



***Evaluation of Psychological, Mental and Economical Impact of Tigray Conflict; the case of Internally displaced People of Western Zone, Tigray, Ethiopia***

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**Abstract**

*The unsteadiness in Tigray due to political differences occurred between the Federal government of Ethiopia and Regional government of Tigray named as the Tigray Conflict had its Psychological, Mental and Economic consequences that influence the development of western Tigray in particular and Tigray and Ethiopia in general. The aim of this article is to evaluate and elaborate Psychological, Mental and Economic effects of the war conflict in Tigray and to get understanding of its influence on Tigray and Ethiopian stability, on situation of people of western Tigray and Ethiopian ground. To evaluate the impact of the war, a sample size of 200 people were taken from lower income and higher income community. According to this research, each lower income and higher income people displaced from western Tigray has lost \$US 12,522.5 and \$US 645,710.8 in the production years of 2020 -2022 G.C. respectively. Another depressing appearance of the Tigray crisis is the psychological and mental impacts. According to this research from the lower income society, 75, 50 and 12.5 % out of 200 samples taken are under cumulative, burnout and traumatic stress level respectively. Whereas 10.5, 87, 38.5 and 12 % of respondents whom are under lower income community are being acutely psychotic, severely depressed, in anxiety disorder and psychologically traumatized patients respectively.*

*From high income society, 13.5, 67.5, 43.5 and 5 % out of 200 samples taken are under basic, cumulative, burnout and traumatic stress level respectively. Whereas 29, 59.5, 13.5 and 10.5 % of respondents whom are under the category of higher income community are being acutely psychotic, severely depressed, in anxiety disorder and psychologically traumatized patients respectively.*

*(Key Word: Conflict, Psychological, Economic, Mental, Tigray, Evaluation)*

### **Abbreviations;**

- *ACManPat = Acutely Manic Patient*
- *ACPSYPat = Acutely Psychotic Patient*
- *ANDisOPat = Anxiety Disordered Patient*
- *BStressL = Basic Stress Level*
- *BUStressL = Burnout Stress Level*
- *CStressL = Cumulative Stress Level*
- *EPiPat = Epilepsy Patient*
- *ETB = Ethiopian Birr (Ethiopian Currency)*
- *GNP = Gross National Product*
- *IDP = Internally Displaced People*
- *PSYTrauPat = Psychologically Traumatized Patient*
- *SEDEPPat = Severely Depressed Patient*
- *TPLF = Tigray People Liberation Front*
- *TraStressL = Traumatic Stress Level*
- *UAE = United Arab Emirate*

## **1. Introduction**

*A growing body of literature has been providing evidence on the disruptive effects of military conflicts in different contexts in terms of the human capital costs of survivors and lower economic growth and development (Blattman and Miguel 2010; Justino, 2009; Akresh et al.2011). Beyond the latter losses though, the cumulative exposure to traumatic episodes of violence may have other ‘intangible’ consequences on affected individuals such as long-term changes in economic, mental health and psychological well-being.*

*The Bosnian war (1992-1995) came about following the breakup of Yugoslavia and resulted in a brutal conflict between the three main ethnic groups, Serbs, Croats and Bosniaks (i.e. Bosnian Muslims), which devastated much of the country’s infrastructure and took a severe toll on the whole economy (DFID, 1999).*

*Kurowska (2014) and Shelest (2015) have studied different aspects of Russian annexation of Crimea as a part of Russian multipolarity politics and the start of war conflict. The sources of Russian Ukraine war conflict has been investigated by Kiryukhin (2016). The scientist considers that the conflict between countries began after the development of conservative tendencies in the both countries.*

*The effects of war include short- and long-term physical harm, as well as reduction in material and human capital (Murthy and Lakshminarayana 2006). Akresh et al. (2012), for instance, examined the consequences of the Ethiopian-Eritrean war on the height of young children in Eritrea and found that children exposed to the war were shorter than the reference population by 0.42 standard deviations. Similarly, Akresh et al. (2012) showed that individuals exposed to the Nigerian civil war (1967-70) at all ages between birth and adolescence exhibited reduced adult stature and that these impacts were largest in those exposed during adolescence (see also Bundervoet et al. 2009; Akresh et al. 2012).*

*The educational effects of violent conflict are also substantial. The existing literature shows that violent conflict almost always results in reductions in educational access and attainment (Alderman, Hoddinott, and Kinsey 2006; Akresh and de Walque 2008; Swee, 2013; Justino, Leone and Salardi 2014). Relatively minor shocks to educational access during childhood can lead to significant and long-lasting detrimental effects on individual human capital accumulation (Akbulut-Yuksel 2009; Ichino and Winter-Ebner 2004; Leon 2012). According to World Health Organization's (WHO), the cost of mental health problems is estimated to be between 3% and 4% of GNP in developed countries (WHO, 2003).*

*Researchers have estimated the causal effects of war exposure on soldiers' mental health. Their findings suggest that deployment to combat zones, exposure to enemy fire and to dead, dying, or wounded people, generally cause a decrease in mental health status and raise the risk of suffering from post-traumatic stress disorder (PTSD) or depression (Gade and Wenger 2011; Cesur et al. 2013). Less evidence is available on the effects of wars on the mental health of the general population. In particular, although a number of papers report correlations between individual war exposure and mental health problems (see the review in Murthy and Akshminarayana, 2006), studies addressing causality are remarkably rare. Two main obstacles must be overcome when investigating the mental health effects of war (see Do and Iyer, 2012). First, there are very few surveys collecting reliable measures of mental health. Second, researchers must address endogeneity, i.e., take into account potential individual unobservable factors simultaneously affecting war victimization and mental health, and reverse causality issues when self-reported measures of war-trauma (recalling the war).*

*In this research, we explore the impact of constantly recalling painful psychological, mental and economic impact related to the 2020 and till ongoing conflict occurred between Tigray Government and Ethiopian Federal Government on individuals whom are internally displaced from western Tigray in 2020-2022 using the questionnaires that encompasses different psychological and economical impacts that has been faced in the past two years. Potential psychological and economical impacts of and reverse causality issues are addressed using questionnaires.*

*The questionnaire encompasses psychological, mental and economic impacts of the conflict occurred for both low and high income community of western Tigray to represent average lost of individuals.*

*Even if wars or conflicts around the world are occurred, assessments and evaluation of impacts of those conflicts on human beings Psychological, Mental and Economic affairs could not conducted seriously. Conducting assessment or evaluation on such circumstances will let the world understand what war or conflict is and then finds solutions before inflowing to such war which demolished country's economy generally and health wellbeing of community specifically.*

*Therefore, the main objective of this research is to evaluate the Psychological, Mental and Economic impact of Tigray conflict the case of internally displaced people of western Tigray. To evaluate the impact of the war, a sample size of 200 people were taken from lower income and higher income community.*

## **2. Methodology**

*In the article the following scientific methods are used: systematic sampling, systematization, comparison, generalization, analysis and synthesis. These methods were used to investigate the current situation in psychological, mental and economic sphere in Tigray and its effects for Tigrians specifically and remained Ethiopians. The information base of the research consists of articles of formerly happened civil wars and governmental conflicts and foreign scientists, materials of international institutions and own scientific developments.*

*The article includes the analysis of theoretical framework as well as empirical data of psychological, mental, and economic consequences of war conflict in Tigray-Ethiopia for lower and higher income of internally displaced community (IDP) of western Tigray.*

## 2.1. Sampling Mechanisms

*Sample size is associated with time and cost. It is on the basis of these two constraints one has to determine a sample which in turn will be able to produce results that are statistically significant, statistically vigorous or statistically justified, but, more importantly, representative of the whole population. An under-sized sample can be a waste of resources for not having the capability to produce useful results. On the other hand, an over-sized sample costs more resources than necessary. The existing literature debates the issue of successful selection and meaningful sample-size.*

*Determining sample size varies for various types of research designs and there are several approaches in practice. For example, one can specify the desired width of a confidence interval and to determine the sample size that achieves that goal; a Bayesian approach can be used where we optimize some utility function— perhaps one that involves both precision of estimation and cost. In practice, one of the most popular approaches to sample-size determination involves studying the power of a test of hypothesis; this is utilized here in the case of cross-sectional studies (John et.al, 2007).*

$$n_o = Z^2 * \left( \frac{SD^2}{d^2} \right) \dots\dots\dots (1)$$

Where;  $n_o$  = sample size,

$Z$  = Standardized normal value, usually taken as 1.96 for a 95 percent confidence interval,

$SD$  = Standard deviation (assumed to be known from prior survey or can be guessed or other published studies can inform on in this)

$d$  = Precision range (the required confidence interval)

*The levels of psychological stress, mental health disorders and economic lose of the victims are collected by physicians (psychologists, teachers and university lecturers) using questionnaires based on the symptoms exhibited and assets lost from the respondents. The questionnaires were formerly written in local Language Tigrigna and later changed in to English to make it both locally and internationally visible and clear.*

### **3. Result and Discussion**

#### **3.1. Psychological Impact of Conflict**

*To assess the economic, psychological and mental health effects of violence due to conflict, we depart from the assumption that the effects are homogenous across groups or individuals and we account for the degree of individual exposure to violence, i.e. impact on economic, psychological war trauma. This is done because war may have particularly traumatizing effects on those directly exposed to terror (Miller and Rasmussen 2010).*

*This is even truer when violence and crimes are systematically targeted against some specific groups in the population, as it is the case for ethnic conflicts in general and for the process of 'ethnic cleansing' perpetrated during the Bosnian war in particular.*

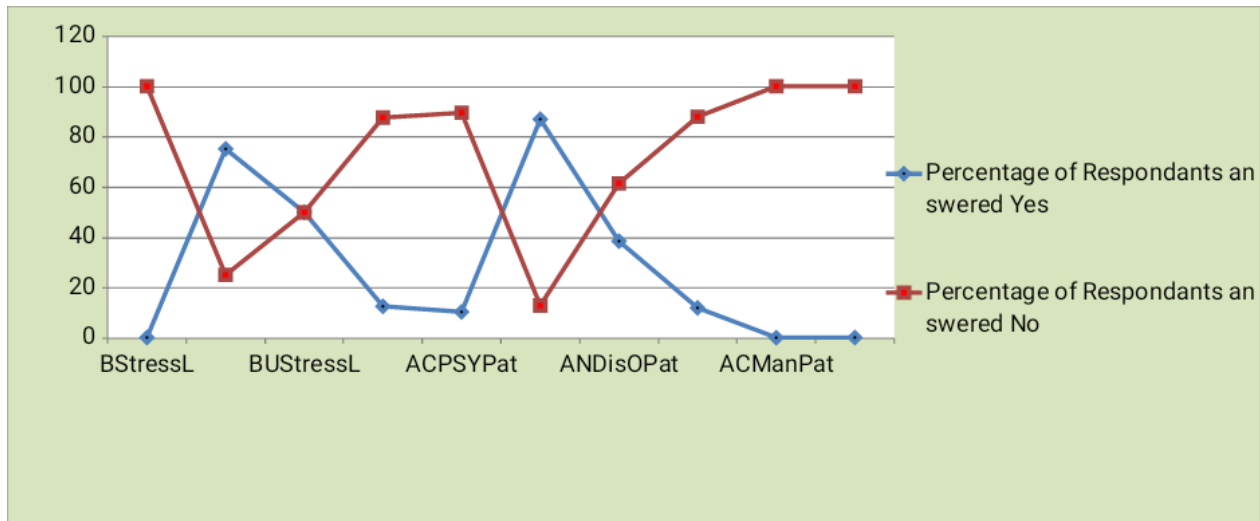
**Table1: Psychological and Mental Disorder exhibited under Low Income Community (IDP)**

S.No	Items for Psychological Impacts	Mark (x) on one of the circumstances happened to you			
		Number of Respondents chooses "Yes" answer	Number of Respondents chooses "No" answer	Answer for Yes (in %)	Answer for No (in %)
<b>1.</b>	<b>Stress categories (stages) observed</b>				
1.1.	Basic stress level	0	200	0	100
1.2.	Cumulative stress level	150	50	75	25
1.3.	Burnout stress level	100	100	50	50
1.4.	Traumatic stress level	25	175	12.5	87.5
<b>2.</b>	<b>Mental Health Disorder</b>				
2.1.	Acutely psychotic patient	21	179	10.5	89.5
2.2.	Severely depressed patient	174	26	87	13
2.3.	Anxiety disorders patient	77	123	38.5	61.5
2.4.	Psychologically traumatized patient	24	176	12	88
2.5.	Acutely manic patient	0	200	0	100
2.6.	Epilepsy patient	0	200	0	100

Different aspects of the war conflict problematic have been studied by many scholars. In general, the theory of conflicts was investigated by Carroll (1970), Lake (2003), Sharma (2015), who described the types, ways, tools and other aspects of conflicts in world community. The geopolitical aspects of war conflicts were studied by Woon (2014). Comparatively much less evidence exists on the mental health effects of conflict. However, mental health is an important component of human capital supporting individual well-being and productivity. Poor mental health may entail poor labour market conditions, income losses, and higher health expenses (Miranda and Patel, 2005). As it is exhibited in table 1 and figure 1 from the whole respondents under lower income community whom participated in this research 75, 50 and 12.5 % out of 200 samples taken are under Cumulative, Burnout and Traumatic stress level respectively. Whereas 10.5, 87, 38.5 and 12 % of respondents whom are under lower income community (table 1 and figure 1) are being Acutely psychotic, Severely depressed, Anxiety disorder and Psychologically traumatized patients respectively.



From the whole respondents under higher income community that participated in this research 13.5, 67.5, 43.5 and 5 % out of 200 samples taken are under basic, cumulative, burnout and traumatic stress level respectively (table 3 and figure 3). Whereas 29, 59.5, 13.5 and 10.5 % of respondents whom are under the categories of higher income community (table 3 and figure 3) are being acutely psychotic, severely depressed, in anxiety disorder and psychologically traumatized patients respectively.



**Figure 1: Stress Categories and Mental Disorders Exhibited in Lower Income IDP**

The consequences of wars have received considerable attention in the recent literature. Studies on the countrywide impact of conflict show that affected countries and populations adjust relatively quickly and often return to their pre-conflict growth trajectories (Davis and Weinstein, 2002; Brakman et al., 2004; Miguel and Roland, 2011). On the other hand, a growing body of research at the micro-level finds that conflict situations cause more mortality and disability than any major disease, destroy communities and families, and disrupt the development of the social and economic fabric of nations (Justino 2009, 2012a).

Governmental and nongovernmental institutions should participate in solving those psychological and mental health related problems including by sending their psychiatric experts since those identified and exhibited problems could be treated efficiently provided that the capacity and ability of experts should be enough in solving those problems otherwise such problems could exceed to next stages in which those victims could not be rehabilitated.

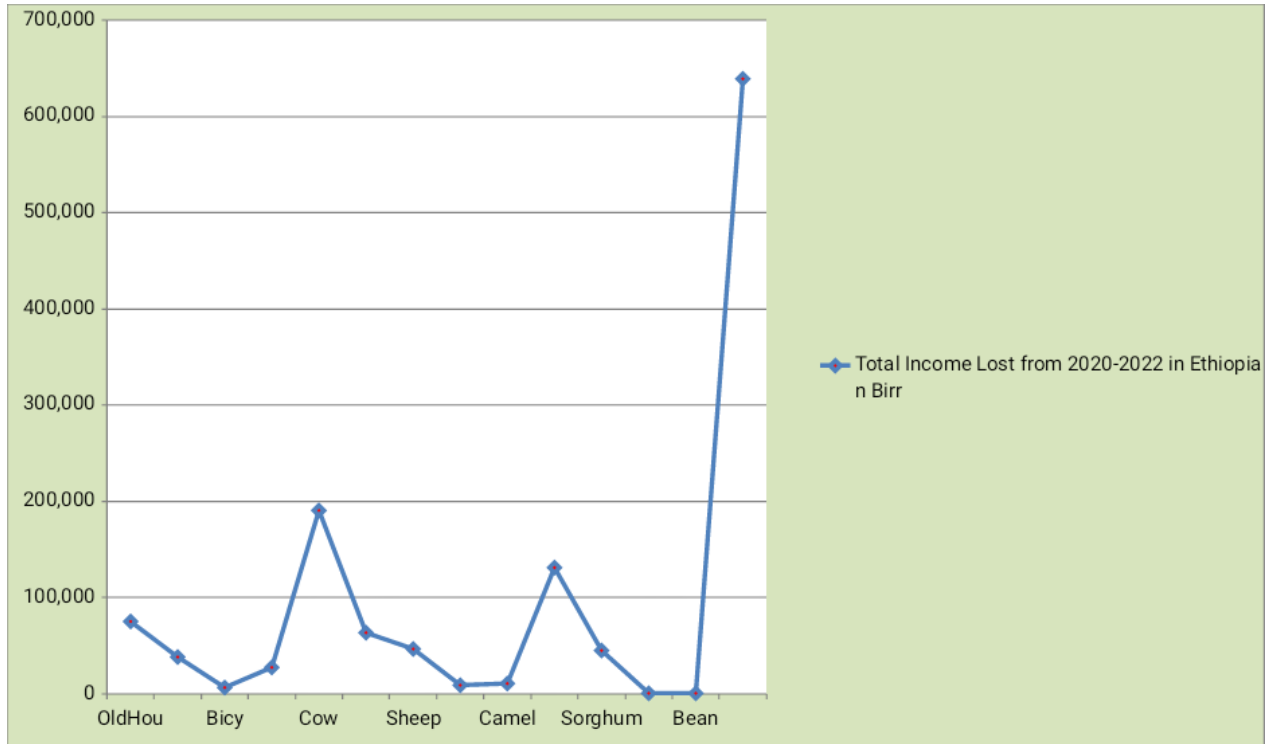
**Table 2: Economic lose exhibited under Low Income Community (IDP)**

<b>S.No</b>	<b>Item</b>	<b>Unit</b>	<b>Average Amount lost</b>	<b>Unit Income Cost (ETH Birr)</b>	<b>Total Income (ETH Birr) Lost</b>
1.	Old (traditional) houses	No.	3	30,000	75,000
2.	House Furniture	Ls.	2	25,000	37,500
3.	Bicycle	No.	1	8,000	6,000
4.	Donkey cart	No.	1	27,000	27,000
5.	Cows	No.	19	10,000	190,000
6.	Goat	No.	28	2,300	63,250
7.	Sheep	No.	23	2,000	46,000
8.	Donkey	No.	2	5,000	8,750
9.	Camel	No.	1	20,000	10,000
10.	Sesame crop	Qt.	29	4,500	130,500
11.	Sorghum crop	Qt.	47	950	44,650
12.	Cotton crop	Qt.	0	2,500	0
13.	Bean (Masho) crop	Qt.	0	6,000	0
<b>Grand Total Income Lost per Person</b>					<b>638,650.00</b>

Studies of individual behaviour have documented the impact of mental health on employment, productivity and earnings (Ettner et al. 1997; Bartel and Taubam, 1986), criminal activity (Steadman et al. 1998), child abuse and neglect (Kelleher et al, 1994), homelessness (Jenks, 1994), fertility and divorce (Bartel and Taubman, 1986), and offspring's education (Bratti and Mendola, 2014). Emerging data from low- and middle-income countries further indicate a strong association between mental illness and low education, food insecurity, inadequate housing, poverty and financial stress (Das et al. 2008; Patel and Kleinman 2003). In addition to these large personal costs, collective economic costs are also significant, due to higher direct health costs and indirect costs related to higher levels of unemployment together with increase in alcohol abuse, drug addiction and social exclusion (Massimiliano et.al, 2015).

According to respondents, humanitarian aid was very poor and IDP from western Tigray could not bring in enough food and medicine in running their daily living activities. This was due to the blockage of the main aid entrance corridor of Afar, Sudan and Amhara.

*This siege or blockage has also influenced those IDP and had an impact in their Psychological, Mental, Economic and Social life. According to Humanitarian set of laws, this is simply a violent incident happened to those people.*



**Figure 2: Economic Impact Exhibited in Lower Income IDP**

*As it is exhibited in this research (table 2, 4 and figure 2, 4), from the whole respondents whom participated in this research it is easy to state that averagely each lower income and higher income people who displaced from western Tigray has lost an ETB of 638,650.00 or \$US 12,522.5 and ETB 32,931,250.00 or \$US 645,710.8 respectively.*

*This economic lose encompasses fixed assets and agricultural production that those IDP could earn in the production year of 2020-2022 G.C. Almost all of those fixed assets and agricultural productions has been stolen by Amhara (Special force, Fano and Militia) and Eritrean soldiers and some are burned by those actively participants. This action shows how premeditated and scheduled they were in attacking Tigray People specifically western Tigray. This economic lose in turn affects the mental health of those people that are internally displaced from western Tigray.*

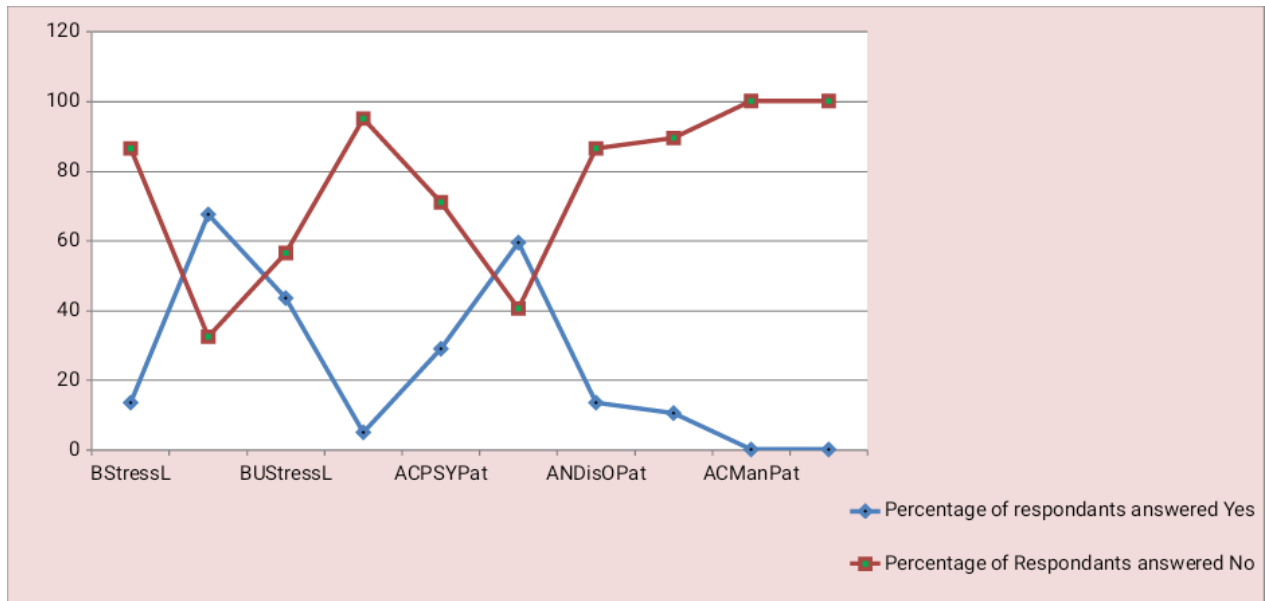
According to respondents, during the war most of the internally displaced people were fleeing to Sudan, North-Western, central and other zones of Tigray without cars using their foot and a lot of people were killed by Eritrean Forces and Amhara Forces (Militia, Special force and Fano) and Federal Defense Forces. Such a terror has influenced the psychological conditions of those internally displaced people (IDP).

As comparing to other such conflicts occurred previously in this world, many countries with different interests have been participated in this war. Due to this reason, the conflict was very difficult and has killed a number of civilians and demolished a lot of fixed assets and agricultural productions and had psychological and mental health impacts on those internally displaced peoples of western Tigray. Therefore, it is easy to say Tigray conflict is and will be a bench mark in showing how killer, mentally hard, harsh and destructive war is.

**Table 3: Psychological and Mental Disorder exhibited under Higher Income IDP**

S.No	Items for Psychological Impacts	Mark (x) on one of the circumstances happened to you			
		Number of Respondents chooses "Yes" answer	Number of Respondents chooses "No" answer	Answer for Yes (in %)	Answer for No (in %)
<b>1.</b>	<b>Stress categories (stages) observed</b>				
1.1.	Basic stress level	27	173	13.5	86.5
1.2.	Cumulative stress level	135	65	67.5	32.5
1.3.	Burnout stress level	87	113	43.5	56.5
1.4.	Traumatic stress level	10	190	5	95
<b>2.</b>	<b>Mental Health Disorder</b>				
2.1.	Acutely psychotic patient	58	142	29	71
2.2.	Severely depressed patient	119	81	59.5	40.5
2.3.	Anxiety disorders patient	27	173	13.5	86.5
2.4.	Psychologically traumatized patient	21	179	10.5	89.5
2.5.	Acutely manic patient	0	200	0	100
2.6.	Epilepsy patient	0	200	0	100

*The Russian intervention in Ukraine (annexation of Crimea, the beginning of the war conflict in the Eastern Ukraine) and its reasons have been described in the article of Allison (2014). The author wrote about such reason of war conflict in Ukraine as geopolitical and geo-economic competition between EU/NATO and Russia for Ukrainian way of development. The works of the authors Sutyagin (2015) and Dugas (2016) have told about conflict situation in Ukraine, as the all international rules violation by Russia, such as violation of Ukrainian sovereign territory.*



**Figure 3: Stress Categories and Mental Disorders Exhibited in Higher Income IDP**

*In case of Tigray Conflict, researchers of this article argued that the war is not only takes placed between Ethiopian Federal Government and Tigray Government but it was catalyzed or supported by Amhara forces (Fano, Special Forces and Militias), Eritrea, UAE, Somalia, Turkey, Iran, the Westerns, USA, China and Russia.*

*The reason beyond is that both Amhara Regional government and Eritrea have made an agreement to clean and free all Tigrians (Tegararu) from the Western Tigray and to create a new corridor that connect Eritrea with Amhara regional governments and hence both will be beneficiaries from this war. If this opportunity is achieved Amhara will invade the whole western zone of Tigray which is fertile and characterized by massive agriculturallands and productivity.*

To do so, both the Eritrean and Amhara Government sign an agreement to clean the bloodlines of Tegar (Tigrians) lived in that Zone. That is why the Eritrean government provided a military training for Amhara forces. There may be a question raised by different readers about why not the Federal Government of Ethiopia has not understood such an agreement but it is due to the necessitate of Prime Minister Abyi Ahmed since its aspiration and desire is to lead the country for long period of time as much as he could and want without bothering the autonomy of the people and country of Ethiopia. In addition to this, it was suggested and undermined that the tigray forces may became difficult to defend by them. And hence different supports from outsides was requested by prime minister of Ethiopia.

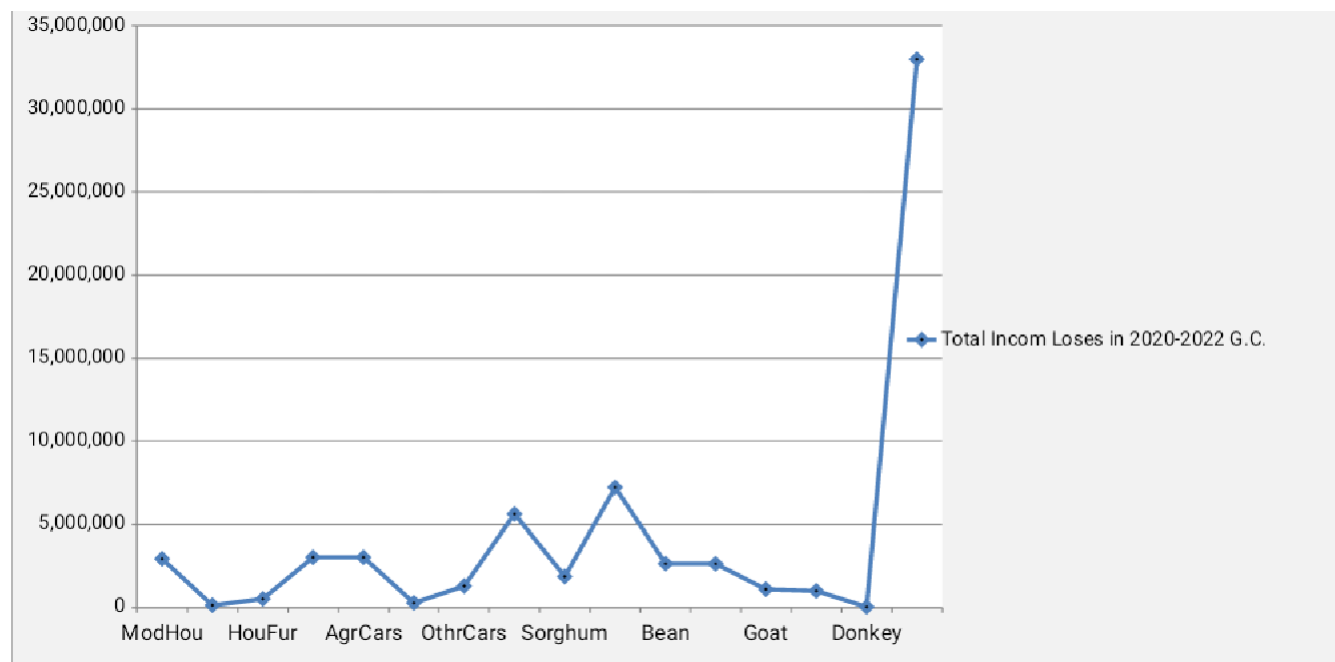
**Table 4: Economic lose exhibited under High Income Community (IDP)**

<b>S.No</b>	<b>Item</b>	<b>Unit</b>	<b>Amount</b>	<b>Unit Cost (ETH Birr)</b>	<b>Total cost (ETH Birr)</b>
1.	Modern houses	No.	8	350,000	288,7500
2.	Old (traditional) houses	No.	4	30,000	112,500
3.	House Furniture	Ls	3	200,000	500,000
4.	Agricultural Machines	No.	6	500,000	3,000,000
5.	Agricultural Cars	No.	4	750,000	3,000,000
6.	Motorcycle	No.	2	150,000	262,500
7.	Other cars (light cars)	No.	2	850,000	1,275,000
8.	Sesame crop	Qt.	1,245	4,500	5,602,500
9.	Sorghum crop	Qt.	1,925	950	1,828,750
10.	Cotton crop	Qt.	2,875	2,500	7,187,500
11.	Bean (Masho) crop	Qt.	438	6,000	2,625,000
12.	Cows	No.	263	10,000	2,625,000
13.	Goat	No.	463	2,300	1,063,750
14.	Sheep	No.	475	2,000	950,000
15.	Donkey	No.	2	5,000	11,250
<b>Grand Total Income Lost per Person</b>					<b>32,931,250</b>

In case of the Westerns, China, Russia, Turkey and others, there is a geopolitical and geoeconomical desire to become superior in the Horn of Africa (Superiority in Red Sea Economy) and in Ethiopian MEGA Projects such as; Ethiopian Aviation, Telecom, Electricity and Sugar factories. Those countries desired to liberalize and privatize those

*economic activities in the country.*

*There could be some readers raised a question stating that “How could this circumstances interconnected with Tigrians (Tegaru)?”. The answer is simply, Tigray People Liberation Front (TPLF) was supporting the Neo-liberalist ideology which is in opposite to the ideology of above listed countries and has not supported the idea of privatizing those Ethiopian MEGA projects due to the reason that TPLF believed the level of economy of the country is not enough to privatize those projects. Hence, to do so Ethiopian Federal Government which is under prime minister of Abiy Ahmed has made an agreement with Eritrea, Somalia, UAE and others in fighting against Tigray by attacking the Tigray people and controlled their opposition . Such a circumstance let the people get in to cleansing using direct killings and the siege mechanism as it was occurred in Biafra (Nigeria).*



#### ***Figure 4: Economic Impact Exhibited in Higher Income of IDP***

*Even if Prime Minister used the arrangement of enforcement of the rule of law due to the postponing of election of 2012 E.C /2020 G.C. to get the Tigray Leaders in control as a mechanism of invading and attacking Tigray, but the result was attacking all the people and economic centers of Tigray by inviting and get support from Amhara Forces, Eritrean, Somalia, Support of UAE drones, Offer of Turkey modern Weapons, Iran drones, support of AU (African Union) permission of enforcing the rule of law by attacking Tigray and Financial prop up of Westerns and USA. Among the people whom were under the attack, the western people of Tigray were among the victims affected psychologically, mentally and economically. The article is free and opened in showing how those IDP are affected by this strategic war conflict fabricated and coordinated by the federal government of Ethiopia. Even if the people of Tigray have a balance in their bank account, for more than two years the people could not bring in banking, telecom, and electricity services. After detail investigation and analysis is done by those to whom such circumstance may concern, this attack has a probability of being “Genocide” or “War Crime”. Hopefully, the world will study and analyze it one day. So what should we call it for such condition is the question for readers?*

#### **4. Conclusion**

*According to OECD Economic Outlook, Interim Report of March 2022 G.C., the Russian invasion of Ukraine is a major humanitarian crisis affecting millions of people and a severe economic shock of uncertain duration and magnitude. This note provides a first assessment of the potential impact of the conflict on the global economy, based on the shocks seen so far, and the policy implications. Prior to the conflict, the global recovery from the pandemic was expected to continue in 2022 and 2023, helped by continued*



*progress with global vaccination efforts, supportive macroeconomic policies in the major economies and favourable financial conditions.*

*In this research, almost above 50% of those IDP are under severely depressed and cumulative stresses showing that how badly this war has affected them. In addition to such circumstance, economically each person who is under low income and high income has lost 638,650.00 ETB or \$US 12,522.5 and 32,931,250.00 ETB or \$US 645,710.8 respectively in the production years of 2020 -2022 G.C. Such a lost comprises both fixed and unfixed assets and agricultural productions. Based on the outcome obtained from those internally displaced people the war conflict of Tigray has already resulted in sizeable economic and financial, psychological shocks, particularly in export and import of commodity markets, tangible and intangible assets of the people of western Tigray and the remained part of the country. Hence, this war has increased prices of oil, gas and other food and non-food items soaring.*

*Even if it is difficult to scrutinize numerically how much this war has exaggerated Ethiopia, based on the effect of war or conflict occurred in Tigray it could be uncomplicated to make available a clue as the war had exaggerated the psychological, mental health, economic and social setting of people of entire country too.*

*As solution, the World (both the developed and developing) should play a crucial work in giving up this war or conflict occurred in Tigray by negotiating the principal parties which contributed to the eruption of this war. All parties should be see-through and held responsible for the negotiation in solving their differences politically and lawfully. The world should be erudite from Tigray and get ready to resolve their political troubles serenely and politically.*

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