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Socio-economic Impacts of Internal Displacement on Displaced and Host Households: A Case Study in Gurage Zone, Ethiopia

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Abstract

Internal displacement has been shown to have a detrimental effect on displaced households in the literature. However, little research has been done on how internal displacement affects host households in Ethiopia. This study attempted to examine the socio-economic impacts of internal displacement on both displaced and host households. Primary data were gathered from 613 randomly selected households. Propensity score matching method was employed to measure the socio-economic impact of internal displacement on both groups of households. Sensitivity analysis was checked using Rosenbaum bounds and the Mentel-Henzel procedures. The results revealed that internal displacement had a negative impact on socioeconomic situations of both displaced and host households. Specifically, the findings indicate that 74.63% and 23.37 % decrease in annual income of displaced and host households, respectively. In addition, unemployment rate increased by 37.17% and 4.08%, respectively, between displaced and host households due to internal displacement. Furthermore, household consumption, production, access to education, and health care were negatively and significantly affected by internal displacement. Therefore, the government should pay particular attention to return the displaced household to their community of origin and compensate for destroyed properties. In addition, the government should restore basic services provision and create work opportunities for both groups of households as a long-term solution.

***Keywords**; Internal displacement, displaced and host households; Impact; Propensity score matching, Gurage zone*

1. Introduction

Conflict, violence, natural disasters, and climate change drive millions of people to leave their homes every year, and millions more are internally displaced within their native countries (Toscano, 2015; Nouri, 2019). The international community has become more aware of internal displacement in recent decades due to its complexity, rising prevalence, and variety of fundamental causes (Mooney, 2005; Sackey, 2020). The catastrophic effects that internal displacement can have on displaced people, their communities of origin, their dependents, and hosting communities could be enormous. The well-being of internally displaced individuals could be compromised and their capacity to support their family may also be curtailed (Kett, 2013).

Ethiopia is among developing countries where internal displacement has occurred due to a variety of reasons. There are many internally displaced persons living in the country, because of escalation of conflicts (Tsegay, 2022). The unstable circumstances force the displaced households to face various difficulties, including being herded together in camps, being exposed to detrimental weather and health risks that come with internal displacement, not having secured supply of necessities, and not having the comfort of social bonding (Wood, 2004).

However, comprehensive studies on impact of internal displacement on both displaced and host households' socio-economic performance are scanty in countries like Ethiopia. Some studies such as (Verme, 2019) focus on impact of displacement on host-community economic performance while other studies like Nikuze (2019) focused only displaced households. In addition, the economic impact of internal displacement has been measured in single outcome variables using a one-dimensional structure in studies such as (Çalişkan and Duran, 2021; O'Reilly, 2015).

The novelties of this study are three folds. First, unlike previous studies, this study considers both displaced and host households simultaneously. Second, the study analyzes the impacts of internal displacement on multidimensional levels of household performance instead of the usual uni-dimensional performance measure. Third, the study focuses on Ethiopia, where the impact of internal displacement is not well documented.

The rest of this paper is organized as follows: section 2 deals with literature review, section 3 is concerned research methodology, and section 4 focuses on results and discussions. The final section is concussion and policy suggestions.

2. Review of Literature

As various national and international stakeholders strive to address the issue of internal displacement, it is crucial to develop a deeper comprehension of the wide-ranging effects of displacement. This understanding should extend beyond the impact on the lives of internally displaced people (IDPs) to also encompass the effects on the host community (Nkwatoh, 2021)

Globally there are a number of studies that deal with displacement. For example, Shultz et al. (2019) argues that most displaced individuals are compelled to flee their homes and land with nothing more than what they can take, unlike other forms of migration where the household's choice of mobility might be an optimisation problem. Such a shift comes as a significant financial blow to many households. Both household economic performance and

long-term national growth are impacted by how quickly and effectively people recover from such a shock.

From the African context, Council and de Balexert (2010) argue that Africa has historically had the highest concentration of internally displaced people worldwide. The majority of internal displacement that occurs worldwide is prolonged, which is defined as lasting longer than five years. Those who are displaced experience hunger and lack access to basic necessities like housing, infrastructure, education, and health.

The combination of patriarchal land tenure systems and conflicts that leave a large number of widows and orphans is also pertinent to the African context, as it further complicates the achievement of long-lasting solutions. Furthermore, certain people in some nations have nowhere to return to (Kamara et al., 2017).

In the case of Ethiopia, there are many causes of conflicts and war (Geda and Degefe, 2005). Devastating effects have resulted from wars and conflicts, including fatalities, infrastructural damage, and a halt to growth and development. Conflict is the main cause of Ethiopia's poverty, and at times even the country's political structure has been in danger. According to the authors, the primary and most important explanation for Ethiopia's poverty and backwardness is displacement. In addition to causing suffering for people, it also inhibits economic growth. Resources are diverted from constructive to destructive uses, which hinder growth or degrade the content and quality of the resource. After a battle, the economy begins to recover more strongly.

In 2018, the Democratic Republic of the Congo, South Sudan, and Ethiopia had the three highest populations of internally displaced people in Africa as a result of conflict and violence. In 2018, disaster-related internally displaced people (IDPs) from three countries topped the list: Afghanistan, Kenya, and Myanmar. People have been periodically displaced by conflicts and natural disasters in Afghanistan, Nigeria, Somalia, and other nations (Kälin, and Chapuisat, 2018).

According to Yigzaw and Abitew (2019), internal displacement caused social intimacy to break down, had an adverse economic impact on both the IDPs and the host communities, resulted in homelessness, brought about economic hardship, increased the IDPs' susceptibility to psychological violence, and ultimately led to their death.

As can be noted from the above review, comprehensive studies on the socioeconomic impact of internal displacement in the context of Ethiopia are very limited. Thus, the current study attempts to fill this and other research gaps highlighted under introduction section of this study.

3. Research Methodology

3.1. Data Type, Sources, and Methods of Data Collection

This study was carried out in the Meskan and Mareko districts of Ethiopia's Gurage Zone. The study utilized both primary and secondary data. A structured questionnaire was used to collect primary data from the sample respondents. Demographic, socioeconomic, and institutional data were all included in the questionnaire. In addition, records and reports from the internal displacement monitoring centre, as well as secondary data, were obtained from the zone's Peace and Security office.

3.2. Sampling Techniques and Sample Size

In this study, a multistage sampling technique was employed to gather the required primary data. In the research area, the first treatment group was deliberately chosen. The target location's households were then split into two groups: the displaced households and the host households. Following Austin (2021), the sample size was determined using power calculation and the inverse likelihood of treatment weighting and which is given by:

Power = P (Z > $\frac{[Z_{1-\alpha}SE_0 + \mu_0 - \mu_1]}{SE}$ where μ_0 = mean difference under null hypothesis μ_1 is mean difference under alternative hypothesis, difference between the displaced and control group, $Z_{1-\alpha}$ is the value at which we reject null hypothesis, SE_0 is standard error under null hypothesis. SE is standard error under alternative hypothesis. By further manipulation, we get:

$$n = \frac{(Z_{1-\beta} + Z_{1-\alpha})^2[(R+1) - P_2(R^2+1)]}{P_2(1-R)^2}$$

Where n = sample size; P_1 = Proportion of displaced group, P_2 = Proportion of control group, R= risk ratio or relative risk (P_1 / P_2). Accordingly, the sample size is calculated to be:

$$n = \frac{(1.5311+1.96)[(1+0.7520) - 0.3760(0.7620^2+1)}{0.3760(1-0.7520)^2} = 613$$

To actually choose the respondents, a multistage random sampling process was employed. First, the town and camp where integration had been implemented were chosen on purpose, followed by the districts. Meskan and Mareko were the two districts in the Gurage zone that were chosen for the survey. Due to their shared traits and the presence of internally displaced residents, the two areas were purposefully chosen. In 2020, the two districts' documented displaced populations were 16,000 in Meskan and 29,000 in Mareko. Based on the number of displaced households in each of the two districts, 220 respondents were chosen, with 137 from Meskan and 83 from Mareko. Additionally, 393 comparison households were chosen from the host communities in both districts. As a result, 220 treatment and 393 control families made up the total sample size of 613 households that were included in the study.

3.3. Econometric Model Specification

In this study, propensity score matching method (PSM) using a logit model was utilised to accomplish the study's objectives. Selection bias, which can result from non-random events like relocation and the non-random selection of households, is one issue with non-experimental procedures. This makes evaluation extremely difficult (Heckman, 1979). When evaluating such a phenomenon, PSM method is more beneficial to use than other impact evaluation methods such as regression discontinuity, difference-in-difference, and instrumental variable technique (Littnerova et al., 2013).

3.3.1. Mathematical Specifications of Propensity Score Matching

Following Kothari (2004), the logistic distribution function of determining factors in household's outcome variable can be presented as:

$$P_i = E(y = 1|X_1) = \frac{1}{1 + e^{(\beta_0 + \beta_1 X_1)}} \quad (1)$$

By rearranging Equation (1) we get:

$$P_i = \frac{1}{1 + e^{Z_i}} \quad (2)$$

The probability that a given household is internally displaced is expressed by equation (2) while, the probability for household to be internally non-displaced is expressed:

$$1 - P_i = \frac{1}{1 + e^{Z_i}} \quad (3)$$

Therefore, the odds ratio can be written as:

$$\frac{P_i}{1-P_i} = \frac{1+e^{Z_i}}{1+e^{-Z_i}} = e^{Z_i} \quad (4)$$

Now $\frac{P_i}{1-P_i}$ is simply the odds ratio in favour of internally displaced household to internally non-displaced household is the ratio of the probability that a household would be internally displaced to the probability of that household is not internally displaced. Finally, taking the natural logarithms of the odds ratio of equation (4) would result in the logit model as indicated below.

$$L_i = \ln\left(\frac{P_i}{1 - P_i}\right) = \ln[e^{Z_i}] = e^{Z_i} \quad (5)$$

Where: Z_i= is a function of n explanatory variables (X_i) which can also be expressed as:

$$Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 \ldots + \beta_n X_n \quad (6)$$

Where β_0 is an intercept β_1, β_2 ,..., β_n are partial slopes of the equation in the model L_i is natural logarithm of the odds ratio, which is not only linear in variable X but also linear in the parameters. X_i is vector of explanatory variables for household i. Finally, we incorporate disturbance term μ_i. Thus, the complete logit model specified as below

: $Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 \ldots + \beta_n X_n + \mu_i$ (7)

In case of binary treatment of, the treatment indicator D_i equals 1 if household Li receives treatment. In the context of this study, treatment group refers to households who are internally displaced while control group are those who are not internally displaced.

The potential outcomes are then defined as: $Y_i(D_i)$ for each individual i,where $i = 1, 2, \ldots, n$, then the treatment effect of individual i can be expressed as:

$$T_i = Y_i(1) - Y_i(0) \quad (8)$$

This only serves to assess each person's possible observable outcomes, which creates counterfactual issues because other unobservable families may have features that are known as counterfactual outcomes. Therefore, it is not possible to estimate the individual therapy impact Ti. As a result, the average treatment effect on treated (ATT) is calculated as:

$$\tau_{\mathrm{ATT}} = \mathrm{E}(\tau|\mathrm{D} = 1) = \mathrm{E}[\mathrm{Y}(1)|\mathrm{D} = 1] - \mathrm{E}[\mathrm{Y}(0)|\mathrm{D} = 1] \quad (9)$$

Consequently, the counterfactual mean for those being treated represented by:

$E[Y(0) \mid D = 1]$ which is actually not observed.

Following Caliendo and Kopeinig (2008) and further manipulation, we have the following expressions:

$$\mathrm{E}[\mathrm{Y}(1)|\mathrm{D} = 1] - \mathrm{E}[\mathrm{Y}(0)|\mathrm{D} = 0] = \tau_{\mathrm{ATT}} + \mathrm{E}[\mathrm{Y}(0)|\mathrm{D} = 1] - \mathrm{E}[\mathrm{Y}(0)|\mathrm{D} = 0] \quad (10)$$

τ_{ATT} is so-called 'self-selection bias'; then the true parameters of τ_{ATT} is only identified if

$E[Y(0)|D = 1] - E[Y(0)|D = 0] = 0$. By rearrangement, we have:

$$[\mathrm{Y}(0)|\mathrm{D} = 1] - \mathrm{E}[\mathrm{Y}(0)|\mathrm{D} = 0] = 0 \Rightarrow \tau_{ATT} = \mathrm{E}[\mathrm{Y}(1) - \mathrm{Y}(0)] \quad (11)$$

Common support region given by:(overlap) $0 < p(\mathrm{D} = 1|\mathrm{X}) < 1.$
Ultimately, the general PSM model is specified as a fallow:
$\tau_{ATT}^{psm} = E_{\mathrm{p(x)}\,|\,\mathrm{D=1}}\{\mathrm{E[Y(1)|D} = 1, \mathrm{P(X)}] - \mathrm{E[Y(0)|D} = 0, \mathrm{P(X)}]\}$ (12)
This demonstrates that the PSM estimate is just the average of the outcomes over the common support zone, suitably weighted by the distribution of displaced families' propensity scores.

3.4. Dependent and Independent Variables

The variable of interest in the PSM estimation quantifies the socio-economic impact of internal displacement at the household level. As a result, depending on whether a household was affected by an internal displacement phenomenon, there could be significant disparities in terms of income, consumption, wages, and access to health care, education, and the unemployment rate between displaced and non-displaced households.

Table 1 : Types, definition and measurement of explanatory variables

Variable	Type and defintion	Measurment
Dependent variable		
Treatment	Dummy, displaced or not displaced	1 if displaced, 0 otherwise
Covariates		
Age of household head	Continious	in year
Sex of household head	Dummy, Sex of household	1 if male, 0 otherwise
Marital status	Dummy, martial status of respondant	1 if married; 2 if divorsed; 3 if wiidowed ; 0 otherwise
Education level of hosehold head	Dummy,household education level	1 if primary; 2 if secondary; 3 if diploman and above; 0 otherwise
Incrase in prices of basic goods	Dummy, price of basic goods	1 if yes, 0 otherwise
Access to housing and basic infrastructure	Dummy, housing and infrastracture	1 if improve, 0 otherwise
Total family size	Continious, total family size	number of family in given household
Size of land owned	Continious, size of owened land	in hectare
Nature of the conflict	Dummy, household condition of confilect	1 if yes, 0 otherwise
Distance from conflict area	Continious distance to conflict area	in km

Source: Own compilation (2021).

4. Result and Discussion

4.1. Descriptive result

Table 2 below provides a summary of the household's socio-economic characteristics as well as the variables from the mean difference test (t-test). Table 2 shows that the variables' means and standard deviations are calculated for the overall sample as well as for the groups, internally displaced households, and host households.

Table 2 : Descriptive statistics for continuous and categorical variables

Variable	sample household (N=613)		displaced household (n=220)		not displaced household (n=293)		Difference in mean		t-value
	Mean	STD	Mean	STD	Mean	STD	Mean	STD	
Age	50.73	10.12	49.02	9.62	51.69	10.27	2.67	0.85	3.16
Family size	4.90	2.18	5.28	1.84	4.69	2.32	-0.60	. 182	-3.27
Income^	9.51	1.16	8.22	0.96	10.13	0.61	1.91	0.07	28.87
Consumption^	9.44	1.11	8.22	0.96	10.02	0.59	1.80	0.07	27.68
Land size	1.17	0.73	1.28	0.78	1.10	0.69	-0.18	0.06	-2.93
Wage^	9.44	1.11	8.22	0.96	10.02	0.59	1.80	0.07	7.68

Variable	category	Displaced (n= 220) Percent (%)	not displaced (n= 393) Percent (%)	Total (N=613) Percent (%)	χ^2
Sex of head	Male	132(60%)	174(44.27%)	306(49.91%)	
	Female	88(40%)	219(55.72%)	307(50.08%)	13.95*
Marital status of household head	Single	2(0.9%)	9(2.2%)	11(1.7%)	
	Married	157(71.36%)	267(67.9%)	424(69.16%)	
	Divorced	44(20%)	78(19.84%)	122(19.90%)	
	Widowed	17(7%)	39(9.92%)	56(9.13%)	2.49
Education level of household head	Illiterate	49(22.27%)	94(23.91%)	143(23.32%)	
	Primary	123(55.9%)	210(53.43%)	333(54.32%)	
	Secondary	41(18.6%)	75(19%)	116(18.92%)	
	College and above	7(3%)	14(3.56%)	21(3.42%)	0.40
PROGS	No	75(34%)	190(48.34%)	265(43.23%)	
	Yes	145(65.9%)	203(51.65%)	348(56.76%)	11.68*
Housing and infrastructure	Decay	159(72.27%)	32(8.14%)	191(31.15%)	
	No change	48(21.8%)	200(50.89%)	248(40.45%)	
	Improve	13(5.9%)	161(40.96%)	174(28.38%)	276.71***
Unemployment	Decrease	9(4%)	41(10.43%)	50(8.15%)	
	No change	31(14%)	100(25.44%)	131(21.37%)	
	Increase	180(81.81%)	252(64.12%)	432(70.47%)	21.73**
Access to education	Decrease	139(63.18%)	71(18.06%)	210(34.25%)	
	No change	53(24%)	210(53.43%)	263(42.9%)	
	Increase	28(12.72%)	112(28.49%)	140(22.83%)	127.47***
Access to health care	Decrease	148(67.27%)	42(10.68%)	190(30.99%)	
	No change	36(16.36%)	231(58.77%)	267(43.55%)	
	Improve	36(16.36%)	120(30.53%)	156(25.44%)	215.09***

	Decrease	159(72.27%)	38(9.66%)	197(32.13%)	
	No change	20(9%)	150(38.13%)	170(27.73%)	
Production	Increase	41(18.63%)	205(52.16%)	246(40.13%)	254.51***

Source own computation, ** and * Significant at probability level of 1%, 5%, and 10%.
Note: ^ denotes that the variable is in natural logarithmic form

Age: was one of the variables taken into account when analysing the research area's households in relation to the internal displacement issue. The mean household head's age in the host household was 51.69 years, while the mean household head's age of the displaced households was 49.02 years. At 5% level of significance, there was a significant difference in the average age of the household head between the displaced and the host households (Table 2). The findings showed that the heads of households in the host community were older than those in the displaced community.

Access to education: In the research area, the percentage of households experiencing decrease in access to education as a result of the internal displacement phenomena was roughly 34.25% for all sampled household, and 81.18% and 64.12% for host and displaced households, respectively. When it comes to access to education, there was a substantial difference between host and displaced households, according to the chi-square value of the proportionality test for this variable.

Access to health care: About 31% of all sampled households had less access to health care as a result of the occurrence of internal displacement in the research area, with 67.27% of displaced households and 10.68% of host households experiencing this reduction. At the 1% significant level, the Chi-square value shows that there is a very significant difference between the host and displaced homes.

Housing and infrastructure: Table 2 illustrates the proportion of households living in dilapidated housing and infrastructure as a result of the internal displacement phenomena. This proportion was roughly 31.15% for all selected households, 72.27% for displaced households and 8.14 for host households. At 1% level of significance, the chi-square value indicates the substantial difference between the displaced and the host community.

Production level of the household: As can be seem from Table 2, out of all the sampled households, around 32.13% of them reported having a decline in their level of production. For the displaced, the percentage was approximately 72.27%, while for the host households, it was approximately 9.66%. Furthermore, at a 1% significance level, the Chi-square value demonstrates a highly significant difference between the host households and the displaced households.

Total annual income of the household: Table 2 illustrates that sample households had an average yearly income of Birr 9.51 (in logarithmic form. However, the displaced household's annual income is Birr 8.11, whereas the mean annual income of the host homes was Birr 10.13. This shows that following the internal displacement phenomena, the descriptive analysis showed a significant difference in the annual income of the displaced and the host households. This suggests that the relocated household's income was lower than that of the host community.

Unemployment level of the household (UNEMP): This variable was another important categorical variable that was examined among host and displaced households, as shown in Table 2. The percentage of unemployed people rose by almost 70.47% for all sampled families. 81.81% of the internally displaced households were unemployed and 64.12% of the host households were unemployed. At a 10% significance level, the Chi-square test indicates a highly significant difference between the displaced and host communities.

4.2. Econometric Results

4.2.1. Estimation of Propensity Score Matching

Since descriptive analysis cannot sufficiently address the objective of the study, advanced econometric analyses have to be conducted. This is so because descriptive analysis does not keep the effect of the other covariates constant. Hence, a highly developed econometric model is required to identify net socio-economic impact of internal displacement households.

Specifically, logistic regression model was used to estimate the matching of the propensity score for the displaced and host households. The results are presented in Table 3 which shows that estimated model appears to perform well for the intended matching exercise. The pseudo-R^2 value is 0.1020. A low R^2 value shows that treatment (displaced) households do not have many distinct characteristics in general and as such finding a good match between displaced and non-displaced households becomes easier.

As can be seen from the same table, the phenomenon of displacement was significantly influenced by explanatory variables such as family size, price of goods and service, and land size. Households that have the largest family size were negatively and significantly affected due to internal displacement. In addition, the results demonstrate that the price of basic needs has significantly affected the socioeconomic performance of internally displaced households. Households who have lived in the conflict area and nearer to the border line of Meskan and Mareko district were more likely to be internally displaced than those living far from the conflict area.

Table 3: Logistic Regression Results

Logistic regression				
Treat	Coef.	Std. Err.	z	P>|z|
Sex	-0.35	0.22	-1.58	0.114
Age	-0.03	0.06	-0.43	0.67
Family size	0.13	0.04	3.2	0.001
Production	2.48	0.55	4.52	0.00
Land size	0.37	0.12	3.02	0.003
Age	-0.06	0.09	-0.64	0.519
Education level	-0.001	0.01	-0.1	0.923

Constant	-0.45	1.54	-0.3	0.767

Source: Own survey data (2021)

Note: N = 613; LR chi2 (11) = 81.64; Prob > chi2 = 0.0000; Pseudo R^2 = 0.1020. Categorical variables are dichotomized for regression purpose.

4.2.2. Estimation of the effect of treatment on treated (ATT)

To examine the socio-economic impact of internal displacement on displaced and host household, PSM model was estimated. The results of are presented in Table 4**.**

Table 4: PSM Results ATT of Displaced Households

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
Income^	ATT	8.46	9.21	-0.75	0.12	-15.34***
Wage^	ATT	7.54	8.21	-0.67	0.12	-14.33***
Consumption^	ATT	8.43	9.15	-0.72	0.12	-14.33***
Production	ATT	0.75	1.40	-0.65	0.11	-8.19 **
Unemployment rate	ATT	1.78	1.41	0.37	0.11	3.47*
Access to health care	ATT	0.21	0.77	-0.56	0.12	-6.64**
Access to education	ATT	0.26	0.80	-0.54	0.12	-5.49**

Source own computation, 2021,
Note: ***, ** and * denote significant variables at 1%, 5% and 10% respectively
Note: ^ Denotes that the variable is in its natural logarithmic form. Categorical variables are dichotomized for regression purpose.

Impact on total household annual income: Income is one of the most widely used proxy measures of economic performances. In this study, the average treatment effect on treated was computed by using kernel-based matching and the replication option performs the bootstrapping 100 times. The result shows that the annual income of internally displaced household was lower than the annual income of the host households (8.46 vs. 9.21). This variable is statistically significant at 1% (t = 15.34). After controlling for differences in characteristics of the internally displaced and host households, it was found that on average, internally displaced households had a decreased in annual income by 746.3% due to internal displacement. This finding reinforce Ibáñez and Moya (2010) which document that displaced households have difficulty in generating incomes and survive on expensive copying mechanisms.

Impact on household wage: There were substantial differences in wages among internally displaced and host households. This could occur because a household of relocated workers may originate from a poorer, rural area with relatively lower educational attainment, which could account for some of the observed disparity. This is consistent with the finding of Libenza et al. (2014).

The result presented in Table 4 also shows that the average wage of the displaced household was lower than the wages of the host households (7.54 vs. 8.21) and it is statistically significant at 5% (t= -14.33). In addition, wage of internally displaced households is decreased by 67.31% due to the phenomenon of internal displacement. This implies that internal displacement phenomena had a highly negatively affected household wage.

Impact on household consumption: The result documented in Table 4 also shows that the consumption of internally displaced households has been significantly reduced. Here, consumption was transformed to logarithmic form so that the effects can be interpreted as

changes in percentage points of consumption (8.43 vs. 9.15). Displaced household has low consumption to compare to host households by 72.1 per cent due to the phenomenon of internal displacement at a significant level of 1% (t = -14.33). This finding is consistent with Cazabat (2018) which argue that internally displaced households face server economic challenges as a result of displacement and they face these challenges in the long period of time, often spending many years and or even decades. The authors further contend that shocks following internal displacement have serve effects on the long-run earning prospects of displaced household standard economy stress utility maximization based on consumption.

Impact on household production: Further evidence from Table 4 shows that the impact of internal displacement on displaced households' production levels differs significantly and negatively from that of host households (0.75 vs. 1.3). At the significance level of 5% (t = 8.19), the phenomenon of internal displacement has specifically resulted in a fall in the household's level of production by 65.3% percent as compared to host households. This conclusion is consistent with the findings reported by Kalindro (2014).

Impact on household unemployment: Table 4 shows that, compared to the host households, the displaced household had a significantly higher unemployment rate (1.78 vs. 1.41), with a statistically significant difference at 5% (t=3.47). When internally displaced households are compare to host households, the average treatment on the treated (ATT) on unemployment has increased by 37.2% as a result of the internal displacement phenomena.

Impact on access to health care: According to Table 4, there is a 56.4% reduction in the average treatment effect of displaced households on those receiving treatment for access to healthcare in the research area. This difference is significant at the 5% level (t = 6.64). This suggests that it is harder to get free basic health treatments at a nearby clinic due to the decrease in access to healthcare. Displaced households also had to cover the cost of more sophisticated medical care and prescription drugs received from facilities outside the settlement camp. This bolsters the arguments made in Cazabat (2018).

Numerous participants from the nearby neighbourhood said that they lacked access to free healthcare, and the average cost is still rising. The majority of the time, displaced households in the Meskan and Mareko districts flee their houses since staying put would seriously jeopardise their safety. Their only chance to protect their lives and avoid violence was to leave their home. Under such conditions, internal displacement may have a negative impact on the household in the research area's physical and emotional well-being, especially if it is unplanned, poorly managed, or lasts a long time. This result validated the arguments made by Nouri (2019).

Impact Estimation on Access to Education: Due to the displacement problem, it has been discovered that internal displacement has a major and detrimental influence on displaced and host households' access to education. Children who are displaced experience disruptions in their education as well as a prolonged period of time spent apart from their teachers, classmates, and familiar school setting. They must make up missed time and deal with the stress and anguish of being uprooted when they are able to return to school in their host community or in a camp. In particular, Table 4 indicates that the internal displacement phenomena significantly affects a household's ability to acquire education (0.261 vs. 0.79), with (t = 5.49).

Practically all children who have experienced displacement have lower rates of enrolment, achievement, and dropout. The primary causes of educational implications are loss of revenue,

loss of paperwork, and inadequate or nonexistent schools. Since many of the children who are moved have already experienced trauma, disrupting their education might worsen their psychological instability and have an adverse effect on their mental health. It can negatively impact social life both immediately and over time by widening gender gaps and weakening social cohesiveness. In situations when resources are already limited, the influx of internally displaced households has been linked to overcrowding in educational facilities and a decline in the standard of education for all students. These results corroborate the discussion in Kovac et al. (2022).

4.2.3. Checking for the spill-over effect of internal displacement

Table 5 illustrates a spill-over effect of internal displacement phenomenon on the household's annual income, wage, production, and unemployment. However, when additional covariates are taken into account, the other factors do not exhibit a spill-over effect.

Table 5: The Spill-over effects internal displacement phenomenon

variable	Coef.	Std. Err.	T	P>|t|	[95% Conf. Interval]
Income ^	-0.23	0.06	5.54	0.001***	[-0.16 -0.09]
Wage ^	-0.07	0.06	2.18	0.038**	[-0.19 -0.05]
Consumption^	-0.07	0.06	1.18	0.238	[-0.19 0.05]
Production	-0.12	0.07	4.34	0.021**	[-0.16 -0.12]
Unemployment	0.04	0.07	2.60	0.041*	[0.09 0.18]
Access to education	0.09	0.07	1.37	0.17	[-0.23 0.04]
Access to health care	0.04	0.06	0.61	0.541	[-0.08 0 .16]

Source: From regression outcome (2021)

Note: ^ Denotes the variable is its natural logarithmic form

After controlling for differences in characteristics of the internally displaced and host households, it was found that the spill-over effect on annual income was 23 % fall due to internal displacement (the value in logarithmic form). Internal displacement phenomenon affects the host-community social network and socio-economic interaction, which leads to decrease income of host-community.

Table 5 also indicates that the spillover effect of internal displacement on the level of host-household production was a 12% decrease. This shows that internal displacement had affected the production level host-households which could be due to shortage of agricultural and industrial inputs such as the access to fertilizer and interaction of the work network. Wage of the host household also decreased by 7%, implying that the phenomenon of internal displacement negatively affected the wage of the host-community. The spillover effect internal displacement on unemployment on host household was also increase by 4 % due to internal displacement.

4.2.4. Robustness Check

The basic issue in testing sensitivity is to check whether the treatment effect is due to an unobserved factor or not. Rosenbaum (2002) proposes Rosenbaum bounding approach and Mantel-Henzel approach to check the sensitivity of the estimated ATT. e^{γ} **(**Gamma) = log of odds of differential due to unobserved factors where Wilcoxon significance for the continuous variable and level for each significant outcome variable is calculated.

Table 6: Robustness Check for the average treatment effect of the outcome variable

Variables	$e^{\gamma} = 1$	$e^{\gamma} = 1.5$	$e^{\gamma} = 2$	$e^{\gamma} = 2.5$	$e^{\gamma} = 3$
Income^	p< 0.000	p< 0.000	p< 0.000	p< 0.000	p< 0.000
Wage^	p< 0.000	p< 0.000	p< 0.000	p< 0.000	p< 0.000
Consumption^	0.003586	9.90E-06	2.60E-08	7.30E-11	2.30E-13
Production	4.70E-11	1.10E-16	p< 0.000	p< 0.000	p< 0.000
Unemployment	2.70E-09	4.70E-15	p< 0.000	p< 0.000	p< 0.000
Access to education	p< 0.000	p< 0.000	p< 0.000	p< 0.000	p< 0.000
Access to health care	4.20E-12	p< 0.000	p< 0.000	p< 0.000	p< 0.000

Source: From own regression results (2021)
Note: ^ Denotes that the variable is in its natural logarithmic form

Table 6 shows that the critical level of e^{γ} (first row), at which the causal inference of significant internal displacement impact has to be examined. As noted by Hujer et al. (2004), sensitivity analysis for insignificant effects is not meaningful and is therefore not considered here.

Given that the estimated internal displacement effect is negative for the significant outcomes, the lower bounds under the assumption that the true treatment effect has been underestimated were less interesting as noted by Becker and Caliendo (2007) and, therefore, not reported in this study. Rosenbaum bounds were calculated for internal displacement effects that are negative and statistically significantly different from zero. The first column of the Table 6 shows those outcome variables that bear the statistical difference between internally displaced and host households. The rest of the values which correspond to each row of the significant outcome variables are p-critical values (or the upper bound of the Wilcoxon significance level – Sig + for the continuous outcome variable and the Mantel-Henzel upper bound significance level for the categorical variable) at different critical value of e^{γ}.

The findings show that the inference regarding the impact of the internal displacement crisis remains unchanged, even when internally displaced and non-displaced families have up to 20% (3) difference in their odds of being addressed in terms of unobserved variables (see Table 6). For all outcome variables estimated at different levels of the critical value of the result, the inference regarding the effect of internal displacement remains unchanged. However, there is a difference of up to 200 percent (3) in the displaced and host communities' odds of receiving treatment in terms of unobserved covariates.

In other words, all outcome variables estimated at different critical value points have p-critical values that are significant, showing that we have considered pertinent covariates that influenced both participation and outcome variables. Even though we set a much higher value than 3, which is higher than the value established in other literatures, which is typically 2 (100%), we were unable to obtain the critical threshold, where the calculated ATT is questioned. We can therefore infer that there pure impact of internal displacement and unobserved selection bias is not significant influences on our impact estimates (ATT).

5. Conclusion and Recommendations

Based on data collected from 613 households in Meskan and Mareko districts in Gurage zone, Ethiopia, this study has examined the impact of internal displacement on both displaced and host households. The study found discovered that internal displacement has significant effects on household annual income, consumption, wage, access to education, access to health care, as well as level of production. In particular, the displaced household's annual income had decreased by about 74%, and the host households' income had decreased by roughly 23.3% as a result of internal displacement. Additionally, unemployment rates increased for the displaced and host households by about 37.2% and 4.08% respectively.

Based on the findings the study forwarded the following recommendations: First, the government must first make it easier for displaced households to return to their hometown and make up for any property damage. Second, the government should help displaced households create jobs by providing short-term trainings and easing loan access so they can start up again. Third, in order to establish long-term peace and security in the area, the government must work with the relevant organisations to swiftly address the cause of internal displacement. Fourth, public policies should prioritise lowering the costs of public services or providing subsidies to lessen the negative effects of internal displacements on both displaced and host households.

Given that older people, women, and children are frequently the victims of internal relocation, these groups in society should receive considerable attention. Lastly, as forced migration hinders national development and presents particular difficulties in formulating public policy, it must be tackled at the grassroots level. Such a thorough examination of the socio-economic impacts of internal displacement could aid in directing government relief initiatives. Therefore, considering the dynamics of displacement in various situations, more research on this is crucial and becoming increasingly urgent.

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