

The impacts of industrialization on welfare of expropriated households in Sabata Town of Ethiopia

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ABSTRACT

Land acquisitions for expansion of industries through expropriation have affected means of income generation of evicted people in Ethiopia. The data was analyzed using descriptive statistics and endogenous switching regression. Results showed that the expropriated households have lower total income and higher personal expenditures than the non-expropriated household's. Besides, the total income of the expropriated households was significantly lower than that of the non-expropriated households. Thus, there should be a restoration mechanisms through the implementation of livelihood improvement fund; provision of share stock from company; training of expropriated people at financial accounting and management system, provision of infrastructure and service facilities, and creation of safe environment for the society.

Keywords: acquisition, Ethiopia, expropriation, Sabata, welfare

INTRODUCTION

In developing countries, the share of value-added goods from manufacturing industries increased two-fold between 1992 (18%) and 2012 (35%) due to shifting from dependence on agriculture and local natural resource extraction to industrial led development (UNIDO, 2014). The expansion of manufacturing industries has been responsible for expropriations of households with the resultant negative effect on the welfare of evicted households worldwide. Studies showed that expropriation is staggering worldwide although exact statistics on development induced expropriation is lacking (Parasuraman, 1999). The existence of expropriation was well documented in western countries along with the presence of strong legal systems and effective grievance handling procedures for entitlement of expropriated households (Parasuraman, 1999). Scholars, journalists and human rights activists claimed that internally expropriated persons or development-induced expropriation ensued due to big companies and growth of infrastructures (Feldman & Geisler, 2012). This expropriation resulted in loss of land, which was underestimated and restrained by the consideration of collateral issues of modernization by development institutions.

In general land acquisition for industrialization reduced households' food security, their access to land, increased cost

of land, and change in farming systems. Thus, the vindication of industrialization in poverty reduction made many scholars asked question "can such development be regarded as sustainable development?" (Parasuraman, 1999). So, scholars argue that the coping strategy to avert risk has to be in place for attaining welfare strategy for rural families through off-farm, non-farm, and on-farm activities (Ellis, 2000). This is aggravated by the fact that two-thirds of the world's poorest people directly depend on land for their welfare (Filipe, 2005). The situation in Sub-Saharan Africa is not different from this global scenario (ACHPR & IWGIA, 2017; Siddiqui, 2012).

In Ethiopia, expropriation by development projects become among the key challenges to good governance. Together with natural disaster-induced displacement, man-made-disaster-induced displacement, conflict-induced displacement, and pastoralism related displacement, it has been causing violations of the physical security, welfare, access to land, health, education, and other rights (Mehari, 2017). It had legal backing in which the Ethiopian Investment Commission has been promoting and facilitating development of manufacturing industries (Proclamation No. 769/2012).

Studies conducted on displaced farmers in Mekele Town showed that they have lost their welfare, being deprived and became destitute (Gebregziabher et al., 2014). This was aggravated by the reluctance of the investing bodies to support the displaced farmers as shown in Kombolcha Town of

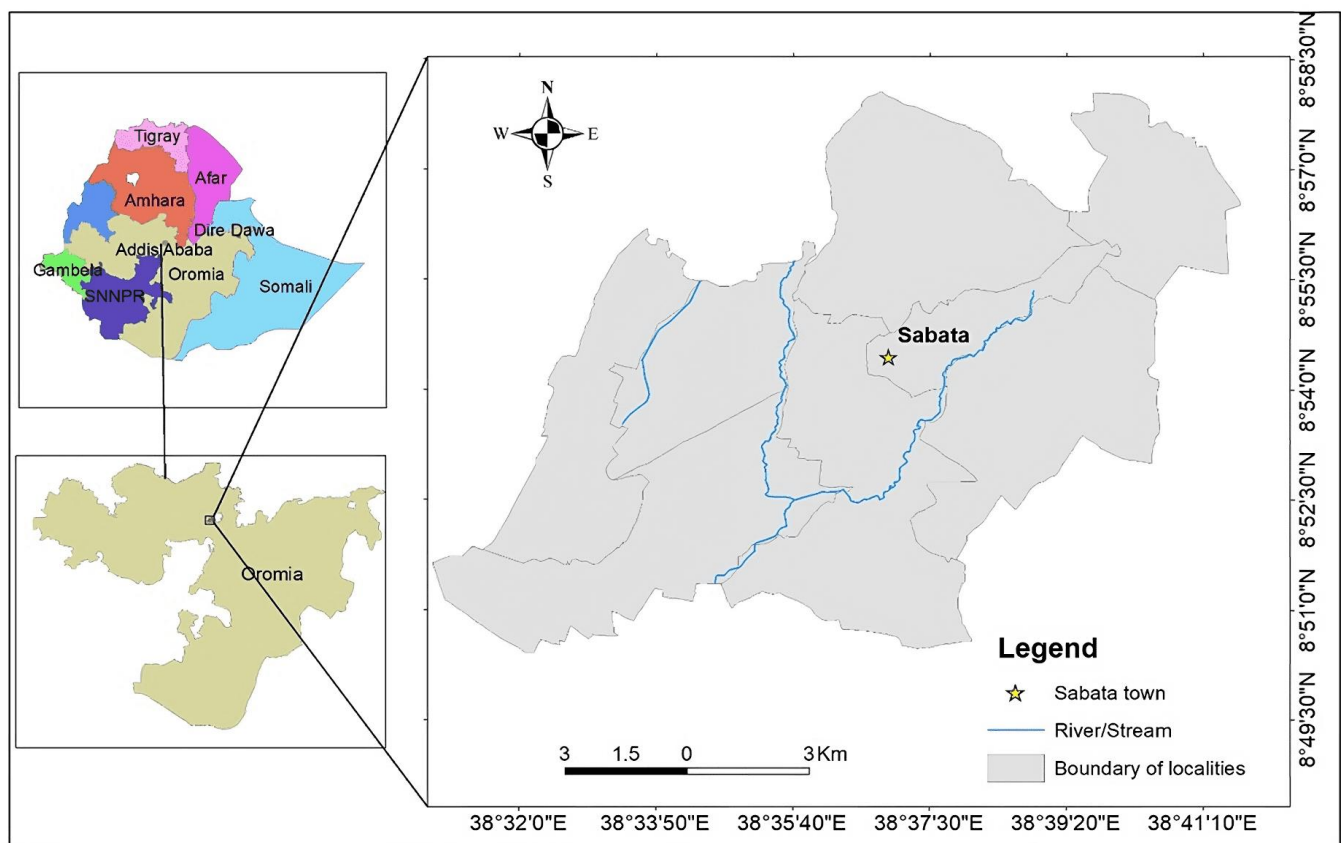


Figure 1. Map of Ethiopia depicting the study area (Source: Authors' own elaboration)

Ethiopia (Belay, 2014) and absence of uniform rehabilitative schemes in the country (Abdo, 2015).

In addition, studies revealed that there is increasing number of actors taking part in the commercialization of land formally or informally, transformation of land use and ways of welfare as result of urbanization. These actors escalate land dispossession from residents and endangered farmer's adaptive strategies of individual orientation in the mildest of competing perception resulting in resistance and struggle between the indigenous and the newcomers as shown in Laga Tafo Laga Dadi Town (Emana, 2014). It has also been evident the study that there was absence of adaptive strategies from the government side for dispossessed farmers and the analysis did not include farmers who totally lost land (displaced). However, unsustainable appropriations of agricultural land for industrialization accompanied with municipal land uses in Gelan-Dukem industry area resulted in a significant and considerable negative socioeconomic impacts on smallholder farmers (Dadi et al., 2016). The previous studies, however, focused only on dispossessed farmers but did not include non-expropriated households and urban residents. They did not also analyze the welfare of the expropriated households using the social framework into projects and sustainable welfare framework.

In Ethiopia, one of the most populous town, where manufacturing industries are steadily growing is Sabata. The growth of manufacturing industries in Sabata Town might have both positive and detrimental impacts on the welfare of the expropriated households. The purpose of this study, therefore, was to investigate the impacts of expansion of manufacturing industries on the welfare of the expropriated

households in Sabata Town and its outskirts. The results can be used to devise strategic policy to avert the adverse impacts of expansion of manufacturing industries on the expropriated household's welfare. In addition, to its effect on welfare of expropriated households, the expansion of manufacturing industries is taught to cause paradigm shift in economic activities and cultural assets. The core theme of this work is to examine the impact of expansion of manufacturing industries on the welfare of the expropriated households. The study targeted the expropriated, non-expropriated and urban residents. The main objective of the study was to examine the impacts of the expansion of manufacturing industries on the welfare of the expropriated households in Sabata Town of Oromia National Regional State, Ethiopia. The specific objectives were to analyze the impacts of industries-induced expropriation on the welfares of the expropriated households.

METHODS

Description of Study Area

Sabata Town is one of the major towns under Oromia Special Zone Surrounding Finfinne (OSZSF) and is the third-largest urban land size next to Dukem and Burayu (Figure 1). Taye (2013) estimated the rate of urbanization in OSZSF to be ranging from six to 10%, which is very high from both national and international perspectives. The proportion of land engulfed by the urbanization and industrialization was estimated to be 3.7% per year. This may be due to the expansion of industrial and increased investments activities in the study area.

Table 1. Number & types of operational manufacturing industries in Sabata Town (1992-2019)

Types of industries	No	Land sizes (hectare)	Planned capital (ETB'000)	Actual capital (ETB'000)	Actual job opportunity			
					P male	P female	T male	T female
Plastic	47	28.8413	26,200	27,900	43	38	23	22
Construction	28	20.4092	2,948,397	663,040	584	422	4,063	1,768
Textile	18	28.8900	253,100	3,432,500	9,686	4,251	158	155
Furniture	11	17.5906	69,398	193,500	517	440	457	446
Metal	10	21.0919	3,022,088	2,994,450	156	146	70	120
Food	9	5.1718	34,689	77,700	452	361	76	67
Chemical	5	1.7820	23,000	38,100	108	134	90	52
Tannery	4	3.2366	23,600	156,000	550	297	28	30
Paper	4	1.9775	23,200	25,000	88	80	26	25
Beverage	2	1.8001	19,000	18,400	62	80	41	45
Total	138	130.7900	6,441,000	7,601,000	12,246	6,249	5,032	2,730

Note. P: Permanent; T: Temporary; & Computed data acquired from OIC, November 13, 2019

Table 2. Total manufacturing industries in Sabata Town by Kebeles (1991 to 2019)

Kebeles	Year	No	Area (ha)	Capital (ETB million)	Job by sex	
					Male	Female
Furi	1992-2013	64	55.14	2,379	3,219	2,242
Karabu	2003-2015	34	3.1	3,543	5,199	6,606
Dalati	1991-2013	9	44	1,056.9	618	2,082
Roge	2008-2015	8	8.22	341	265	181
Dima	2003-2013	8	27.9	1,036.4	567	1,603
Sabata	2007-2014	6	57.5	812	604	309
Alamgena	2006-2013	6	5.54	837	619	192
Walate	2003-2013	3	3.3	224	56	44
Total		138	254.7	10,229.3	11,147	13,259

Regarding the magnitude of the manufacturing industries in Ethiopia, more than 40% of them are situated in Addis Ababa followed by Oromia accounting for 21% (CSA, 2011). Among the manufacturing industries in the area, more than 26%, 22%, and 13% are food and beverage industries, nonmetallic mineral products, and furniture industries, respectively (CSA, 2011). The number of households engaged in manufacturing industries was over 186,000 during 2009/10 of which 32%, 11%, and 11% were engaged in food products and beverage factory, textile factory, and non-metallic plants in 2009/10, respectively (CSA, 2011).

The total number of investment projects approved in ONRS from 1992-2014 was 9,662 of which about 5,040 (52.16%) agriculture and 4,622 (47.83%) manufacturing industries and service projects (OIC, 2014).

Concerning performance status, the manufacturing industries in ONRS showed that 4281 (44%) operational, 3132 (32%) under construction, 1489 (15%) not implemented, and 763 (8%) construction completed, abandoned and at the preliminary phase (OIC, 2014) (Table 1). Unavailability of infrastructure/utility, delayed land handover and mismanagement are the main reason for most manufacturing industries dalliance of producing goods and services in the area (OIC, 2014).

Regarding the job opportunities, the manufacturing industries created permanent job opportunities for 12,246 men and 6,249 women from 1992 to 2019 (Table 2). Furthermore, manufacturing industries in Sabata Town provided temporary employment for 5,032 men and 2,730 women (analyzed from OIC Database, 2019). This revealed the occurrence of gender-disaggregated effects of occupational safety and health issues in the area.

Methods of the Study

Survey methods were applied for data collection. This study utilized a post hoc research design. All expropriated households were traced to their present place of habitation, and their condition was assessed. The practice of land acquisition, compensation, and expropriation by industrial development was assessed by analyzing post displacement conditions in the area. For the expropriation, a comprehensive socio-economic and demographic situation assessment was carried out for post displacement for all households' welfare.

This study employed the mixed methods of qualitative and quantitative approaches. A household survey was conducted on 205 and 244 expropriated and non expropriated households sampled through strata sampling techniques. Furthermore, the primary data was collected through a survey questionnaire, key informant interview, focus group discussion, and field observations while the secondary data was acquired from different written and documented sources. Additionally, a desk review was employed.

Focus Group Discussion and Key Informant Interview

Household surveys generated quantitative data on the impact of displacement and resettlement on economic and social conditions. However, the surveys were designed to provide a full assessment of expropriated households' welfare. Furthermore, the household surveys, in all manufacturing industry projects qualitative data were collected from various focus groups and key informant interviews.

The focus group discussions were conducted after the official records and household surveys had been analyzed. Analysis of official documents and discussions with officials provided an understanding of the means of acquiring

Table 3. Variable definition & working hypothesis

Variable	Description	Measurement	Expected outcome
Dependent variable			
Total income	Total income per capita	Continuous (ETB)	+/-
Total expense	Total personal expenditure	Continuous (ETB)	+/-
Independent variable			
SHHHead	Sex of households head	Dummy	+/-
AHHyear	Age of households head in year	Continuous (year)	+/-
MMSHH	Marital status of households head	Categorical (type)	+/-
TFSHH	Number of family/households size	Continuous (number)	+/-
EDUNO	Education level	Continuous (number)	+/-
NDEPNO	Number of dependent members	Continuous (number)	+/-
LEDUCOMP	Year of education completed	continuous (number)	+/-
TLU	Tropical livestock unit	Continuous (number)	+/-
EXP HH	Expense for social services	Categorical (type)	+/-
EXPHC	Expense for house construction in birr	Continuous (ETB)	+/-
EXPPT	Expense for personal transport in birr	Continuous (ETB)	+/-
IWMI	Own waste management system	Dummy	+/-

expropriated households welfare from the government's viewpoint.

Sample Size

For sample size estimation, it was crucial to identify attributes such as the number of expropriated households of the study area. The total number of expropriated households was about 3,665 (of which 1,000 expropriated households by operational manufacturing industries) during the years 1992 to 2017/18 (Central Oromia Displaced Community Development Affair Agency, 2018). Based on this baseline data, this study was used a Kothari (2004) formula to determine sample size. Thus, 240 expropriated households affected by the industries were selected. Finally, The study employed 205 expropriated households and 240 non expropriated households' total 445 households for impact analysis. The response rate was 84.4%. The rest 14.6% was the incomplete response and rejected responses. This study also used qualitative methods to collect data from five individuals of 10 groups (50 people) using FGD and five individuals of 19 groups (95 people) using KII making a total of 29 groups (145 individuals).

Data Analysis

The survey data were analyzed by using descriptive and inferential statistics and endogenous switching regression model for quantitative data and concurrent triangulation method for qualitative data to capture the impacts of industry on the welfare of expropriated households. At each stage of discussions, the secondary information obtained from different sources was added to make the survey analysis to be inclusive. On the other hand, qualitative data from KII and FGD were transcribed, categorized, enumerated, looked for relationships, and interpreted. The qualitative data via KII and FGD will be qualitatively analyzed and integrated to support the survey results for triangulation purposes as suggested by Lincoln and Guba (1985).

The endogenous switching regression with help of STATA version 14 was employed to test the significance of variables and analysis of the impact of industries expropriated household total income and personal expenditure (Lokshin & Sajaia, 2004). The analyzed data were summarized and

presented by using different kinds of illustrations, statistical tables, graphs, and charts.

Variable Definition for Expropriated Welfare

The quantitative data was collected based on sampling procedures that incorporate the lists of industries, expropriated and not expropriated households and gender disaggregated employees was clustered to respondent as expropriated households, and not expropriated households for primary data collection. Households economy analysis framework is an exclusive welfare-based analytical framework used for households economies at diverse stages of a wealth range and economic behavior where in community are already engaged (Tanya Boudreau of the Food Economy Group, 2018). Grounded on this, the indicators of social framework into projects were used to analyze the expropriated households' welfare (Vanclay, 2017). The descriptive analysis was used to analyze expropriated households welfare using social framework into projects variables (assigned as the independent variables) by expansion of manufacturing industry a two variables (specified as the dependent variable) on annual income and consumption expenditure (Berresaw et al., 2008; Owusu et al., 2011; Zax, 1997). According to Deaton (1977) income is understated and intricate to retain information and therefore, consumption spending is also used as indirect indicator of income of household welfare in developing countries. Furthermore, this study was employed non-expropriated households as a control group and expropriated households as treated group. Therefore, the definition of variables under the study was given in **Table 3**.

The dependent variables considered in this study include the income and consumption expenditure of households (Bahabelon, 2019). While the outcome variables include land; households capabilities, social support; cultural attributes; welfare issues; shelter and commercial structures; and the living habitat (Vanclay, 2017). It is the amount of income earned and expense for consumption used to measure the household welfare (Lipton, 2009). It considers total households income from different origins such as income from farm and nonfarm activities, as the expropriated and non-expropriated households is managing different activities to sustain their households' expenditure and run into other social

responsibilities (Bahabelon, 2019). Moreover, there are expenses to be incurred in the process of generating income and expenses for consumption to the households that affect earnings.

Endogenous Switching Regression Model

Model specification

The impact assessment studies based on cross-sectional data used endogenous switching regression model (Abdulai & Huffman, 2014; Alene & Manyong, 2007; Moti et al., 2015). The switching regression models of total income and household's per capita expenditure intuitively involves separate estimations for expropriated and non-expropriated families due to the possible systematic differences in mode of access to an improving sustainable welfare strategy. Accessibility to sustainable improved welfare strategy of expropriated households thus becomes the selection criterion governing observation or otherwise of total income and consumption expenditure. The equation described Foltz (2004) was used in this analysis. Letting I_i represent an expropriated households access to improved welfare dummy, where $i \in [0, 1]$, a welfare selection criterion function can be expressed, as follows:

$$I_i = \gamma'Z_i + u_i, \quad (1)$$

where $u_i \sim (0, 1)$ Z_i is a vector of households, socio-demographic characteristics, as well as instruments deemed to influence expropriated households acquired improved welfare of households i , γ is the vector of parameters to be estimated, and u_i is the error term. Also let Y_i represent the level of total income and consumption expenditure. Based on the access to improved welfare selection criterion function of Eq. (4), outcomes (Y_i) are observed for two different regimes (see Maddala, 1983).

$$Y1_i = \beta1'X1_i + v1_i \text{ if and only if } \gamma'Z_i + u_i > 0: \text{expropriated } (I_i = 1), \quad (2)$$

$$Y2_i = \beta2'X2_i + v2_i \text{ if and only if } \gamma'Z_i + u_i \leq 0: \text{non - expropriated } (I_i = 0), \quad (3)$$

where X_i is a vector of exogenously determined variables of households i , β is the coefficient vector, and v is the residuals. Following Foltz (2004), we first assume that the unobserved residual effects on total income and consumption expenditure between expropriated and non-expropriated are independent of the unobserved effects on access to sustainable improved welfare condition. That is $E v_{1i} I_i = 1 = E v_{2i} I_i = 0 = 0$, and $C_{ov} u_i v_i = 0$.

This implies that sample partitioning between expropriated and non-expropriated is entirely exogenous to their behavior so that an exogenous switching structure results, as in Eq. (2) and Eq. (3). The unconditional expectation of these models can be expressed, as follows:

$$EY1_i x1_i = \beta1'X1_i, \quad (4)$$

$$EY2_i x2_i = \beta2'X2_i. \quad (5)$$

Applying least squares to Eq. (4) and Eq. (5) give consistent estimate of the β . However, there is a high likelihood that uncontrolled factors (e.g., household source of income managing capacity) in the disturbance term, u_i , influencing access to improve their welfare also simultaneously influences the level of outcomes (e.g., total income and consumption

expenditure), so that $c_{ov}(u_i v_i) \neq 0$. Under this scenario sample separation between expropriated and non-expropriated become endogenous to their behavior and governed by an access to improve welfare regime. Expected values of the error terms in the outcome equations conditioned on the sample selection is non-zero and least squares renders estimated coefficients inconsistent and inefficient (Freeman et al., 1998). Here, error terms v_{1i} , v_{2i} , and u_i are assumed to follow a trivariate normal distribution with mean vector zero and covariance matrix (Lokshin & Sajaia, 2004; Maddala, 1983).

$$\Sigma = \sigma_{u2}\sigma_{1u}\sigma_{2u}\sigma_{1u}\sigma_{12} \cdot \sigma_{2u} \cdot \sigma_{22},$$

where σ_{u2} is the variance of the error term in the selection equation, σ_{12} and σ_{22} are the variances of the error terms in the continuous equations; σ_{1u} is the covariance of u_i and v_{1i} ; and σ_{2u} is the covariance of u_i and v_{2i} . As can be deciphered, the covariance between v_{1i} and v_{2i} is not defined as Y_{1i} and Y_{2i} are never observed simultaneously. It is assumed that $\sigma_{u2} = 1$, since γ is estimable only up to a scalar factor (Maddala, 1983). The expected (conditional) outcomes of total income and consumption expenditure for the two regimes are expressed, as follows:

$$EY_{1i} I = 1 = \beta_1'X_{1i} + \sigma_1 \rho_1 W_{1i}, \quad (6)$$

$$EY_{2i} I = 0 = \beta_2'X_{2i} - \sigma_2 \rho_2 W_{2i}, \quad (7)$$

where σ_1 and σ_2 are the standard deviations of the two outcome equations, respectively; ρ_1 is the correlation coefficient between v_{1i} and u_i ; ρ_2 is the correlation coefficient between v_{2i} and u_i . W_{1i} and W_{2i} are the non-selection hazard terms for the respective regimes. The model in Eq. (6) and Eq. (7) are identified by construction through nonlinearities. The models can be fitted one equation at a time by either two-stage least squares or maximum likelihood estimation. However, both estimation methods are inefficient and require potentially cumbersome adjustments to derive consistent standard errors (Lokshin & Sajaia, 2004). To obtain consistent standard errors; the full information maximum likelihood method was employed to simultaneously fit the binary and continuous parts of the model. This approach relies on joint normality of the error terms in the binary and continuous equations.

The non-selection hazard term otherwise known as the inverse Mills ratio is the ratio of the probability density function to the cumulative distribution function of a standard normal evaluated at $\gamma'Z_i$. Given the assumption with respect to the distribution of the disturbance terms, the logarithmic likelihood function for the system of Eq. (6) and Eq. (7) is

$$\ln L = \sum_i \left(I_i \omega_i \left[\ln \{F(\eta_{1i})\} + \ln \left\{ \frac{f\left(\frac{v_{1i}}{\sigma_1}\right)}{\sigma_1} \right\} \right] + (1 - I_i) \omega_i \left[\ln \{1 - F(\eta_{2i})\} + \ln \left\{ \frac{f\left(\frac{v_{2i}}{\sigma_2}\right)}{\sigma_2} \right\} \right] \right)$$

where $F(\cdot)$ is a cumulative normal distribution function, $f(\cdot)$ is a normal density distribution function, ω_i is an optional

$$\eta_{ji} = \frac{(\gamma Z_i + \rho_j v_{ji} / \sigma_j)}{\sqrt{1 - \rho_j^2}}$$

weight for observation i , and $j=1, 2$, where $\rho_1 = \sigma_1 u_2 / \sigma_u \sigma_1$ and $\rho_2 = \sigma_2 u_2 / \sigma_u \sigma_2$.

Table 4. Socio-demographic characteristics of the respondents

Variables	Frequency	%	Variables	Frequency	%
Group			Type industry owner		
Non-expropriated HH	245	54.6	Individual	8	3.59
Expropriated HH	204	45.4	Foreign	34	15.25
Administrative unit			Domestic	173	77.58
Sabata	116	25.8	Joint venture	8	3.59
Walate	99	22.0	Legal form business		
Furi	84	8.7	Private Limited Company	180	80.72
Alemgena	66	4.7	Sole proprietorship	38	17.04
Dima	42	9.4	Partnership	1	0.45
Daleti	19	4.2	Share Company	2	0.90
Roge	14	3.1	Cooperative	2	0.90
Karabu	9	2.0	Land size in hectare		
Sex of households head			0-0.5	378	85.3
Male	339	75.5	0.51-1	28	6.24
Female	110	24.5	1.01-1.5	18	4.01
Marital status of households head			1.51-2	8	1.78
Married	407	90.6	Above 2.01	11	2.45
Widow	23	5.1	Manufacturing industry group		
Single	16	3.6	Brewery, alcohol, and liquor	38	17.04
Divorced	1	0.2	Leather and leather products	1	0.45
Separated	2	0.4	Textile and garment	44	19.73
Religion of the households head			Metal & metal products	18	8.07
Orthodox Christian	298	66.4	Food & beverage	45	20.18
Protestant Christian	85	8.9	Paper & paper Products	11	4.93
Muslim	46	0.2	Construction industry	24	10.76
Waqefana	20	4.5	others	33	18.84
Highest level of education completed by households head					
Primary school (1-6)	197	43.9	Junior secondary (7- 8)	30	6.7
High school (9 -12)	77	17.1	Diploma	24	5.3
Illiterate	68	5.1	Formal and read and write	18	4.0
University	35	7.8			

RESULTS

Socio-Demographic Characteristics

The expropriated and non-expropriated households accounted for 45% and 55%, respectively. The gender of household heads showed that about 75% were male and 25% were female (Table 4). The education level of households heads showed that 44% had primary level of education, 17% had secondary level of education (grade 9-12), and 15% were illiterate. The number of households' expropriation gently decreases with an increase in educational level. Among the respondents, the proportion having land size ranging from 0 to 0.5 m² accounted for 85%. About 2.5% of the respondents had land size above 2.01 hectares. Textile and garment industries account for largest land acquisition in the area. Regarding administrative units, Sabata and Walate accounted for 26% and 22%, respectively. Local and investors from abroad accounted for 74% and 16%, respectively of the land acquired for industry. The legal form of business such as private limited company and sole proprietorship accounted for 84% and 14%, respectively. The respondents interviewed revealed that factories release industrial wastewater directly to adjacent rivers and terrestrial earth. Regarding the family size the respondents had 2 (31%), 3 (14%), and 4 (13%) female family members and 1 (23%), 2 (29%), and 3 (23%) male members per household with average number of family of five in the area.

The non-expropriated respondents accounted for 13% landholding size of 0.5 ha, while 10% for land size of 0.02 ha. Non-expropriated and expropriated households owned about 39 and 41% of land size ranging between 0.01-0.5 ha. 80% of the respondents are very poor. Among the expropriated households 3% of them were landless. The expropriated households owned a land size of 0.51-1 (1.1%) and 1.51-2 ha (0.45%), respectively. None of the expropriated households owned a land size of 2.01 ha or higher. The non-expropriated households accounted for 3.8% of those who owned a land size of 2.01 ha and above in the area. Regarding the gender distribution, 41% of male and 14% of constitute non-expropriated households. The expropriated households comprise 35% male and 11% female respondents.

The vast majority (91%) of the households were married. About 3.3% and 0.22% of the non-expropriated and expropriated households respectively were unmarried whereas 2% and 3.1% of the non-expropriated and expropriated households respectively were widows. Among the participants Christians account for 73.3% while Muslims account for 26.7%. Of the total of the respondents, those who were living in the area for 16-25 years and above 25 years accounted for 18% and 66% of the non-expropriated households. For the expropriated households who residing in the area for 16-25 years and above 25 years accounted for 40% and 41%, respectively.

Expropriated

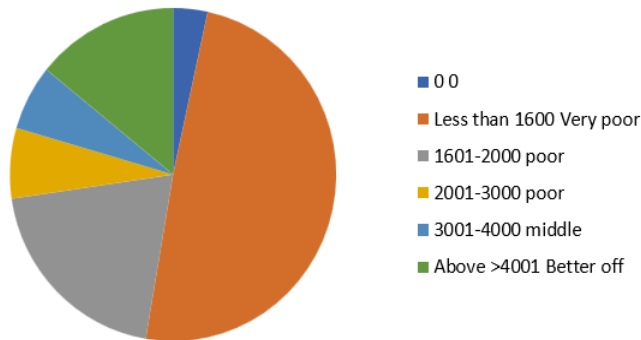


Figure 2. Monthly income (ETB) category of households head by wealth category (expropriated) (wealth status was based on Becho-Adea teff and chickpea Welfare Zone 2017) (Tanya Boudreau of the Food Economy Group, 2018)

Non-Expropriated

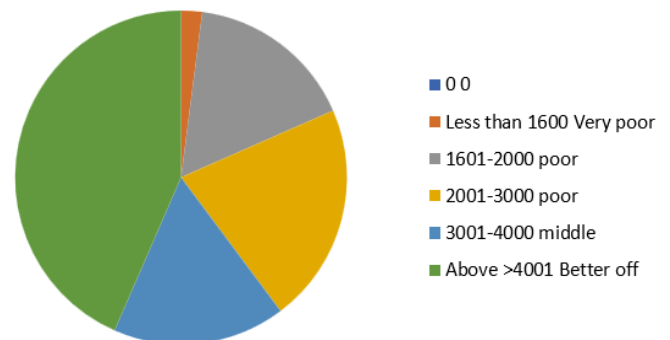


Figure 3. Monthly income (ETB) category of households head by wealth category (non-expropriated) (wealth status was based on Becho-Adea teff and chickpea Welfare Zone 2017) (Tanya Boudreau of the Food Economy Group, 2018)

Economic Activities

For the expropriated households daily labor and wage based employment was their first main means of welfare (47%) followed by owning replacement farming, which was mainly livestock production (15%) and trading (12%). For the non-expropriated households the main means of welfare was own farming (31%) followed by trading.

Ownership of Assets

Productive asset was the main welfare activity for both expropriated and non-expropriated households in the area. The expropriated households that were poor accounted for 91% whereas 76% of the non-expropriated households were categorized under middle wealth status. The welfare activities of prime importance was own farming followed by trading as main source asset acquisition for non-expropriated households. Average hens own accounted about poor wealth status of 87% for expropriated and middle wealth status of 42% for non-expropriated households. Average donkeys own accounted about poor wealth status of 86% for expropriated and middle wealth status of 98% for non-expropriated households. Average goats own accounted about poor wealth status of 82% for expropriated and middle wealth status of 71% for non-expropriated households. However, the better off wealth group was not prevailed in both expropriated and non-expropriated households of the respondents. Generally, the wealth status was in poor and middle group for the expropriated and non-expropriated households, respectively.

Sources of Income Generation

The annual income generation by small business or share cropping accounted is the main ones for 99% of middle wealth group among non-expropriated households and 98% poor wealth group in expropriated households. Income generation from small ruminant production accounted for 98.5% of poor wealth group in expropriated household's, whereas non-expropriated households the annual income generation incurred from the sale of hens and eggs accounted for 94% of the poor wealth group and group 98% of the non-expropriated households. Dairy production through sale of milk and milk products also account for generation of income for significant

proportion of both non-expropriated and expropriated households.

The percentage distribution of monthly income in Ethiopian Currency (ETB) of the expropriated and non-expropriated households is given in **Figure 2** and **Figure 3**, respectively. Among the non-expropriated households those who earn more than 4,000 ETB per month made 43% whereas for the expropriated households only 14% earn more than 4,000 ETB. 49% of the expropriated households had monthly income of ETB 1,600 suggesting that most of the expropriated households are classified as poor. Taking nominal income value of USD 1.90 (equals to 1,170 birr per month) of the monthly income revealed that 72.4% expropriated households fail under income poverty line. Using expense as an indirect measure of income and USD 1.90 (PPP per day) makes expropriated households go amiss in the menace of income paucity. Among the expropriated households who did not have any income was 3.4%.

Access to Infrastructure/Social Services

The average distance from health centers was about 1,000 meter for 73% and 77% of the non-expropriated and expropriated households, respectively. 21% of the expropriated households travel about two km to get health services while the maximum is one km for the non-expropriated ones. The average distance from portable water was 1000 meter for 69.4% of the expropriated but expropriated ones had better access to water. Expropriated households travel longer distance to market centers than their non-expropriated counterparts.

Livestock and Crop Production

Milk production accounted for 81% and 85% of the non-expropriated and expropriated households, respectively. Cereal crop production accounted for 61% and 88% of the non-expropriated and expropriated households, respectively. Pulse production accounted for 60% and 93% of the non-expropriated and expropriated households, respectively.

Impact of Industry on Expropriated Households Income

The predicted total incomes for expropriated and non-expropriated households are summarized in **Table 5**. t-test

Table 5. Results of prediction of total income with ESR

Two-sample t-test with equal variances						
Group	Obs	Mean	Standard error	Standard deviation	95% confidence interval	
Non-expropriated	244	212,416.1	1,336.715	20,922.90	209,783.1	215,049.1
Expropriated	205	34,018.63	3,981.986	56,874.14	26,167.27	41,869.98
Combined	449	131,362.5	4,626.789	98,039.90	122,269.6	140,455.4
Heterogeneity difference		178,397.5	3,917.080	-	170,699.3	186,095.7
Diff mean (nonexp)-mean(exp)		t=45.5435				
Ho: diff=0		Pr (T>t)=0.0000				
Ha: diff<0		Pr (T > t)=0.0000				
Ha: diff>0		Pr (T>t)=1.0000				

Table 6. Full information maximum likelihood estimates of the SRM (dependent variable: Total income)

Explanatory variables	FIML endogenous switching regression					
	Selection equation (expropriated)		Expropriated-1 (expropriated)		Non-expropriated-0 (non-expropriated)	
	Coefficient	Z-value	Coefficient	Z-value	Coefficient	Z-value
Sex of households head	.6582734	1.18	-8,746.088	-0.99	2,250.728	0.42
Age of households head in year	.0446643***	3.04	487.449	1.51	-212.543	-1.75
Education levels of HH head	.3719555*	2.17	-7,371.774	-1.76	-2,062.998	-1.03
Number of dependent member	-.3165567	-1.80	3,819.713	0.76	1,927.931	1.69
Number of years education completed	-.0603692***	-3.97	-106.393	-0.26	105.748	1.16
Tropical livestock unit	-.0521453***	-4.35	149.675	0.53	242.346	1.61
Integrated industrial waste management system	.0572037	0.08	-155,039.1***	-4.15	16,746.150	1.07
_cons	.4020763	0.28	325,612.8***	4.29	189,534***	6.20

Note. ***, **, & * are significant at 1%, 5%, & 10% level, respectively

Table 7. Test of predicted consumption in expenditure

Two-sample t-test with equal variances						
Group	Obs	Mean	Standard error	Standard deviation	95% confidence interval	
Non-expropriated	244	13,947.96	57.2406	895.9585	13,835.21	14,060.71
Expropriated	205	18,507.60	794.4733	11-347.3500	16,941.12	20,074.08
Combined	449	16,019.60	377.3910	7-996.7730	15,277.92	16,761.28
Heterogeneity difference		178,397.50	-4,559.6390	727.5030		-5,989.39
Diff mean (0)-mean(1)		t=-6.2675				
Ho: diff=0		Degrees of freedom=447				
Ha: diff<0		Pr (T<t)=0.0000				
Ha: diff!=0		Pr (T > t)=0.0000				
Ha: diff>0		Pr (T>t)=1.0000				

between the two groups showed non-expropriated households possess significantly higher total income (ETB 212,416) than expropriated counterparts (ETB 34,018) (**Table 5**).

The real income status decrease significantly for expropriated household than non expropriated households. The household income of non-expropriated was significantly higher than the total income of expropriated households.

Likelihood ratio test of independence of the regime and outcome equations is also significant at the 5% level in **Table 6**. The TLU, firm owners waste management system, and number of educated in the household also negatively significant variation in total income in the area. On other hand, the age of households head was positively affected in the households' welfare of expropriated households. Moreover, the age of households head, and TLU were significantly affected the expropriated households welfare.

Impact of Industry on Expropriated Households Personal Expenditure

The predicted expenditure for expropriated households possess significantly higher expenditure (ETB 18,507.6) than

the non-expropriated households (ETB 13,947.9). There was a substantial increase of spending after expropriation than non expropriation (**Table 7**). The burden of spending for expropriated households was also increase considerably. This indicates that the expropriated households affected negatively expropriated households than non expropriation households in the area.

Likelihood ratio test of independence of the regime and outcome equations is also significant at the 5% level in the variables expense for house construction, expense for social events, expense for personal transport services used, and tropical livestock unit were significantly explained for the variation in personal expenditure per-capita in Birr per month for expropriated household welfare (**Table 8**). The age of household's head and marital status of household's head were significantly affected the welfare of non-expropriated households. In both non-expropriated and expropriated households' welfare, variables expense for social events, house construction, and transport services were made significant variation in personal expenditure per capita in the area.

Table 8. FIML estimates of the switching regression model

Explanatory variables	FIML endogenous switching regression					
	Selection equation (expropriated)		Expropriated-1 (expropriated)		Non-expropriated-0 (non- expropriated)	
	Coefficient	Z-value	Coefficient	Z-value	Coefficient	Z-value
Sex of households head	.3358254	0.42	1698.156	1.62	-1.13e-10***	-5.18
Age of households head in year	.0682894	2.56	-81.21603	-1.52	2.37e-12***	2.84
Education levels of HH head	.6775583	1.00	-132.946	-0.21	-5.55e-11***	-4.24
Number of dependent member	-.0967146***	-3.13	75.19833	1.52	-2.96e-13	-0.52
Number of years education completed	-.2469329	-0.62	-504.7326	-1.31	3.68e-11***	4.22
Tropical livestock unit	-.8749937	-1.95	672.3854	1.37	-1.12e-11	-1.55
Integrated industrial waste management system	-.0775677***	-3.91	29.06947	0.68	-7.97e-12	-3.51
_cons	-.0028842***	-4.37	1.709892*	2.01	2.900855***	5.9e+12

Note. ***, **, & * are significant at 1%, 5%, & 10% level, respectively

Table 9. Expected conditional and average treatment effects

Outcome variables	Households status	Prediction		Treatment effect
		Exp	Non-exp	
Total income	ATT	26,672.08	34,018.63	7,346.55
	ATU	97,083.12	212,330.6	-115,247.48
	Heterogeneity effect	70,411.04	178,311.97	
Expenditure	ATT	18,507.6	15,641.41	2,866.19
	ATU	13,946.2	9,324.675	-4,621.525
	Heterogeneity effect	4,561.4	6,316.735	

Impact Estimates by Endogenous Switching Regression Model

The estimates for the average treatments effects on the treated (ATT), average treatments effects on the untreated (ATU) and the heterogeneity effect (HE), which show the impact of industries on expropriated households welfare due to their inherent characteristics on households income and expenditure, are presented in **Table 7** and **Table 9**.

Unlike the mean differences presented in **Table 6** and **Table 8**, which may confound the impact of industries on expropriated households' welfare, the ESR estimates of ATT and ATU account for selection bias arising from the fact that total income and expenditure may be systematically different.

The results revealed that non expropriated income significantly increases and decrease expenditure of non-expropriated and also had the potential to increase that of the expenditure and decrease income for expropriated households due to expansion of industries in the area. Generally, the expropriated in Sabata receive 57% less income than non expropriated households' income, while expropriated households in Sabata personal expenditure was increased by 14.1% than non expropriated households in Sabata Town.

DISCUSSION

The expropriated households possess only small land size, the majority (85%) of them own land ranging from 0 to 0.5 m² clearly showing that industrialization is making them landless. This has considerable impacts on the welfare and socioeconomic and cultural assets of the community. So, the expansion of industries in Sabata Town made the expropriated household vulnerable to a multitude of social crisis. Elsewhere in the world similar scenario has been reported in which expropriation culminated in the loss of physical assets such as

shelters, social values, farmland, revenues, and others (Downing, 2002). It is further stressed that expropriation can result in the displacement and impoverishment of people, which can ultimately cause huge socio-economic and political crisis (Downing, 2002). Therefore, this study revealed that the government and the company should consider the welfare of the expropriated communities while taking their land study conducted by Harris (2015) showed that the Ethiopian government's way of intervention of the land acquisition process for industrialization has been impacting the welfare of the landholders of farm and urban land. This study was also supported by the industrialization affected the welfare strategies such as loss of welfare land of expropriated households in Ethiopia (Kuto et al., 2018).

The expropriated households became daily laborers for whom wage from various employments is the main means of welfare. The expropriated households were not accustomed to the wage based employment and they did not have training on such activities earlier. Thus, the sustainability of their welfare is questionable. They lost their land on which their means of welfare was own farming and trading activities, this might lead them to destitution in the long run. Our findings are in consent with previous studies that pinpoint the expropriated households start more businesses and participate in non-farm activities than non-expropriated households in Ethiopia (Harris, 2015). In consent to our observation Harris (2015) revealed that the expropriated households change their way of life from farming to livestock production. Livestock production requires land as so does for the crop farming and it is even more demanding financially than crop production. Hence, the expropriated households need training and sources of funding for sustainable and secure welfare that is based on livestock enterprises. The absence of such compensation system can liable them to poverty.

Since the expropriated households had not been adapted to the new business the annual income generated through the

sale of livestock products is not sufficient to sustain their lives. That is, compared to the non-expropriated households they are categorized under poor wealth group. In agreement to this study it has been shown that households who were expropriated from their land for industry purposes elsewhere in Ethiopia receive 11% less income than before (Harris, 2015). Our observation is also similar to previous studies done in some countries of Africa such as Kenya (Kariuki, 2016) and in other parts of Ethiopia (Belay, 2014) and elsewhere in the world (Gerstter et al., 2011).

The comparison of the annual income among expropriated and non-expropriated households supports the above scenario. The expropriated households are on disadvantages in terms of the monthly income suggesting in all parameters the expropriated households are negatively affected by the land acquisition systems intended for industrialization in the area. The findings of this study are consistent with the observations of Harris (2015) who showed that expropriated households derive income from sale of livestock and small business, which is quite low. This is partly due to inadequate compensation as observed in Kenya (Kariuki, 2016). In agreement to our observation previous studies showed that land acquisition for the sake of industry has no limits in Ethiopia and it has not been based on the assessment of its effects on socio-economic, cultural and environmental issues (The Oakland Institute, 2011). Elsewhere in the world it has also been reported that low compensation is responsible for low income levels for the expropriated people (Downing, 2002). The low levels income obtained by the expropriated households is further exacerbated by their average distance from services such as portable water, grain mill, and market center. It is corroborated with expropriated households income status worsen and burden of spending after expropriation (Bahabelom, 2019). This further adds costs to the expenditures of the expropriated households making them liable to negative effects on the natural, physical, financial, and social capitals as reported from China (Guo et al., 2019).

The total annual income of expropriated households in the study area are negatively influenced by the number of years of habitation in the area, milk production, pulses and cereal production, gender of households head, sale of egg, sale of goat, sale of oxen, and saving money in the bank. However, positive impacts on annual income was observed for number of educated family member and hired as firm employees. Similar observation was reported in which 65% of the expropriated households did not have any savings in bank in Ethiopia (Harris, 2015) and elsewhere in the world (Paul & Sarma, 2013; Vanclay, 2017).

In addition to low annual income levels, the expropriated households have significantly higher personal expenditure than the non-expropriated households as a result of their distance from social services. This shows that industrialization has multidimensional impacts on the welfare of the expropriated households. This is consistent with the results of Harris (2015) showing the negative impacts of expropriation on the land-lost farmer's health through income and psychological malfunctioning (Wang et al., 2019). The expenses for house construction, social events (rituals, holiday, beverage, alcoholic drinks, and others), transport services, annual purchase of pulses production, TLU, and

number of years of residence were all significantly associated with personal expenditures. In first and second stages the expense for buying livestock input and year of residence were made significant variation in personal expenditure per capita. The significant and positive determinants of expropriated households' personal expenditure per capita were age of the households head and expense for households' construction. The significant and negative factor influencing personal expenditure of expropriation are number of year reside in the area, annual food crop production, expense for social events, and personal transport services used in the Sabata Town. This study was consistent with expropriated people has faced enormous economic and social problems in the Bahir Dar and Gonder Town of Ethiopia (Belachew, 2012).

The results of expected conditional and average treatment effects depicted that non expropriated income significantly increases and decrease expenditure of non-expropriated and also had the potential to increase that of the burden of spending and income status for expropriated households decrease considerably due to expansion of industries in Sabata Town. This study was consistent with the total nominal expenditure increased for households that had land expropriated in Ethiopia (Bahabelon, 2019; Harris, 2015). It is also added the rationale for evicted households increased their consumption due to purchase of food items and relative decreased for the not displaced in Ethiopia (Harris, 2015).

Land expropriation people was not participatory, government promised benefits to the farmers not fulfilled, loss land, lack of knowledge, lack means of compensation paid management, and lack of knowledge and skill to adapt urban ways of life by evicted households in Ethiopia (Eyasu, 2007). Expropriation is plunging innocent victims or expropriated households find themselves "in the way" into new poverty (Bahabelon, 2019; Downing, 2002). Expropriation is frequently characterized by the resulting impoverishment of those displaced, inappropriate property valuation and compensation system for lost assets in Cambodia, China, and India (ADB, 2007). In land expropriation process for industrialization, communities were not consulted or involved communities in most cases; the process of land transfer not disclosed to the local people, company owner and local communities not harmonious, and perceives as their enemies that lead to kept safe by security forces (Kuto et al., 2018). Losing land and receiving compensation increases the value of nonproductive assets held by the households by 5,400 Birr in Ethiopia (Harris, 2015).

CONCLUSION AND RECOMMENDATION

The results of this study showed that a land acquisition system for industrialization in the area has significantly reduced the land size per expropriated households. This has resulted in the shift of welfare among the expropriated households making them dependent on wages for income generations followed by small farms and trading. This was witnessed by the significantly low levels wealth among the expropriated households, that is, the majority of the expropriated households were categorized under poor wealth category. The shift in economic activities made the

expropriated households to mainly depend on the sale of livestock products for accumulation of wealth. Apart from these the expropriated households suffer from lack of social services such as portable water, grain mill, and market centers due to their average distances, which was higher than that of the non-expropriated households.

The monthly and annual incomes of the expropriated households were significantly lower than that of the non-expropriated households. The TLU, annual livestock product production, pulse and food crop production, sales of livestock products, and years of residence in the area were negatively associated with total income of expropriated households. In contrast the numbers of educated family members and hired as firm employees were positively associated with total income of the expropriated people in Sabata Town.

Furthermore, the personal expenditures of the expropriated people were mostly accounted for buying livestock inputs and vary according to years of residence in the area. The personal expenditure of the expropriated households was positively affected by expense for household's house construction activities. It was negatively affected by annual food crop production, expense for social events, and personal transport services used in the area. The annual income of the expropriated households was also significantly lower than that of the non-expropriated households. On contrary, the non-expropriated households were increasing total income and decrease personal expenditure. In general, the land acquisition for expansion of manufacturing industry has adverse impacts on expropriated household's welfare. Thus, the government should take this into account and devise restoration strategies through the implementation of sustainable welfare restoration fund, provision of share stock for expropriated households from company, establishment of small business development, entrepreneurship development and technology incubation cluster center; provision of business startup finance without interest rate, training of grassroots level financial management system, and creation of safe environment for the society.

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