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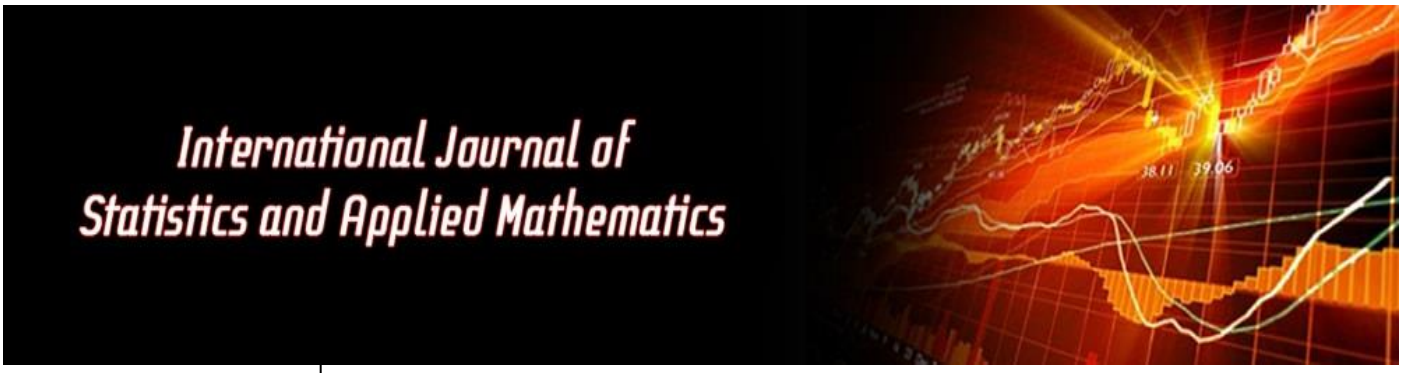

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Statistical analysis of socio-economic determinants of internal migration in Somalia using logistic regression approach

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Abstract
Internal migration refers to the situation in which people prefer to live in another city of the country because of the social, cultural and economic problems in the city they live. Internal migration leads to imbalances in population distribution, irregular urbanization, unemployment in urban area, inadequate housing, low paid jobs, and limited access to social services such as health and education facilities. Owing to this situation, this article analyzed the socio-economic factors affecting internal migration in Somalia using logistic regression.

This study used secondary data from a cross-sectional population estimation survey conducted in 2014 on internal migrant households who migrated within Somalia in the last ten years at the time of the survey. The study found that rural resident households were more likely to migrate than urban resident households. Household heads, who have no education background, were significantly more likely to migrate than educated headed households, and unemployed headed households were more likely to migrate than employed. Sex and land ownership were found not significantly associated with internal migration. Therefore, developed based interventions are important to improve the socioeconomic status of the household and are needed to reduce the incidence or prevalence of internal migration.

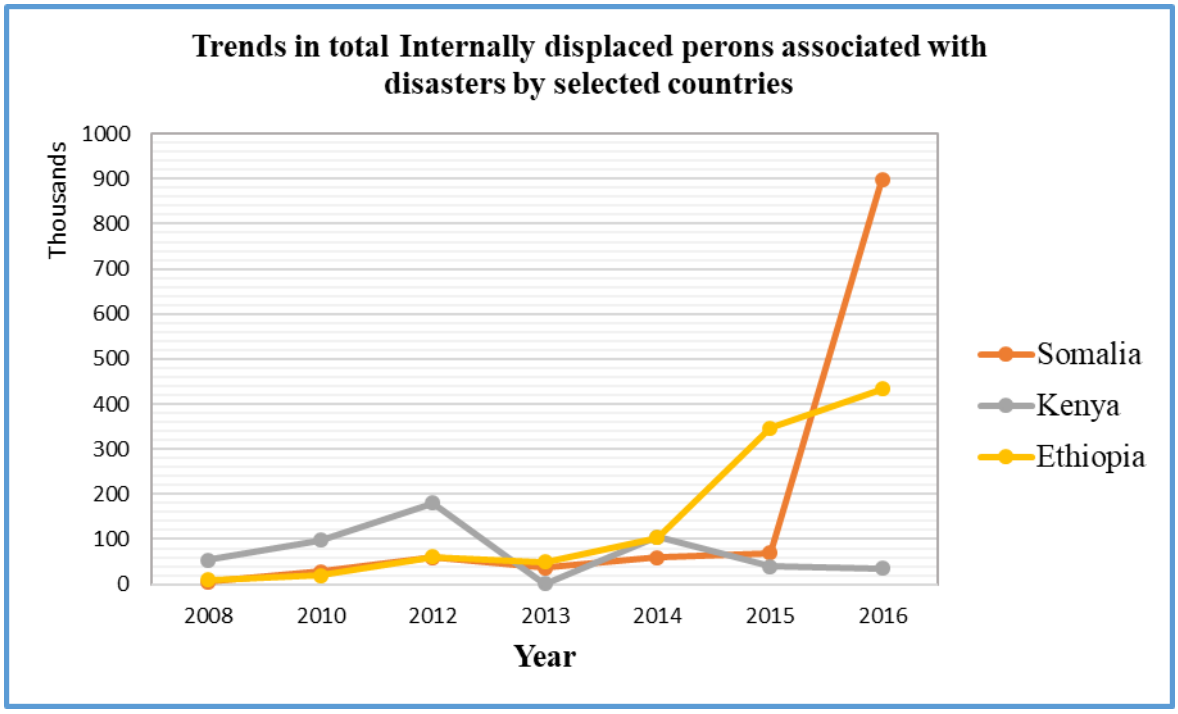
Keywords: Internal migration, Chi square test, logistic regression

1. Introduction

Somali Arid and Semi-Arid Lands make up more than 80 percent of the country's land mass and are prone to extreme weather conditions, including periods of extended drought, highly erratic rainfall and strong winds. In terms of livestock, low rainfall makes much of the country suitable only for nomadic herding. During the seasons of drought, pastoralist families move to the less-affected areas in search of greener pastures for their livestock. Conversely, heavy rains, mainly in the Eastern Ethiopian highlands, raise the water levels of major rivers, often resulting in flooding that leads to deaths, displacement, and destruction of livelihoods for the Somali communities affected. Floods are mainly experienced in the riverine and agro-pastoral zones along the Shabelle and Jubba rivers (OCHA, 2013) [16].

Internal displacement was estimated around 2 million during the 1990s, with the effects of a severe drought during the 1992-93 emergency and others fleeing for safer areas in urban centers in the country (Hammond, 2014) [7]. Furthermore, the famine has resulted in a large number of rural population migrated to urban cities, particularly Mogadishu, to access humanitarian assistance (Achour & Lacan, 2012) [1].

Somali community being traditionally pastoralists and agro-pastoralists, the livelihood is derived from rearing livestock and farming. The Somalia famine of 2011 caused high levels of forced migration, with around a quarter of the population displaced within the country (Lindley, 2014) [12], resulting in large-scale mortality, morbidity, and population displacement and decimated over 70% of the pastoral livestock particularly in the southern regions of Somalia in 2011-2012 (Ali, 2018) [2]. Internal migration has been increasing in Somalia over some years due to natural disasters such as frequent droughts or floods. According to World Bank data for World Development Indicators (WDI) in 2016, the number of internal migrants that associated with disasters in Somalia was two times higher than Kenya and Ethiopia combined Figure 1 presents the trends in total internally displaced persons associated with disasters for Somalia, Kenya, and Ethiopia from 2008 to 2016.



Author's computation by World Bank data

Fig 1: Internal migrants by selected countries

The migration studies have always been considered important topics over many years. However, the empirical work on internal migration is limited as far as Somalia is concerned. Previous studies on this topic in the context of Somalia have largely ignored the role of socio-economic factors affecting internal migration, and hence their results are subject to misspecification bias. According to the Somalia National Development Plan (NDP2017/19) mission statement, the government planned to regularize migration and make a safe and successful enterprise for migrants that may benefit themselves and the country. The internally displaced people bring more pressure to the urban cities and will limit access to basic services such as clean water, education or health, as well as inadequate access to food.

Therefore, there is a need to investigate socio-economic factors affecting internal migration in Somalia in order to reduce internal pressure for people to migrate to urban cities. The current study addresses this shortcoming by extending the analysis to clearly address internal migration by using logistic regression analysis in order to execute an in-depth investigation of the research topic. Furthermore, since limited empirical studies are available for Somalia on internal migration at household level, this study provides in-depth statistical analyses of data on internal migrants in Somalia in respect to socioeconomic and demographic perspective.

2. Review of literature

There is no single theory widely accepted by social scientists when it comes to internal migration phenomenon as research on migration is primarily interdisciplinary. However, researchers have revealed that the tendency of young persons to migrate could be consistently higher than other age groups when the area of origin is rural (Greenwood & Hunt, 2003). This type of migration from rural settlements to urban areas is almost always permanent. Urban to rural migration also exist; this kind of migration known as back to the land movement, where urban residents decide to leave their congested places to reside in rural areas where they can have a better quality life (Halfacree, 2006) [6]. Such migration flows are found generally in more developed countries, while rural to urban flows are much more typical in developing countries (Todaro, 1980) [18]. Various empirical studies on internal migration of population were conducted in developing countries.

(Melesse & Nachimuthu, 2017) [14] identified that less productivity of agriculture, environmental degradation, poor social services, and insufficient of land in rural areas as the major push factors of migration. The authors found some effect of pull factors that drew rural societies to urban settings such as education, health services, job opportunities, and other urban services. (Sharma, Kone, Liu, & Mattoo, 2016) [17], conducted research on internal borders and migration and found that part of the state borders were critical impediments to internal mobility. They found that the impact of state borders differs by education, age and reason for migration, it is constantly large and significant. They have stressed the role of the state borders as significant impediments to internal mobility. But the word mobility is deferring from internal migration because mobility can be a permanent or temporary change of place of residence, while internal migration is a permanent change of place residence. Therefore, the current research was concentrated on internal migration as per described by demographers and population scholars.

(Jorgji, 2015) [10], conducted an empirical examination of determinants of "why do women migrate internally" and discovered the traditional significant variables influencing migration include mobility by age, level of education, and work status. (Kanwal, Naveed, & Khan, 2015) [11] conducted a study about socio-economic determinants of rural-urban migration by using logistic regression to estimate the impact of socio-economic determinants on rural to urban migration. They found that there is a positive and significant relationship between sex, age, and employment, whereas marital status was negatively related to rural-urban migration. (Tsogtsaikhan, 2014) [19] studied the behavior of internal migration and estimated the influencing factors of the migrant's decision to return and estimated the duration of the internal migration. (Awuse & Tandoh-offin, 2014), conducted

an investigation of the influence on internal migration on development and found that there is a positive relationship between internal migration and financial advancement in light of the fact that they make accessible and open doors for access to prompt and adaptable work constraints. (Msigwa, 2013) [15] and (Islam, Rahman, & Hossain, 2013) [9] studied that sex, age, head of household, household income, household family size, marital status, level of education, and skill level were significant and considered to be the determinants of migration in Tanzania. (Ishtiaque & Ullah, 2013) [8] studied on the status of rural-urban migration and found that people migrate to cities mostly for economic reasons. (Amare, Hohfeld, Jitsuchon, & Waibel, 2012) [3], investigated the effects of rural to urban migration on economic development by using probit logistic regression model and found that there was a higher probability of migration for the households that have better-educated members. It also revealed that the main factors for migration was poverty. (Haider, 2010) [5] examined rural-urban migration and found that the migration process has been driven by economic and social.

2.1 Conceptual framework

The decision of household to migrate from one region to another within the country is normally influenced by many variables which needed to analyze in order to minimize the negative impacts of internal migration. In Figure-2 a conceptual frame work has been presented, which was operationalized in this study in order to achieve the objectives of the study.

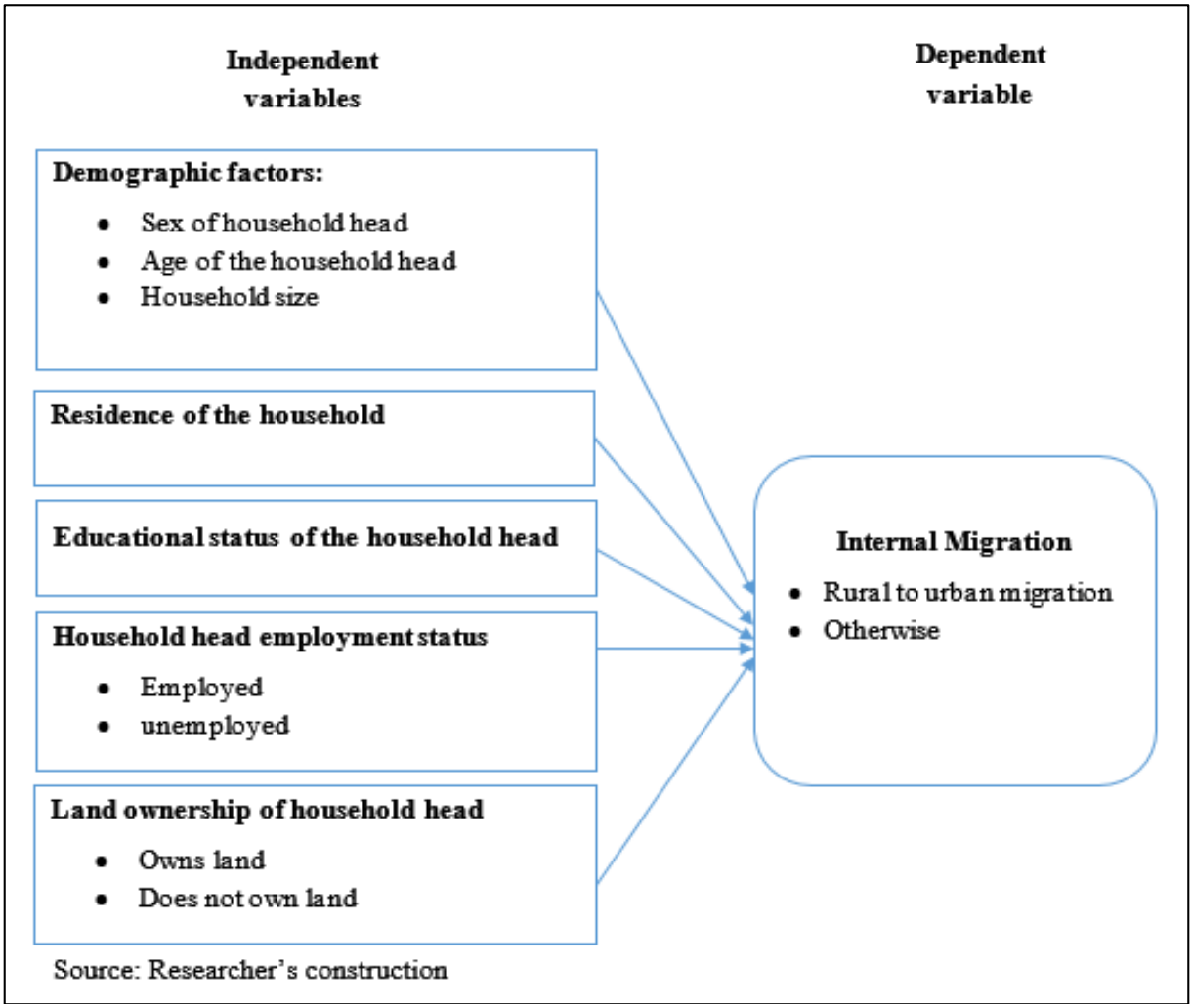


Fig 2: Conceptual Framework

3. Methodology

The Federal Republic of Somalia is located in the Horn of Africa and its boundaries are the Gulf of Aden to the north, Djibouti to the north-west, Ethiopia to the west, Kenya to the south-west, and the Indian Ocean to the east. Somali has the longest coastline on Africa's mainland and the Middle East, its coastline is more than 3,333 kilometers in length. According to the population estimation survey 2014, Somali population estimated around 12.3 million inhabitants. The total fertility rate of Somalia is 6.08 children born per woman (2014 estimates) and the annual growth rate of 1.75% per annum with a median age of 17.7 years.

The sample employed in the study has been limited to the households, who have migrated with the regions of Somalia for both economic and noneconomic reasons, irrespective of their previous district of residence. This study only looks at household heads who migrated within the last ten years at the time of PESS survey 2014, since it was difficult to trace the motivations for those who migrated over last ten years ago as significant changes in their individual characteristics as well as the characteristics of their destination places.

The data were obtained from the population estimation survey while its sampling frame were comprised of defined clusters of enumeration areas for the urban areas, settlements for rural areas, camps for IDPs and water points for nomadic areas. These were the area primary sampling units;

Table 1: Sample selection

No.	Frame	PSU (primary sampling units)	Sample selected
1	Urban	6750	868
2	Rural	6519	1104
3	IDP	107	28
4	water point	5332	735

Source: Author's own construction by PESS, 2014 data

The overall sample size selected was 2,735 PSU and the selection within the strata was based on probability proportional to size (PPS) taking into account the measures of size (PESS, 2014). The analysis of this study included 14212 households who internally migrated from or to urban, rural, or IDP in the last ten years prior to the survey.

3.1 Variables

Since the aim of the study was to analyze the socio-economic factors affecting internal migration, this study used the number of household internal migration i.e. rural to urban migration, urban to rural migration, rural to rural migration, and urban to urban migration as a dependent variable. If a household migrated from rural to urban, the dependent variable was considered as "1". On the other hand, dependent variable took the value of "0" when the household migrated from urban to rural, rural to rural, or urban to urban. Additionally, study used seven different explanatory variables in this study so as to determine the factors that affect internal migration. The details of these variables have been given in Table-2.

Table 2: Measurement of the variables

Dependent variable	Codes	Description
Internal Migration	Internal_migration	The possible outcome of internal migration is either: 1 = Rural to urban migration and 0 = Otherwise
Independent Variables	**Codes**	**Description**
Sex	sex	Whether the household is headed by a male or female: 1 = Male and 2 = Female
Age	Hhage	Age of the household head (years)
Household size	Hhsize	Number of family members in the household
Residence	resid	Type of the previous Household place of residence. 1= Rural(include nomadic) and 2 = Urban(Include IDP settlement)
Education	edu	Educational background of the household heads categorized into; 1 = None (Have no educational background) and 2 = Educated(at least primary education)
Employment status	empl	Household head employment status. 1 = Employed and 2 = Unemployed
Land ownership	land	Land ownership of the household 1= Owns land and 2= Does not own land

Source: Author's construction

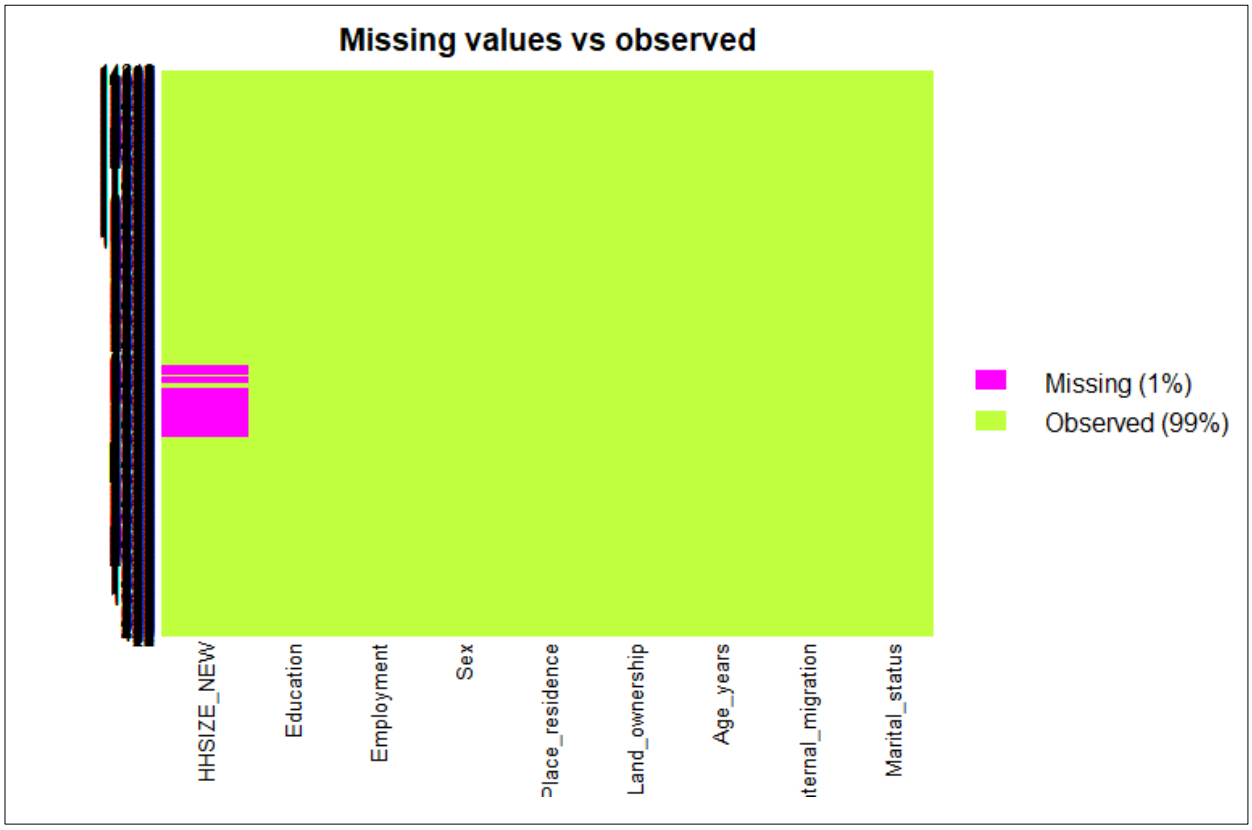
To examine the association between the dependent variable (internal migration) and independent categorical variables; sex, place of residence, education, employment status, and land ownership, the chi-square test of independence was conducted before the logistic regression analysis to check the association between these independent categorical variables to the dependent variable. If the probability of the presence of the characteristic of interest is π, the probability of absence of the characteristic of interest is $1\text{-}\pi$. The effect of independent variables is usually explained in terms of odds since logistic regression calculates the probability of an event occurring over the probability of an event not occurring. Since the outcome of logistic regression is binary, the dependent needs to be transformed by using logit transformation which gives the following:

$$\text{logit}(y) = \log(\text{odds}) = \log\left(\frac{\pi}{1-\pi}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots + \beta_k X_k + \varepsilon$$

where π is the probability of an event occurring .The binary logistic model was used to analyze internally migrated households by grouping into two categories according to rural to urban migrants and other migrants (rural to rural, urban to rural, and urban to urban). The response variable y is internal migration. If household migrated from rural to urban then (y = 1) and if the household migrated but not rural to urban then (y = 0). Before using logistic regression, Chi-square test was conducted to check the association between the independent categorical variables and the dependent variable.

3.2 Handling missing data

For missing data, the imputation technique was applied using R package "Amelia1". It is a visual way to check for missing data, which enables to plot all the variables in the study by grouping into missing and observed with their respective percentage in the data. Figure-3. demonstrates that there were 1% of missing values and 99% of non-missing observations for all variables. It also illustrates that only HHSIZE_NEW has missing values. After replacing the missing values, each variable in the dataset has 14212 observations with no missing values. This cleaned data then subjected for the descriptive and inferential analysis.



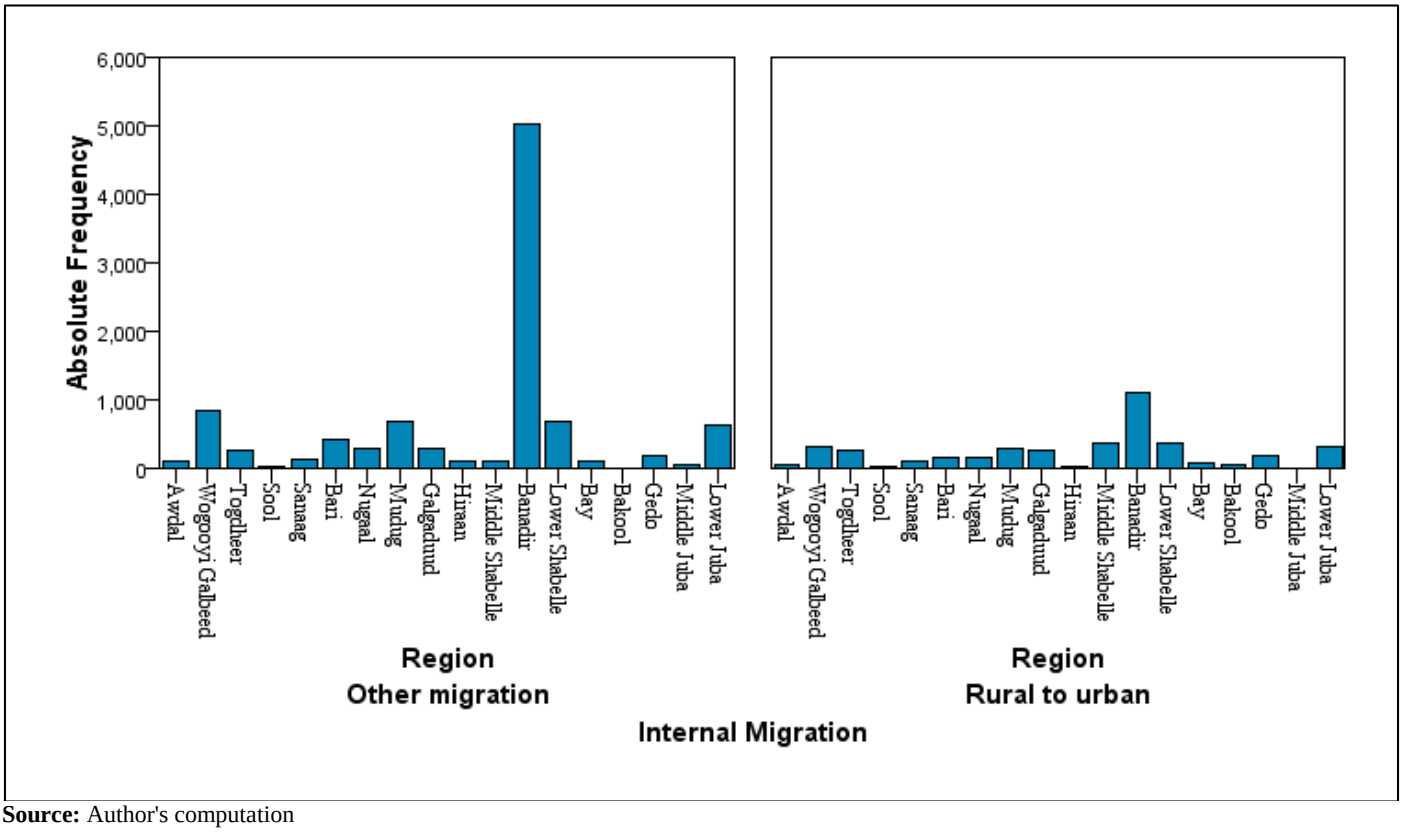
Source: Author's computation

Fig 3: Plotting missing values

4. Results and discussion

4.1 Distribution of internal migrants by region

The distribution of household internal migrants by region are presented in Fig-4 the most frequently observed category region was Benadir (43.4%), followed by Wagooyi Galbeed, Lower Shabelle, Mudug, and Lower Juba, (8.2%), (7.4%), (6.9%), and (6.6%) respectively.



Source: Author's computation

Fig 4: Internal migrant households by region

While, Hiraan, Bakool, Sool, and Middle Jubba have observed the lowest migration (0.9%, 0.5%, 0.4%, and 0.3%) respectively. Seventy percent of the households belonged to other migration, while thirty percent of the households were migrated from rural to urban.

4.2 Distribution of internal migration according to demographic variables

Table 3 present the distribution of household head age and household size. The average household age was found to be 39 years with standard deviation of 13 years and the average household size was found to be 7 members with standard deviation of 2.694.

.

Table 3: Summary statistics for age and household size

Variable	N	Min	Max	Mean	SD	SE_M	Skewness	Kurtosis
hhage	14212	15	95	39.48	12.849	0.108	0.897	0.862
hhsize	14212	1	23	6.55	2.694	0.023	0.790	2.114

Source: Author's calculation

Table 4 presents the distribution of internal migrants by the sex of the household head, household head previous residence, household head education, household head employment status and household head land ownership.

It is clear that migration of male-headed households were more (75.9%) than female-headed households (24.1%). For other migration, male-headed households were more (76.2%) compared to female-headed households (23.8%). For rural to urban migration, male-headed households were (75.2%) while female-headed households were (24.8%). 85.9% migrant households had urban place of residence while 14.1% belonged to rural. For other migration, urban households were more (88.5%) compared to rural households (11.5%). For rural to urban migration, urban households were (79.8%) while rural households were (20.2%). 60.8% household heads had no education background compared to those who have an education background or at least attended primary school 39.2%. For other migration, non-educated household heads were 54.9% while educated households were 45.1%. For rural to urban migration, non-educated household heads were more 75.0% compared to educated households 25.0%. 65.1% of the internal migrant household heads were employed and 34.9% of the household heads were unemployed. For other migration, the employed headed households were 66.6% while 33.4% were unemployed headed households. For rural to urban migration, 61.6% headed households were employed compared to 38.4% of the unemployed headed households.

Table 4: Distribution of internal migration according to demographic variables

		Internal Migration		
Variable		**Other migration**	**Rural to urban**	**Total**
sex of the household heads	Male	76.2%	75.2%	75.9%
	Female	23.8%	24.8%	24.1%
Household's previous residence	Urban	88.5%	79.8%	85.9%
	Rural	11.5%	20.2%	14.1%
household head education	Educated	45.1	25.0	39.2
	Non educated	54.9	75.0	60.8
household head employment status	Employed	66.6	61.6	65.1
	Unemployed	33.4	38.4	34.9
household land ownership	Own Land	48.7	48.5	48.6
	No land	51.3	51.5	51.4

The results show that there were 51.4% of the internal migrant household heads, who did not own land as compared to 48.6% who owned land. For other migration, the percentage of the household heads, who did not own land was 51.3% compared to 48.7% who owned land. For rural to urban migration, the percentage of the household heads, who did not own land were 51.5% while those who owned land were 48.5%.

4.3 Test of the Associations between migration and various Categorical Variables

Chi-square test of independence was used to examine the association between the dependent variable (internal migration) and independent variables- sex of household head, household place of residence, household head education, household head employment status, and land ownership of the household. The results are presented in table- 5 which show that there is no association between sex and internal migration (χ^2 = 1.710, df =1 with p = 0.191). Regarding the association between the household place of residence and internal migration, it is concluded that there is an association between internal migration and household place of residence (χ^2 = 181.131, df =1 with $p < .001$).

Table 5: Test of the associations for the categorical variables

		Migration		
Variable		**Chi square**	**d.f.**	**p-value**
Sex	Male	1.710	1	0.191
	Female			
Place of residence	Urban	181.1311	1	0.00
	Rural			
Educational status	Educated	500.828	1	0.00
	Uneducated			
Employment status	Employed	32.772	1	0.00
	Unemployed			
Land ownership	Owns land	0.57	1	0.811
	Does not own land			

Source: Author's computation

Regarding the association between household head education and internal migration, it is concluded that there is an association between internal migration and household education ($\chi^2 = 500.828, df = 1$ with $p < .001$). Regarding the association between household head employment status and internal migration, it was found that there is a dependency between employment and internal migration ($\chi^2 = 32.772$, $df = 1$ with $p < .001$). Regarding the association between household land ownership and internal migration, it was found that there is no dependency between land ownership and internal migration ($\chi^2 = 0.057$, $df = 1$, and $p = .811$).

4.4 Model Diagnostics

4.4.1 Absence of multicollinearity

Table- 6 presents the results of the variance inflation factor for the variables. VIF (Variance Inflation Factor) were calculated to examine the presence of multicollinearity among predictors. If the VIF value is of 10 or higher, there is an evidence of multicollinearity and further investigations may be done on the data. The VIF values for all the variable are less than 10 implying there is no evidence of multicollinearity.

Table 6: Variance inflation factors for the predictors

Variables	**hhage**	**hhsize**	**resi**	**empl**	**edu**
VIF	1.13	1.10	1.01	1.08	1.07

Source: Author's calculation

4.4.2 Hosmer-Lemeshow test (HL test)

The Hosmer Lemeshow test evaluates whether observed event rates match expected event rates in subgroups of the model population. The hypotheses were framed as follows

H_O : There is no significant difference between the observed and model predicted values.

H_1 : There is significant difference between the observed and model predicted values.

The HL statistic assumes sampling adequacy, with a rule of thumb being enough cases so that 95% of cells (typically, 10 decile groups times 2 outcome categories =20 cells) have an expected frequency >5. HL statistic has a significance of 0.558 which means that it is not statistically significant and therefore our model is quite a good fit. Table-7 presents the results of the Hosmer-Lemeshow test.

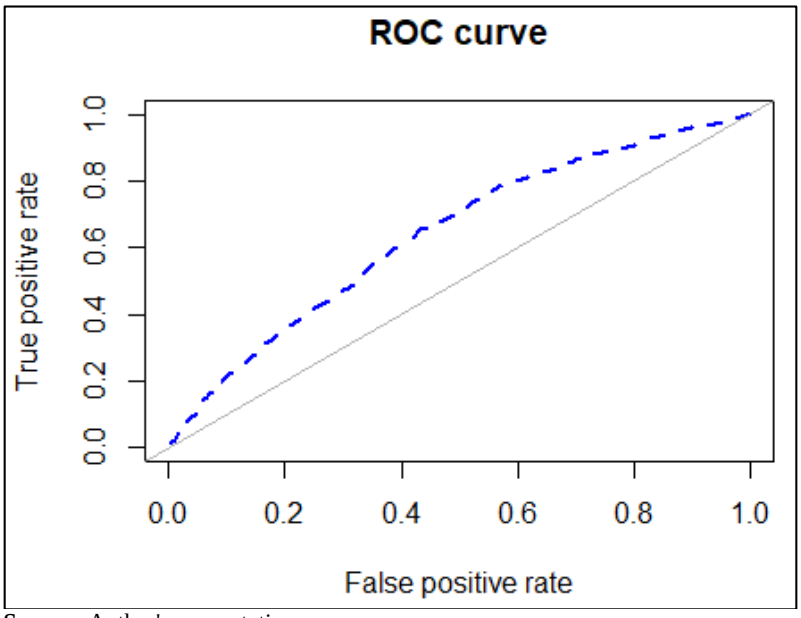
Table 7: Hosmer-Lemeshow Test

Chi square value	**d.f.**	**Significance**
6.801	8	0.558

Source: Author's computation

4.4.3 Receiver operating characteristic (ROC) curve

ROC curve is used to see how any predictive model can distinguish between the True positive rate and false positive rate. R software has been used by employing Random Over-Sampling Examples (ROSE) R package. The package provides functions to deal with binary classification problems in the presence of imbalanced classes to compute the area under the curve (AUC) for the diagnostic ability of binary classifiers. AUC value should be between 0.5 and 1.0. It measures the predictive accuracy of a model. An AUC equal to 0.5 indicates a random classification model and therefore should be greater than 0.5 for a model to be acceptable. The Area under the Curve for this study was 0.641. Therefore, the model was considered reasonably well.



Source: Author's computation

Fig 5: Receiver operating characteristic curve

4.4.4 Results for the Binary Logistic Regression Model

Table 8 presents the summary of the results of the logistic regression. The results reveals that age of the household head, household place of residence, household head education, and household head employment had a significant effect on the odds of the internal migration. McFadden's pseudo-R-squared was calculated to examine the model fit, where values greater than 0.2 are indicative of models with excellent fit (Louviere, Hensher, & Swait, 2000) [13]. The McFadden pseudo-R-squared value calculated for this model was found to be 0.169, hence the model considered well fitted.

Table 8: Binary logistics regression output

Variable		Odds Ratio	95% confidence Interval	Pr(>|z|)
household head's age	Age	1.01	1.00 1.01	<0.0001
Household size	Household size	0.99	0.97 1.00	0.1126
Place of residence	Urban (reference)	1.00		
	Rural	1.95	1.76 2.16	<0.0001
Education status	Educated (Reference)	1.00		
	Uneducated	2.22	2.03 2.42	<0.0001
Employment status	Employed (Reference)	1.00		
	Unemployed	1.17	1.08 1.28	0.0002

Source: Authors computation

The result from Table 8 indicates that the age of the household head was significant. This indicated that the increase in age of the household head, the odds of migration from rural to urban migration increases by approximately 1% and hence it can be concluded that the age of the household has an effect on internal migration.

The probability that the internal migration of the household head of a specified age will be migrating from rural to urban, holding household size, place of residence, educational status, and employment status as constant is given by

$$\rho(X_1 = 1) = \frac{e^{-1.827 + 0.007(1)}}{1 + e^{-1.827 + 0.007(1)}} = 0.14$$

.

The result reveals that household size was not significant at 5 percent level of significance. This may have an effect on internal migration and less likely to influence internal migration.

The results for place of residence indicates that the rural household residents had more than urban households on internal migration. The null hypothesis was rejected and hence it can be concluded that households at their previous place of residence, were 1.95 times more likely to have a chance of being internally migrated than the urban household residence. The probability, that the internal migration of the household in a rural area will be migrating to urban is 0.63 (if we hold age of the household head, household size, educational status, and employment status as constant) is given as

$$\rho(X_3 = 1) = \frac{e^{-1.827 + 0.667(1)}}{1 + e^{-1.827 + 0.667(1)}} = 0.63$$

.

The results for household head education reveals that the non-educated household heads had odds 122% than educated household heads on internal migration. The null hypothesis has been rejected since there is not enough statistical evidence to accept the null hypothesis. Therefore, households who were having no educational background had 2.22 times higher the chance of internal migration than having at least primary education.

The probability that the internal migration of the non-educated headed household will be migrated to urban holding

age of the household head, household size, place of residence, and employment status as constant is

$$\rho(X_4=1)=\frac{e^{-1.827+0.795(1)}}{1+e^{-1.827+0.795(1)}}=0.71$$

The results indicates that the unemployed headed households had 17% more likely to migrate to urban compared to employed headed households. The null hypothesis was rejected since the statistical evidence wasn't enough to keep the null hypothesis. The probability that the internal migration of the unemployed headed household will be migrated to urban holding age of the household head, household size, place of residence, and household head education as constant is;

$$\rho(X_5=1)=\frac{e^{-1.827+0.160(1)}}{1+e^{-1.827+0.160(1)}}=0.38$$

.

Logistic regression output is presented below:

> Intmigration<-glm (Internal_migration ~ hhage + hhsize + resid + edu+ empl, data = imigration, family = "binomial"("logit"))

> summary (Intmigration)

Call:

glm (formula = Internal_migration ~ hhage + hhsize + resid + edu+ empl, family = binomial ("logit"), data = imigration)

Binary Logistic Regression Results:

Model fitted by Standard Maximum Likelihood

Deviance Residuals

Min	1Q	Median	3Q	Max
-1.3526	-0.8671	-0.6191	1.2386	1.9728
Coefficients	Estimate	Std. Error	z value	Pr(>|z|)
(Intercept)	-1.826958	0.075824	-24.095	< 2e-16 ***
hhage	0.007281	0.001602	4.544	5.53e-06 ***
hhsize	-0.012029	0.007581	-1.587	0.112588
resif(rural)	0.667209	0.051695	12.907	< 2e-16 ***
edu(noneducated)	0.795383	0.045002	17.674	< 2e-16 ***
empl(unemployed)	0.159763	0.042613	3.749	0.000177 ***

Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 17251 on 14211 degrees of freedom

Residual deviance: 16570 on 14206 degrees of freedom

AIC: 16582

Number of Fisher Scoring iterations: 4

p < .001, df = 5, McFadden R2 = 0.1688684

95% Confidence Interval

> exp(confint(Intmigration))

Waiting for profiling to be done...

	2.5%	97.5%
(Intercept)	0.1386136	0.1865945
Age_years	1.0041461	1.0104745
HHSIZE_NEW	0.9734371	1.0028034
Place_residence	1.7607520	2.1563193
Education	2.0287977	2.4202328
Employment	1.0791535	1.2753551

5. Discussion of the Findings

In the following, we discuss the findings from the specific objectives of this study and compared them with previous studies on internal migration.

The findings from this research were consistent with the current literature on internal migration. Among demographic variables, age was significant in predicting internal migration. These findings were consistent with the results of (Sharma *et al*., 2016) [17], (Kanwal *et al*., 2015) [11], (Tsogtsaikhan, 2014) [19], and (Msigwa, 2013) [15]. Among the other studies that explored the demographic variables of internal migration, (Msigwa, 2013) [15] found additional demographic variables such as gender, marital status, and household size to be significant in predicting the chance of internal migration, also (Kanwal *et al*., 2015) [11] as well.

Household size was not found significant at 5% level but it has a negative effect on internal migration. Sex of the household head and land ownership were found not to be affecting internal migration. This outcome is different from the results of (Tsogtsaikhan, 2014) [19] and (Msigwa, 2013) [15] who found that marital status, sex, and family size were significant in determining internal migration.

It has been found that place of residence has a significant effect on internal migration. More specifically, households living in rural areas are more likely to migrate than urban households. The findings from this research were consistent with the current literature on internal migration (Tsogtsaikhan, 2014) [19], There were several reasons that motivated rural households to migrate their place of origin to cities permanently; due to population growth with shortage of agricultural land resources in rural areas, frequent droughts, loss of livelihood in both livestock and farmers in rural areas in Somalia for the last decades, and improving stability of destination cities.

The effect of household head's education on internal migration was found to be significant in predicting internal migration. This study found that there is a positive relationship between internal migrations with households having no educational background. In other words, non-educated headed households living in rural areas without employment are more likely to migrate to urban places than

educated household heads. The findings from this research were consistent with the current literature on internal migration (Kanwal *et al*., 2015) [11], (Ishtiaque & Ullah, 2013) [8], (Msigwa, 2013) [15], and (Tsogtsaikhan, 2014) [19].

For the effect of the household head employment status on internal migration, it was found that unemployed headed households, who live in rural areas with no educational background, are more likely to be migrated to the urban cities than employed headed households. The findings were consistent with the current literature on internal migration. Among the economic variables, employment was included in this analysis and was significant in determining internal migration. These findings were consistent with the results of (Ishtiaque & Ullah, 2013) [8], (Kanwal *et al*., 2015) [11], and (Tsogtsaikhan, 2014) [19].

The major push factor that encourages people to leave their homes in the rural areas is the recurrence of droughts in Somalia, which demoralize agricultural activities and cause food insecurity. In the case of urban desirability, there is a common unanimity that the most leading factor is better employment opportunity in the urban areas.

6. Conclusion

When an individual or household is not satisfied with the situation in which he is, then it may fall under the categories of either forced or voluntary migration. The decision of migration depends upon variables like socioeconomic differences between the rural settings and the urban areas as well as the availability of the information about employment in the destinations, but there are some challenges that these migrants face, when they arrive in the cities, like unemployment or low paid jobs which sometimes forced some of the migrants to return to their place of origin.

The current study revealed that the decision of a rural household in Somalia to move for work or education to the urban area is strongly related to household characteristics. Generally, it is rural households with lower socioeconomic status, who are most likely to migrate to the urban settings and there seem to be strong push factors of migration such as poor access to social services, less productivity of agriculture, environmental degradation and insufficient of land in rural areas at a district or regional levels. There are some pull factors that attract people to migrate to the major cities like Mogadishu, the capital city of Somalia which has been found to be a number one destination for internal migrants, this is due to the availability of essential amenities in the city.

The study revealed that household heads had migrated to the city with a view to giving their children a better education since there is a good quality of education and a wide range of facilities are available in the urban area which encouraged them to migrate. Study results also showed that migrants were mainly economic migrants, who moved to seek employment opportunities.

7. References

1. Achour M, Lacan N. Drought in Somalia: a migration crisis. The State of Environmental Migration 2011, N° 06/12, 2012.
2. Ali M. The formation of the Somali National Disaster Management Policy. Retrieved from http://adesoafrica.org/what-we-do/blogs/the-formation-of-the-somali-national-disaster-management-policy-/, 2018.
3. Amare M, Hohfeld L, Jitsuchon S, Waibel H. Rural–Urban Migration and Employment Quality: A Case Study from Thailand. ADB Economics Working Paper Series, 2012, 309).
4. Greenwood MJ, Hunt GL. The Early History of Migration Research Revisited, 2003.
5. Haider SKU. Factors of Migration on Urban Bangladesh : An Empirical Study of Poor Migrants in Rajshahi City, 2010; 30(2):307-323.
6. Halfacree K. From dropping out to leading on? British counter-cultural back-to-the-land in a changing rurality. Progress in Human Geography, 2006; 30(3):309-336. https://doi.org/10.1191/0309132506ph609oa
7. Hammond L. Somali refugee displacements in the near region: Analysis and Recommendations Paper for the UNHCR Global Initiative on Somali Refugees, 2014, 1-22.
8. Ishtiaque A, Ullah MS. The influence of factors of migration on the migration status of rural-urban migrants in Dhaka, Bangladesh. Human Geographies, 2013. https://doi.org/10.5719/hgeo.2013.72.45
9. Islam R, Rahman O, Hossain S. Factors Affecting on Migration to Chapai-Nawabganj City in Bangladesh : Multivariate Approach, 2013; 3(6):273-277. https://doi.org/10.5923/j.economics.20130306.05
10. Jorgji E. Why do women migrate internally ? Empirical analysis of, 2015, (2).
11. Kanwal H, Naveed TA, Khan MA. Socio-Economic Determinants of Rural-Urban Migration in Pakistan, 2015; 4(3):72-85.
12. Lindley A. Questioning "drought displacement": environment, politics and migration in Somalia. Forced Migration Review, 2014; (45):39-43. Retrieved from https://search.proquest.com/docview/1503672920?accountid=9883%5Cnhttp://whel-rimo.hosted.exlibrisgroup.com/openurl/44WHELF_CAR/44WHELF_CAR_services_page?genre=article&atitle=Questioning+%27drought+displacement%27%3A+environment%2C+politics+and+migration+
13. Louviere JJ, Hensher DA, Swait JD. Stated choice methods: analysis and applications. Cambridge University Press, 2000, 1-418. https://doi.org/10.1002/jae.701
14. Melesse B, Nachimuthu K. A review on Causes and Consequences of Rural- Urban Migration in Ethiopia. 2017; 7(4):37-42.
15. Msigwa RE. Determinants of internal migration in Kazakhstan, 2013, 4.
16. OCHA. Key facts and figures for the Somalia Common Humanitarian Fund in 2013. response? Conflict and Health. 2013; 7(1):1-5. https://doi.org/10.1186/1752-1505-7-22
17. Sharma S, Kone ZL, Liu MY, Mattoo A. Internal Borders and Migration in India, 2016.
18. Todaro M. Internal Migration in Developing Countries: A Survey of Population and Economic Change in Developing Countries. (ed. V. Richard A. Easterlin, Ed.) (Vol. I). University of Chicago Press. 1980. Retrieved from http://www.nber.org/chapters/c9668
19. Tsogtsaikhan B. Determinants of internal migration in. 2014.
20. UNDESA. United Nations Department of Economic and Social Affairs. Global Sustainable Development Report, 2013.