Perception of violence	1.52	0.628	2651
Low level of perceived violence	0.55	0.497	2651
Medium level of perceived violence	0.38	0.485	2651
High level of perceived violence	0.07	0.254	2651
Experience of violence before peace accord			
Displacement	0.13	0.338	2651
Land dispossession	0.19	0.392	2651
Armed conflict	0.19	0.393	2651
Casualty	0.05	0.2188	1786

Source: Author's estimation based on the data collected by Barkat et al. 2009

Table 2: Household reported perception of threat of violence by indicators

Violence variable	Level of perceived threat of violence (%)		
	Low (1)	Medium (2)	High (3)
Abduction	90.3	8.9	0.9
Extortion	69.9	26.9	3.2
Armed conflict	80.2	15.8	4.0
Communal threat	59.8	27.6	12.7
Restricted movement	62.9	23.4	13.7
Insecurity of women	64.7	21.4	13.9
Insecurity of children	13.9	20.8	10.7
Trust on other community	55.7	25.3	19.0
Eviction from land	49.8	19.0	31.2
Repression of Security force	37.5	45.2	17.3
Safety and security feelings	37.5	60.0	2.5
Cultural freedom	46.5	51.5	98.0
Customary right	47.3	50.3	2.4
N=1786			

Source: Author's estimation based on the data collected by Barkat et al. 2009

Table 3: Household experience of violence by types before peace accord

Type of violence	Household (%)
Forced migration	13.2
Land dispossession	19.0
Armed conflict	19.2
N= 1786	

Source: Author's estimation based on the data collected by Barkat et al. 2009

Table 4: Level of perceived threat of violence reported by household

Level of violence	Household (%)
Low level of perceived threat of violence	55
Medium level of perceived threat of violence	36
High level of perceived threat of violence	9
N=1786 Chi-square Pr=0.000	

Source: Author's estimation based on the data collected by Barkat et al. 2009

Table 5: Determinants of Consumption Expenditure: OLS Estimation

Explanatory Variables	Dependent Variable		
	All Consumption Expenditure	Food Consumption Expenditure	Non-food Consumption Expenditure
HH size	-0.0489*** (0.00472)	-0.0501*** (0.00440)	-0.0978*** (0.00622)
Age of HH head	-0.00100 (0.000695)	-0.00118* (0.000661)	0.00122 (0.000917)
Sex of HH head	0.0507*** (0.0188)	0.0283 (0.0179)	0.0610** (0.0248)
HH head completed primary school	0.00550 (0.0220)	0.0211 (0.0209)	0.00503 (0.0290)
HH head completed secondary School	0.0317 (0.0241)	0.0346 (0.0232)	-0.0147 (0.0319)
HH head completed above secondary School	-0.0613 (0.111)	-0.0619 (0.0942)	0.241 (0.147)
HH electrification	0.0190 (0.0240)	0.0142 (0.0222)	0.0429 (0.0316)
Per capita HH asset	1.52e-06*** (3.35e-07)	1.87e-06*** (3.49e-07)	2.16e-06*** (4.42e-07)
Proportion of enrolled children	-0.0573** (0.0236)	- (-)	-0.0471 (0.0312)
Violence perception	-0.0468*** (0.0132)	-0.0409*** (0.0126)	-0.0917*** (0.0175)
Constant	9.662*** (0.0473)	9.564*** (0.0420)	7.065*** (0.0624)
Observations	1,285	1,629	1,285
R-squared	0.118	0.106	0.207
Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1			

Source: Author's estimation based on the data collected by Barkat et al. 2009

Appendix B - Data source and tools of data collection

Matrix 1: Recoding of response on violence indicators for construction of Violence Index

Variable name	The original question/format of data collection	Adjustment to get new variable
<i>Current status of obstacles to peace</i>		
Abduction	No response= 99, Low =1, Medium =2, High =3	No response and Low =1, Medium=2 and High =3
Extortion	No response= 99, Low =1, Medium =2, High =3	No response and Low =1, Medium=2 and High =3
Armed conflict	No response= 99, Low =1, Medium =2, High =3	No response and Low =1, Medium=2 and High =3
Communal Threat	No response= 99, Low =1, Medium =2, High =3	No response and Low =1, Medium=2 and High =3
Restricted movement	No response= 99, Low =1, Medium =2, High =3	No response and Low =1, Medium=2 and High =3
Insecurity of women	No response= 99, Low =1, Medium =2, High =3	No response and Low =1, Medium=2 and High =3
Insecurity of children	No response= 99, Low =1, Medium =2, High =3	No response and Low =1, Medium=2 and High =3
Trust on other communities	No response= 99, Low =1, Medium =2, High =3	No response and Low =1, Medium=2 and High =3
Eviction from land	No response= 99, Low =1, Medium =2, High =3	No response and Low =1, Medium=2 and High =3
<i>Elements of confidence-building</i>		
Repression of security forces	Friendly and proactive=1, Friendly=2, Moderately friendly = 3, Some how friendly = 4, Not at all friendly = 5	(Friendly and proactive=1, Friendly=2)=Low=1, (Moderately friendly = 3) = 0 and Some how friendly = 4)= Medium=2, and (Not at all friendly = 5)= High=3
Safety and security feelings	Highly secured=1, Secured=2, Moderately secured= 3, Some how secured= 4, Not at all secured = 5	(Highly secured=1, Secured=2)=Low=1, Moderately secured= 3)=0 and (Some how secured= 4)=Medium=2, and (Not at all secured = 5)= High=3
Cultural freedom	Highly secured=1, Secured=2, Moderately secured= 3, Some how secured= 4, Not at all secured = 5	(Highly secured=1, Secured=2)=Low=1, Moderately secured= 3)=0 and (Some how secured= 4)=Medium=2, and (Not at all secured = 5)= High=3
Customary right	Highly secured=1, Secured=2, Moderately secured= 3, Some how secured= 4, Not at all secured = 5	(Highly secured=1, Secured=2)=Low=1, Moderately secured= 3)=0 and (Some how secured= 4)=Medium=2, and (Not at all secured = 5)= High=3
<i>Experience of violence before peace accord</i>		
Migration	Did anybody/somebody from your household migrate <u>out</u> of the Para before signing the peace treaty? Yes = 1 No = 2 <u>If yes, Reasons of migration out:</u> Lack of security =2, Evicted from land =3, Communal conflict =4, Political conflict =5, Government policy/program =10	If YES and due to these reasons then 1 and otherwise 0 Yes = 1 No = 0
Land dispossession	Did you/ your father/ grand father ever dispossessed of any land, which belonged to you as agricultural land/ land under possession /homestead (i.e, whether your land was engulfed by anyone)? Yes = 1, No = 2	Yes = 1 No = 0
Armed conflict	Whether any member of your household experienced armed violence before CHT treaty? No=1, Self=2, other household member=3, Self and household member=4	(Self=2, other household member=3, Self and household member=4) = Yes=1, No=0

Data Collection Tools: FGD Session

International Institute of Social Studies (IISS)
Erasmus University of Rotterdam
The Hague, Netherlands

A Study
on
Incorporating Perceptions and Experiences of Violence into Livelihoods
Decision-Making:
A Micro Level Study in the Chittagong Hill Tracts of Bangladesh

Guide Line for FGD Session

Ice-Breaking: introduce your self and greets the participants. Discuss the objective of discussion and confidentiality of information to be provided by them. Show few pictures of my previous visit in this region and interaction with the people. Before starting of discussion keep permission of recording.

Address of the place where FGD session held

Date of FGD session

List of participants

Issues for Discussion

Step - 1: A comparative picture of change in livelihood after signing of the Peace Accord

Step - 2: Important factors functioning in livelihood decision-making process

Step - 3: Current status of threat of different types of violence

Step - 4: Role of threat of violence in livelihood decision-making

Please acknowledge the participation and cooperation extended by them and invite them for food and drinks.