

Ethnic Conflict and Changing Socio-Economic Activity: A Non-Parametric Analysis in North-East India

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Abstract

Ethnic conflict and violence has been a recurring problem in several developing nations. Apart from material wellbeing, peace is necessary for any society to attain sustainable progress. The North-Eastern region of India, especially the state of Assam has witnessed several ethnic violence for a long period of time. This paper used some non-parametric measures to analyze impacts of ethnic conflict in general and the violence of 2012 on the socio-economic development of conflict-ridden communities in Kokrajhar region. The results reveal a serious adverse impact of ethnic conflict on the livelihood practices, health and education in the violence affected areas and thereby the development prospects and performances of various other sectors in the region. The neighboring areas also face socio-economic challenges. The findings thus point to the necessity of maintaining peace, foster inclusive growth that helps parallel human resource development, perpetual progress and also upheld the social coherence.

Keywords: Ethnic Conflict, Violence, Socio-Economic Development, Kokrajhar, Assam.

AMS Subject Classification: 91B62.

1. Introduction

Movements based on ethnicity, identity and socio-cultural issues has become a serious issue across the countries (Miedema, 2010). Ethnic conflict usually takes place while securing emergent interest of specific ethnic group by protecting the ethnic and cultural identity with a demand for autonomy in a region. It also arises

due to a social structure causing unequal access to available resources. Ethnic conflicts and violence for having supremacy over other ethnic or social groups in controlling power and resources often hit the individuals and communities in the conflict hit regions. Violent conflict causes socio-political instability not only in the conflict host zones, but also in the neighborhoods. Conflicts, in its extreme form negatively affect investment, production and infrastructure in directly affected region. Its surrounding also bears the burden of migrants or sometimes are benefitted due to shifting of socio-economic activities (e.g., businesses) from the conflict prone zone. Prolonged violence and political instability in a region thus may have deleterious impact on growth and development of that region (Hechter, 2000).

Conflict induced riot leads to loss of lives, communal harmony, destruction and theft of assets including residential belongings and productive assets (Bartolome et al., 2000). Damaged infrastructure due to violence often disrupts transport and communication as well as trade and commerce in the area (Stewart, 2008). The destruction of assets during armed conflict, in addition to unstable socio-economic and political environments, would reduce the chance of post-conflict economic recovery and poorer are the worst affected (Verpoorten, 2003). Ethnic conflict undermines the economic activities like agriculture, commerce and industry in the past and intensified household poverty (Addah & Zezebi, 2008; Brosche & Elfversson, 2012).

Conflict and break-out of riot also affect education of children, healthcare sector, the social activities and socio-economic ties in the society (De, 2014). During violence, people are unable to access schools and other educational institutions, healthcare facilities. Conflict also leads to decrease in food security, increase insecurity in living conditions and the loss of social capital and political trust (Lee et. al, 2006). Ethnic conflict thus significantly affects nutritional status of rural people due to destruction and food price inflation (Pederson, 2002; Yip, Gee & Takeuchi, 2008; Yamauchi et al, 2010).

It is very difficult to quantify the social consequences of the violence (Njoroge, 2012; Nyukuri, 1997). Recurring conflicts damage the social fabric of civic governance and culture in a region (Czaika & Kis-Katos, 2009). Earlier, many of the victims who moved out of conflict affected area have not been able to integrate with the local population (Esman & Herring, 2003; Loizides, 2020).

Assam, is the home of a wide range of cultures and races. The Bodos, one of the largest ethnic plain tribes in Assam have been indulged in a series of ethnic conflicts with the non-Bodos targeting to have a separate land for, the 'Bodoland'. As a result, thousands of people suffered internal displacement, abandoning ancestral homes and livelihoods for several months. Inter-ethnic rivalries had disrupted stability and peace of the society in Bodoland (Ibanez, 2009). Since the 1990s, such conflict broke out repeatedly in Kokrajhar district of Bodoland Territorial Region leading to changes in occupational pattern, social activities, earning. Overall livelihood pattern of both the directly affected population and also to some extent the indirectly affected population (Bartolome et al., 2000). The most violent conflict and riot was noticed in 2012. This paper examines the impact of ethnic conflict, occurred in 2012 on the socio-economic activities in Kokrajhar area of Assam.

2. Materials and Methods:

2.1. Collection of Data

The study is conducted based on primary data. Ten directly or indirectly affected villages due to 2012 ethnic violence between the Bodos and the Bengali speaking Muslim community in Kokrajhar district of Bodoland Territorial Region like Duramari, Babubil, Anthaibari, Hekaipara, Aminkhata, Tulsibil, Bhotgaon, Baragari, Joyma and Habrubil have been surveyed for collecting primary data. The villages in southern part of Kokrajhar, in southern part of Kokrajhar affected due to conflict were within a maximum range of 20 kms from each other but from the same region. Six directly most affected villages during 2012 conflict and also during previous conflicts in 1993 and 1994 were identified by snowballing method. Also, secondary information from newspapers, books and articles published immediately after those riots were used to select those villages that were under frequent discussion due to vigorous violence and large number of displacement of people from those villages. Due to repeated violence, these six identified directly conflict affected villages were more informative regarding the causes of conflict in the area and effect of conflict on socio-economic activities of the people residing in the area. With the detail information regarding the awful experience of the respondents during the violent conflicts in the six directly affected villages, impact of conflict could be better examined. Also, four villages

which were not directly affected by conflict but are neighboring villages of the conflict affected areas were purposively selected and examined to check indirect impact of vigorous conflict and one month of curfew imposed due to conflict in these villages.

Among the six directly conflict affected villages, two of the villages are inhabited only by Bodo population, two villages are inhabited only by Bengali speaking Muslim community and two villages are inhabited by people of various ethnic communities like Hindu Bengali, Bihari, Rajbongshi and Adivasi community but with majority of Bengali speaking Muslim population. The rest, four surveyed villages which were not directly affected by the conflict, consist of mixed ethnic communities. This is because, during conflict, villages consisting of majority of population from conflicting communities which are Bengali speaking Muslims and Bodos had been targeted for attack from both sides. The villages consisting of majority of population from other minority communities of Kokrajhar were not seriously targeted during attack except some sporadic incidences.

In total, 500 households (50 respondents from each of the ten surveyed villages) were interviewed. To identify 50 respondents from each surveyed village, firstly, ethnic community-wise listing of households living in mixed villages were done. Grouping or clustering of ethnic community based on homogeneity of people in the surveyed villages were listed. From each community, households for interview were selected in proportion to their population in the village. Surveyed households were selected by simple random sampling method without replacement from each category of ethnic community living in the village. Also, from all Muslim villages and all Bodo villages, 50 households were selected for interview by simple random sampling without replacement.

From the selected household heads, information on 2012 conflict was sort by direct interview, using an interview schedule. Information was collected on their experience during conflict, displacement and migration of people after 2012 conflict. Information was also collected on occupation, earning and engagement in social and livelihood activities, expenditure on food, education of children before and after the conflict.

2.2. Method of Analysis

Non-parametric tests like McNemar-Bowker test, McNemar test and Pearson chi-square test are used to examine significance of several social and economic impacts of 2012 ethnic conflict on the respondents of the surveyed villages. McNemar-Bowker test is a chi-square test applied to examine whether there is a significant difference in responses in categorical variables having more than two categories of responses (Bowker, 1948; Meredith & Sands, 1987; Krampe & Kuhnt, 2007). Here, McNemar-Bowker test is used to check if there is statistically significant difference in responses regarding the type of fuel used for cooking, sanitation facility, type of dwelling houses and source of lighting in households before and after the conflict, in surveyed villages. McNemar test is also a chi-square test normally used to test significance of variation in categorical variable with only two possible categories of responses, like availability of a particular facility in the house (Feuer & Kessler, 1989; Eliasziw & Donner, 1991; Adedokun & Burgess, 2012; Smith & Ruxton, 2020). It helps to understand if there is a significant difference in responses in the surveyed households on the availability of separate kitchen, household savings etc. Further, Pearson chi-square test is used to examine the effect of 2012 ethnic conflict on livelihood activities, business activities, agricultural activities and education of children (Andrews, 1988; Rao, 2002; Bolboaca et al., 2011; McHugh, 2013; Sharpe, 2015).

3. Impact of Ethnic Conflict on Livelihood Pattern of the Surveyed Villages

During 2012 ethnic conflict and riot, large number of people in the affected villages were internally displaced from their home for several months and the victims were compelled to stay in relief camps for the fear of threat to life and destruction of their physical assets like houses, granary, crops and robbery of their livestock and business establishments. After rehabilitation to their previous village, a large section of the victims had suffered from economic hardship due to damage of their assets during riot and rendering them to be unemployed for several months while they were in relief camps. Major impacts of 2012 conflict on livelihood pattern of people as reflected from changing type of fuel used for cooking, sanitation facility, type of dwelling houses, kitchen facilities within the house and source of lighting after the conflict.

Table 1: Type of Fuel Used for Cooking Before and After Conflict						
Variable		Type of Fuel used for Cooking in Household after Conflict			Total	McNemar-Bowker Chi-Sq. Value
		<i>Firewood</i>	<i>Kerosene</i>	<i>LPG</i>		
Type of Fuel used for Cooking in Household before Conflict	<i>Firewood</i>	62	23	35	120	214.05***
	<i>Kerosene</i>	31	0	33	64	
	<i>LPG</i>	109	14	193	316	
Total		202	37	261	500	
<i>Source:</i> Author's Calculation from Primary Survey. <i>Note:</i> *** significant at 1% level.						

Mc Nemar-Bowker test is used to check whether the type of fuel used for cooking by respondents changed significantly after the conflict. The Chi-Square test result depicts that the null hypothesis of no change in fuel consumption in the post-conflict period is rejected at one percent level of significance indicating that there was a significant change in fuel used for cooking by the respondents after the conflict (Table 1). Prior to the 2012 conflict, out of the 500 only 120 households were using firewood for cooking and 316 households were using LPG. But, even after five years of the conflict, number of households using LPG as cooking fuel have decreased to 216 and those using firewood have increased to 202. More number of households started using firewood for cooking in conflict affected villages after the riot as they could not afford to use LPG and thus the pressure on nearby forest for the collection of firewood has increased.

The result of Mc Nemar-Bowker Test on changing pattern of sanitation facilities in the surveyed conflict affected zone reveals that the null hypothesis of no change in sanitation facilities in the post-conflict period is rejected at 0.01 level of significance, indicating that there was a change in sanitation facilities used by the respondents after the conflict. Numbers of households using concrete pit and water flush in the pre-conflict time have decreased significantly after the conflict. However, there was an increase in number of households using covered pit and open defecation (Table 2). Hence, it can be safely argued that there was a significant negative impact of conflict on the cooking fuel and sanitation facilities used by the households. These are some indications of deterioration of standard of living of the respondents in the directly conflict affected zone.

Table 2: Sanitation Facility in Household Before and After Conflict							McNemar-Bowker Chi-Sq. Value
Variable		Sanitation Facility in Household After Conflict				Total	
		Open Air	Covered Pit	Concrete Pit	Water Flush		
Sanitation Facility in Household Before Conflict	Open Air	12	0	0	0	12	216.95
	Covered Pit	27	75	0	0	102	
	Concrete Pit	20	138	161	3	322	
	Water Flush	0	5	35	24	64	
Total		59	218	196	27	500	
Source: Author's Calculation from Primary Survey. Note: *** significant at 1% level.							

Table 3: Type of House, the Respondents Lived Before and After Conflict						
Variable		Type of House After Conflict			Total	McNemar-Bowker Chi-Sq. Value
		Kuccha	Semi-Pucca	Pucca		
Type of House Before Conflict	Kuccha	44	0	0	44	202.00
	Semi-Pucca	66	163	0	229	
	Pucca	19	117	91	227	
Total		129	280	91	500	
Source: Author’s Calculation from Primary Survey. Note: *** significant at 1% level.						

Also, Mc Nemar-Bowker test result confirms significant change in types of houses of the respondent households in the directly affected villages after 2012 conflict (Table 3). Before the conflict, 229 respondent households were living in semi pucca houses, 227 in pucca houses and only 44 households were residing in kuccha houses. Now after almost six years of the conflict, 91 households are living in pucca houses and there is an increase in the number of households living in Kuccha (129) and semi-Pucca (280) types of houses. Due to destruction of houses during conflict and deplorable economic condition, many of the respondents could not afford to rebuild pucca houses which compelled them to live in semi-kuccha or kuccha houses afterwards.

Table 4: Separate Kitchen in House Before and After Conflict					McNemar-Bowker Chi-Sq. Test (2-sided)
Variable		Separate Kitchen in House After Conflict		Total	
		No	Yes		
Separate Kitchen in House Before Conflict	No	132	0	132	Exact Significant at 1% level
	Yes	85	283	368	
Total		217	283	500	
Source: Author's Calculation from Primary Survey.					

The Mc Nemar Test result reveals significant decline (from 368 to 283) in the use of separate kitchen in the post-conflict period (Table 4). During conflict, most of the households in directly affected villages were vandalized and burned. After

returning to their village, many of those respondents could not afford to have a separate kitchen in their houses. Thus, significant negative impact on the preparation of food in conflict affected village is revealed. The Chi-square test reveals significant change in source of lighting in the surveyed households in the post-conflict period. Before the conflict, only 1 household was found to be using kerosene for lighting, but after the conflict it increased to 44 households. A significant decline in the use of solar power and electricity is confirmed (Table 5). Many solar panels were stolen while the families were in relief camps. After rehabilitation many of them could not repurchase solar panels or afford electricity for worsening economic condition and compelled to use kerosene for lighting.

Table 5: Source of Lighting in Household Before and After Conflict						
Variable		Source of Household Lighting			Total	McNemar-Bowker Chi-Sq. Test
		After Conflict				
		Kerosene	Solar	Electricity		
Source of Household Lighting Before Conflict	Kerosene	1	0	0	1	58.00
	Solar	13	10	20	43	
	Electricity	30	0	426	456	
Total		44	10	446	500	
Source: Author’s Calculation from Primary Survey. Note: *** significant at 1% level.						

4. Effect of Ethnic conflicts on Economic Status of Respondents in Surveyed Villages

Ethnic violence in the year 2012 have affected the economic condition of several households in the conflict affected villages. The internally displaced people suffered from post-conflict economic hardship as reflected from their changing consumption pattern and saving. Due to exhaustion of meagre accumulated savings reconstruction of houses and restarting livelihood activities became difficult. Due to damage of business establishments, granary, and other household assets restarting of livelihood activities became difficult. Livestock and machinery which had to be left behind in the village were also stolen by miscreants during their displacement. All the ethnic communities living in directly affected villages, had suffered loss of various household assets during conflict (Table 6).

Table 6: Distribution of Respondents who Lost Household and Business-Related Assets During Conflict in Directly Affected Villages

Directly Affected Villages	Ethnic Community		
	<i>Muslim</i>	<i>Bodo</i>	<i>OMC</i>
<i>Muslim Dominated</i>	100	0	0
<i>Bodo Dominated</i>	0	67	0
<i>Mixed Village</i>	35	19	46
<i>Total</i>	135 (100)	86 (72)	46 (100)

Source: Primary Survey. *Note:* (1) Figures in parentheses represent percentage to total respondents of the respective community who lost assets. (2) Muslims refer to Bengali speaking Muslims. (3) OMC refers to Other Minority Communities.

The economic hardship faced by the displaced people, after conflict compelled many of those households to sell part of their agricultural land to rebuild houses and revamp livelihood activities. As many of the victims were dependent on agriculture and allied activities, selling of farm land had affected their agricultural production and reduced their household income (Table 7).

Table 7: Distribution of Respondents who Sold Land After Conflict in Directly Affected Villages

Directly Affected Villages	Ethnic Community		
	<i>Muslim</i>	<i>Bodo</i>	<i>OMC</i>
Muslim Dominated	31	0	0
Bodo Dominated	0	5	0
Mixed Village	17	6	7
Total	48 (36)	11 (9)	7 (15)

Source: Primary Survey. *Note:* (1) Figures in parentheses represent percentage to total respondents of the respective community who have sold their land. (2) Muslims refer to Bengali speaking Muslims. (3) OMC refers to Other Minority Communities.

5. Effect of Conflict on Household Savings

Table 8: Household Savings Before and After Conflict

Variable		Household Savings After Conflict		Total	McNemar-Bowker Chi-Sq. Test (2-sided)
		<i>No</i>	<i>Yes</i>		
<i>Household Savings Before Conflict</i>	<i>No</i>	50	7	57	Exact Significant at 1% level
	<i>Yes</i>	264	179	443	
Total		314	186	500	

Source: Author's Calculation from Primary Survey.

Mc Nemar Chi-Square Test reveals a significant change in household savings of respondents in surveyed villages after the conflict. There was noticeable reduction

in number of households who could maintain savings after the conflict (Table 8). Conflict led violence caused death and destruction of property of the victims. After the conflict, the displaced population had to use their available limited savings during the rehabilitation process to reconstruct houses and restart livelihood activities. Income of respondents in directly affected villages had also decreased due to rising unemployment that reduced chance of further savings.

6. Effect of Conflict on Consumption Pattern

Malnutrition causes people vulnerable to various kinds of diseases. Loss of livelihood activities during violence has potential to adversely affect household food security, leading to under-nourishment of victims (Bartolome et al. 2000). Ethnic conflict in Kokrajhar district have affected supply and access to food in conflict affected areas. All the 300 respondents in directly conflict affected area have recorded that consumption of food in their households was adversely affected due to conflict (Table 9).

Agricultural activities were also disrupted and crops, granaries as well as fair price shops in conflict affected areas were almost non-functional during violence, which caused disruption in chain of food supply in the area. Immediately after the conflict, due to limited production and supply of home-grown agricultural produce there was an increase in price of food items. Conflict had affected the economic condition of many households, who could not afford the essential consumption items. The consequence was the rise in extent of malnutrition and deteriorating health, especially of women and children.

Table 9: Effect of Conflict on Consumption of Food in Surveyed Villages Due to Conflict				
Villages		Conflict Effected Food Consumption		
		YES	NO	Total
Directly Affected Village	<i>Muslim Dominated</i>	100 (33.33)	0 (0)	100 (20)
	<i>Bodo Dominated</i>	100 (33.33)	0 (0)	100 (20)
	<i>Mixed Village</i>	100 (33.33)	0 (0)	100 (20)
Indirectly Affected Village	<i>Mixed Village</i>	0 (0)	200 (100)	200 (40)
Total		300 (60)	200 (40)	500 (100)
Source: Primary Survey. Note: Figures in parenthesis represent percentage to total number of respondents.				

Table 10: Ethnic Group-Wise Distribution of Number of Households in Conflict Affected Villages Consuming Food Items on Regular Basis										
Sl No.	Food Items	Daily Food Consumption						Difference in Daily Consumption Before and After Conflict		
		Before Conflict			After Conflict					
		Muslim	Bodo	OMC	Muslim	Bodo	OMC	Muslim	Bodo	OMC
1	Rice	122 (18)	118 (14.2)	60 (23)	122 (31)	118 (18)	60 (30)	0 (0)	0 (0)	0 (0)
2	Flour	46 (7)	97 (11.7)	26 (10)	8 (2)	37 (5.6)	17 (8)	-38 (-82)	-60 (-62)	-9 (-35)
3	Edible Oil	122 (18)	115 (13.8)	43 (17)	87 (22)	110 (16.8)	32 (16)	-35 (-28.6)	-5 (-4)	-11 (-26)
4	Pulses/ Cereals	119 (17.7)	106 (12.8)	41 (16)	63 (16)	89 (13.6)	30 (15)	-56 (-47)	-17 (-16)	-11 (27)
5	Fresh Fruits	52 (7.7)	86 (10)	13 (5)	10 (3)	43 (6.5)	7 (3)	-42 (-81)	-43 (-50)	-6 (-46)
6	Fresh Vegetable	86 (13)	118 (14)	53 (20)	63 (16)	109 (16.6)	44 (22)	-23 (-27)	-9 (-8)	-9 (-17)
7	Fish/ Meat	54 (8)	91 (11)	8 (3)	15 (4)	53 (8)	3 (1)	-39 (-72)	-38 (-42)	-5 (-63)
8	Dairy Products	68 (10)	97 (12)	15 (6)	21 (5)	94 (14)	10 (5)	-47 (-69)	-3 (-3)	-5 (-33)
Total		669 (100)	828 (100)	259 (100)	389 (100)	653 (100)	203 (100)			

Source: Primary Survey. *Note:* (1) Figures in parenthesis represent percentage to total number of respondents in that category. (2) Muslims refer to Bengali speaking Muslims. (3) OMC refer to Other Minority Communities.

Table 10 shows the ethnic group wise distribution of respondents on the basis of their consumption of different food items on regular basis before and after the conflict. It is found that, consumption of various basic food items among all the communities in general have decreased after the conflict in the directly affected villages. About 82 per cent of the respondent Muslims, 60 per cent of Bodo and 6 per cent of other minority community have stopped consuming flour regularly in the post-conflict period. 28 per cent of the Muslim respondents, 4 per cent of the Bodo and 26 per cent from other minority communities could not consume edible oil regularly. 47 per cent respondents from Muslim communities, 16 per cent from Bodo community and 27 per cent from other minority community could not consume pulses and cereals on regular basis after the conflict. Similarly, the consumption of non-vegetarian meals containing meat or fish and dairy products have been reduced significantly after the conflict. Thus, ethnic conflict has negatively affected the consumption of basic food items on a daily basis by all the ethnic communities living in the villages which were directly attacked during conflict.

Ethnic conflict in 2012 and violence had adversely affected the economic condition of many respondents in directly conflict affected villages. There was significant change in livelihood pattern of the affected households after the conflict. Kusimi, et al. (2006) have expressed that violent clash led to destruction of farms and produce; prevents cultivation of lands; disrupt economic activities as well as discourage investment in conflict affected region. Ethnic conflict had also adversely affected the livelihood activities of respondents in the surveyed villages in Kokrajhar district. It is found that, houses of 122 Bengali speaking Muslim community, 118 of Bodos and 60 of other minority communities were vandalized and set ablaze during the 2012 conflict (Table 11). The victims were compelled to stay in relief camps for several months, and deprived of various livelihood activities. All the respondents in directly affected villages have reported to lose personal or business assets during conflict. Loss of livestock used for commercial purposes has also been reported. All the respondents in the villages which were not directly attacked during conflict had reported that one month curfew on account of violence in their neighboring villages had affected their livelihood to a great extent.

Sl. No.	Reasons for Effect of Livelihood Activities during Conflict	Ethnic Community in Directly Affected Village			Ethnic Community in Indirectly Affected Village			Total
		Muslim	Bodo	OMC	Muslim	Bodo	OMC	
1	Displaced From Home During Conflict	122 (49)	76 (31)	51 (20)	0 (0)	0 (0)	0 (0)	249 (100)
2	Personal And Business-Related Assets Were Vandalized and Stolen	122 (41)	118 (32)	60 (27)	0 (0)	0 (0)	0 (0)	300 (100)
3	Crops Were Burnt & Agricultural Equipment and Cattle Were Stolen	64 (75)	21 (25)	0 (0)	0 (0)	0 (0)	0 (0)	85 (100)
4	Curfew During Conflict Affected Livelihood Activities	0 (0)	0 (0)	0 (0)	36 (18)	64 (32)	100 (50)	200 (100)

Source: Primary Survey. *Note:* (1) OMC refers to Other Minority Communities. (2) Muslims refer to Bengali speaking Muslims. (3) Figures in parenthesis represent percentage to total number of respondents.

Source: Primary Survey. *Note:* (1) OMC refers to Other Minority Communities. (2) Muslims refer to Bengali speaking Muslims. (3) Figures in parenthesis represent percentage to total number of respondents.

Table 12: Ethnic Group-Wise Distribution on Effect on Livelihood Activities After Conflict

Variable			Ethnic Communities			Total
			Muslim	Bodo	OMC	
Livelihood Activities Affected or Not Affected After Conflict	Not Affected	Count	36	64	100	200
		Expected Count	63.2	72.8	64	200
	Affected	Count	122	118	60	300
		Expected Count	94.8	109.2	96	300
Total	Count		158	182	160	500
	Expected Count		158	182	160	500
Chi-Square Tests						
No of Valid Cases= 500			Value		df	Asymp. Sig. (2-sided)
Pearson Chi-Square			99.651		6	.000
Likelihood Ratio			110.993		6	.000
Linear-by-Linear Association			30.522		1	.000
Source: Authors Calculation from Primary Survey. Note: (1) OMC refers to Other Minority Communities. (2) Muslim refers to Bengali speaking Muslims.						

Regarding the effect on livelihood activities in their households after conflict, the Pearson Chi-Square is found to be significant at 5 percent level (Table 12). So, it can be concluded that there was a significant effect of ethnic conflict on the livelihood activities of respondents after the conflict. Among the 500 surveyed households, 122 respondents from Bengali speaking Muslim community, 118 respondents from Bodo community and 60 respondents from other minority community have reported that, livelihood activities in their households were affected even after the conflict. Whereas, 200 respondents belonging to the villages, which were not directly affected by conflict have said that, livelihood activities in their households were not affected after the conflict.

8. Effect of Conflict on Agricultural Activities

The violence resulting from conflict can adversely affect production, marketing and investment in agriculture. During violence, crops and agricultural farms are often destroyed, granaries are burned and agricultural equipment, machinery and cattle used in farming are stolen. Agricultural production is negatively affected due to violence and imposition of curfew as the farmers are unable to go to their farms for work and also to the market for selling their agricultural produces on account of disruption of transport networks. Disruptions of agricultural activities

also have far-reaching consequences on household economies as well as the economic growth of the region as many of the people in rural areas are dependent on agriculture as source of livelihood.

Table 13 shows the results of Chi-square test conducted to examine the differences in responses of ethnic communities regarding effect on agricultural activities during the 2012 conflict. The Pearson Chi-Square test reveals that there was a significant difference in the responses of respondents regarding effect of conflict on agricultural production. Among the 122 farmers in the surveyed village, 114, of which 72 belonged to Bengali speaking Muslim community and 42 of Bodo community have registered decline in agricultural production. However, 8 farmers from Bodo community had reported of being unaffected as their village was not attacked and their farmland were situated near their homes. So even during curfew hours they could manage their farming.

Table 13: Ethnic Group-Wise Distribution of Effect on Agricultural Activities based on Ethnic Community During Conflict						
Variable			Ethnic Communities		Total	
			Muslim	Bodo		
Agricultural Activities Affected During Conflict	Affected	Count	0	8	8	
		Expected Count	3	5	8	
	Highly Affected	Count	72	42	114	
		Expected Count	69	45	114	
	Total		Count	72	50	122
			Expected Count	72	50	122
Chi-Square Tests						
No of Valid Cases= 121	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	
Pearson Chi-Square	4.997	1	.025			
Continuity Correction	4.100	1	.043			
Likelihood Ratio	4.923	1	.027			
Fisher's Exact Test				.035	.022	
Linear-by-Linear Association	4.956	1	.026			
Source: Author's Calculation from Primary Survey. Note: Muslims refer to Bengali speaking Muslims.						

Table 14, shows the different reasons provided by the farmers in the directly conflict affected villages for effect of conflict on agricultural activities in the post-conflict period. Agricultural equipment, machineries and cattle used for cultivation were reported by a significant number of respondents to be stolen by miscreants during the conflict, for which it was not possible to restart cultivation immediately after their rehabilitation. Due to imposed economic hardship it was

difficult to repurchase the agricultural equipment and cattle required to resume cultivation. 55 per cent of farmers from Bengali speaking Muslim community and 45 per cent of farmers from Bodo community have also reported of limited investment in agriculture in post-conflict period that further affected agricultural production. Scarcity of seeds, use of limited agricultural equipment, cattle and fertilizers for farming have also dampening impact on agricultural production after the conflict. Respondents have also reported that, due to destruction of granary, new seeds were not available for cultivation, which also affected agricultural activities. 65 Bengali speaking Muslim farmers reported that due to segregation of communities on ethnic lines and loss of trust, they were not allowed to enter for sharecropping in Bodo villages in the post-conflict period. Bodo wholesalers also hesitate to collect agricultural produce from the Bengali speaking Muslims that affected the sale of agricultural products of those farmers.

Table 14: Ethnic Group-Wise Distribution of Reason for Effect on Agricultural Activity After Conflict

Sl. No.	Reasons for Effect on Agricultural Activities After Conflict	Ethnic Community in Directly Affected Village		
		Muslim	Bodo	Total
1	Difficulty to resume cultivation due to destruction of crops and theft of agricultural equipment during conflict	72 (59)	50 (41)	122 (100)
2	Difficulty to buy agricultural equipment's and cattle's due to economic hardship	72 (59)	54 (41)	122 (100)
3	Less Production due to limited agricultural equipment's, cattle's, seeds & fertilizers after conflict	65 (55)	54 (45)	119 (100)
4	Sharecropping not allowed in Bodo villages after conflict	65 (100)	0 (0)	65 (100)
5	Bodo wholesalers hesitated to collect agricultural produce from Muslims after conflict	65 (100)	0 (0)	65 (100)

Source: Primary Survey. *Note:* (1) Muslims refer to Bengali speaking Muslims. (2) Figures in parenthesis represent percentage to total number of respondents.

9. Effect of Conflict on Business Activities

Ethnic conflict can affect the formal and informal business activities of people in conflict affected areas. Reduction in business activities can affect the household income which can further lead to reduction in standard of living of the affected population. Pearson Chi-Square reveals a significant difference in responses regarding effect of conflict on business activities (Table 15).

Table 15: Ethnic Group-Wise Distribution of Effect on Business Activities During Conflict						
Variable			Ethnic Community			Total
			Muslim	Bodo	OMC	
Business Activity Affected During Conflict	Minor Affected	Count	21	14	37	72
		Expected Count	17	19	36	72
	Highly Affected	Count	51	43	76	170
		Expected Count	55	38	77	170
Total		Count	72	57	113	242
		Expected Count	72	57	113	242
Chi-Square Tests						
No. of Valid Cases= 500			Value	df	Asymp. Sig. (2-sided)	
Pearson Chi-Square			99.651	6	.000	
Likelihood Ratio			110.993	6	.000	
Source: Authors Calculation from Primary Survey. Note: (1) Muslims refer to Bengali speaking Muslims. (2) OMC refers to Other Minority Communities.						

Table 16 portrays various reasons for effect on business activities during the 2012 conflict. 170 respondents from directly affected villages, among which 45 per cent were from the other minority community, 30 per cent from Bengali speaking Muslim community and 25 per cent from Bodo community have said that business activities were affected due to violence and displacement from their villagers for many months. 52 percent of Bengali speaking Muslim community, 27 per cent of the respondents from Bodo community and 21 per cent of the other minority community have also reported that, during conflict business goods were stolen and business establishments were vandalized for which businesses could not be conducted in conflict affected villages. 51 per cent of the respondents from other minority communities, 29 per cent of Bengali Muslims and 19 per cent of Bodo community residing in villages not directly affected have reported that, due to one month curfew during riot, business activities could not be conducted.

Table 16: Ethnic Group-Wise Distribution of Reason for Effect on Business Activities During Conflict				
Villages	Ethnic Communities	Reasons for Effect on Business Activities During Conflict		
		<i>Due To Violence and Displacement Business Activities Were Not Conducted</i>	<i>Business Establishments Were Vandalized and Set Ablaze</i>	<i>Due To Riot and Curfew Business Activities Could Not Be Conducted</i>
Directly Affected Village	<i>Muslims</i>	51 (30)	58 (52)	0 (0)
	<i>Bodo</i>	43 (25)	31 (27)	0 (0)
	<i>OMC</i>	76 (45)	23 (21)	0 (0)
Indirectly Affected Village	<i>Muslims</i>	0 (0)	0 (0)	21 (29)
	<i>Bodo</i>	0 (0)	0 (0)	14 (19)
	<i>OMC</i>	0 (0)	0 (0)	37 (51)
<i>Total</i>		170 (100)	112 (100)	72 (100)
<i>Source:</i> Data has been collected through Primary Survey. <i>Note:</i> (1) Figures in parenthesis represent percentage to total number of respondents. (2) Muslims refer to Bengali speaking Muslims. (3) OMC refers to Other Minority Communities.				

10. Effect of Conflict on Public Distribution System

Public distribution system (PDS) is an important food and nutritional security network which is managed by the government. It helps the poorer sections of society by providing food-grains such as rice, wheat, sugar and essential fuels like kerosene through the fair price shops (also known as ration shops) at a subsidized rate. However, during the violent conflicts, public distribution system is disrupted which has affected consumption of food of the poor households.

All the 500 respondents in surveyed villages have reported that, conflict have immensely affected food supply through fair price shops. Due to riot, followed by a month of curfew, public distribution shops were closed, that had affected supply of essential food items to the poorer section of society.

11. Effect of Conflict on Education

Table 17 shows the result of Chi-square Test where the null hypothesis of no statistical difference regarding response on effect of conflict on education is rejected at 0.01 level, indicating that ethnic groups differ in their opinion significantly regarding the effect on education of the conflict.

Table 17: Ethnic Group-Wise distribution of Respondents as per their Opinion on the Effect on Education After Conflict						
Variable			Ethnic Community			
			Muslim	Bodo	OMC	Total
Education Affected/ Not affected After Conflict	Not Affected	Count	5	44	44	93
		Expected Count	29.4	33.9	30	93
	Affected	Count	153	138	116	407
		Expected Count	128.6	148	130	407
	Total	Count	158	182	160	500
		Expected Count	158	182	160	500
Chi-Square Tests						
No of Valid Cases= 500			Value	df	Asymp. Sig (2-sided)	
Pearson Chi-Square			58.872	6	.000	
Likelihood Ratio			70.620	6	.000	
Source: Authors Calculation from Primary Survey. Note: (1) Muslims refer to Bengali speaking Muslims. (2) OMC refers to Other Minority Communities.						

Table 18: Children Discontinued Studies After Conflict in Surveyed Villages					
Variable		Villages			Total
		Directly Affected	Indirectly Affected		
Discontinued Studies after Conflict	No	229	200	429	
	Yes	71	0	71	
Total		300	200	500	
Chi-Square Tests					
N of Valid Cases=500	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	42.996	1	.000		
Continuity Correction	41.179	1	.000		
Likelihood Ratio	64.617	1	.000		
Fisher’s Exact Test				.000	.000
Source: Authors Calculation from Primary Survey.					

The Pearson Chi-Square test indicates a significant difference in response of the respondents in directly and indirectly affected villages regarding the children who have discontinued studies after the conflict (Table 18). Many of the households in conflict affected villages have faced economic hardship after the conflict, which have compelled their children to drop-out from school and to be engaged in employment activities to contribute to their household income. Many of the

households have lost their family members during conflict and so their children have to take care of household activities and look after their younger siblings, which compelled them to drop out from school. Some children have also quit studies due to psychological trauma and fear of future attack.

Table 19: Reasons for Effect on Education in Directly Affected Villages After Conflict					
Sl. No.	Reasons for Effect on Education after Conflict	Directly Affected Villages			
		<i>Muslim Dominated</i>	<i>Bodo Dominated</i>	<i>Mixed Village</i>	<i>Total</i>
1	School property which was destroyed during conflict were not repaired for many months	100 (50)	50 (25)	50 (25)	200 (100)
2	Irregular Attendance in School Due to Fear of Future Attack	53 (61)	13 (15)	21 (24)	87 (100)
3	Community Based Bully in School	67 (100)	0 (0)	0 (0)	67 (100)
4	Have To Manage Household Activities Due to Death of Family Members During Conflict	13 (87)	0 (0)	2 (13)	15 (100)
5	Got Engaged in Employment Activities After Conflict	19 (70)	0 (0)	8 (30)	27 (100)
<i>Source:</i> Data has been collected through Primary Survey. <i>Note:</i> Figures in parenthesis represent percentage to total number of respondents.					

Hundred respondents from Muslim dominated villages and 50 respondents each from Bodo dominated and mixed populated villages in the directly conflict affected areas have reported that school property was destroyed during conflict and they were repaired after several months of conflict. Thus, it was difficult to resume classes immediately after the villagers were rehabilitated back to their village. Also, 87 respondents in the directly affected villages have said that, due to disruption of studies during the displacement, children in their households were no more interested in attending classes after the conflict. Moreover, children in their households were afraid of future attack and so they did not want to attend school after the conflict. 67 respondents from Muslim dominated village reported that their children have faced community-based bully in school after the conflict period making them unwilling to attend classes in school. Many children were reported to have manage household chores due to death of family members, or join livelihood activities to relieve economic hardship imposed by the conflict during conflict, and unable to attend school (Table 19).

11. Effect of Conflict on Healthcare Sector

Healthcare services is negatively affected by the violent ethnic conflicts. Violence during conflict often leads to deaths, injuries, ill health and psychological

disorders among the directly affected population. Due to disruption of transportation network to healthcare centers during conflict, many patients were unable to access healthcare facilities at appropriate time. Health workers are also not able to attend their medical duty due to violence and curfew during conflicts. Some health workers even refused to be posted to the affected areas, which have experienced repeated conflicts in the past years leading to shortage of health workers in medical centers situated in conflict affected areas.

The direct impact of armed conflict on mortality and morbidity is furthered by the simultaneous proliferation of malnutrition and epidemics in fighting areas and in refugee and Internally Displaced Population camps due to food shortages (Grein et al. 2003). Injuries, the spread of infectious disease and increases in permanent disabilities caused by violence thus result in significant decline in household welfare (Binzel and Brück, 2006).

Health status of children is also adversely affected during violent conflicts. The negative effect on health of children may result in forms of poverty trap and contribute towards the reinforcement of structural, persistent forms of poverty, since negative health and education shocks during childhood have significant negative impacts on the long-term performance of individuals. The severe mental health can also be aggravated and the psychosocial consequences of disasters and conflicts would be revealed (Miguel and Kremer 2004; Bleakley 2007).

In the conflict affected villages in Kokrajhar district of Bodoland, people have suffered from various kinds of health issues after the conflict. Harmful effect of conflict on health condition of victims along with lower government expenditures on health services during conflicts has adversely affected the health conditions of individuals in the conflict affected region. People not only suffered from physical health issues but they have also suffered from mental and psychological health issues due to conflict. During the violent conflict in 2012, many of the health centers in conflict affected villages of Kokrajhar district were destroyed and the medical equipment were stolen by the miscreants. Due to the destruction of health clinics and reduction of health personnel, it was difficult for the people to undergo treatment in the health centers. Many of the villages were provided with free mobile healthcare services on a monthly basis before the conflict, which were no longer available in conflict affected areas. Moreover, all the prescribed medicines in health centers and mobile healthcare services were no longer available after conflict. The health workers in the health center were also irregular on their medical duty after the conflict.

Most of the displaced people in relief camps suffered from diseases like acute respiratory infections, diarrheal diseases, maternal and neonatal morbidity,

tuberculosis, and vector-borne diseases such as malaria. It is found that, disease risk increased by several conditions common in complex emergencies due to overcrowding and inadequate shelter; malnutrition; insufficient vaccination; poor water and sanitation conditions; exposure to communicable diseases in relief camps. In many situations in relief camps, drugs to treat diseases, including non-communicable diseases such as diabetes or asthma, were unavailable with consequent negative impacts on community health. Communicable-preventable diseases such as upper respiratory infections, diarrheal diseases, malaria, and measles were identified as the main causes of rising mortality among the displaced people. New-born babies, children and women were worst affected during conflict. Pregnant women due to the lack of vitamins and proteins faced health complications during child-birth. The babies born were underweight and suffered from malnourishment.

Mental trauma, and psychological distress have been experienced by children as well as adolescents in conflict affected areas. It is also found that, the people belonging to families whose family members are either killed or attacked during conflict have higher rates of anxiety, aggression and phobias. Thus, it can be concluded that, conflict have immensely affected the health condition of people in surveyed villages.

12. Conclusion

The overall analysis points to the fact that ethnic conflict in general push back the economy and society towards underdevelopment. The violence in 2012 in the study area has significant adverse impact on the socio-economic activities of the people in the area. Livelihood activities of people were disrupted during the violence. People in the directly affected villages were displaced from their homes and they were compelled to stay in relief camps for many months where they remained mostly unemployed. Not only the direct victims but the surrounding non-involved society also bear the burnt and suffer from economic hardship due to lack of employment opportunities and reduction in income.

Damaged resources of the conflict affected population have affected the standard of living of several households. Conflict had affected the education of children. There were many school drop-outs in the conflict affected villages in the post-conflict period. Mental and physical health of the victims were also affected. Women and children were worst sufferers from health complication after the conflict. Therefore, it is necessary to maintain peace along with progress in material wealth to foster the development perpetually.

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