Urban Expansion and Its Impacts on the Life of Expropriated Farmers in the Outskirts of Nifas Silk Sub-City, Addis Ababa

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Abstract

The objective of this research is to investigate how expropriating farmers due to nearby urban sprawl affects their income and expenses. To determine the association between expropriated and non-expropriated responses and income and expense, a literature study and empirical analysis were conducted. Also, the effects of expropriating farming lands and metrics for gauging these consequences were explored. A thorough questionnaire survey was conducted to identify the expropriated farmers and evaluate the average income and expense in both the treated and control groups. A total of 208 data points was obtained, of which 101 came from control subjects and 109 from treated ones. Both descriptive and propensity score matching are used to analyze the data and the relationship. Expropriated (treated) respondents' average monthly expenditure has risen. However, the average monthly income of expropriated farmers did not show a significant difference because, even after receiving compensation, they were unable to use it properly and were forced to engage in unskilled and labor work in cities to generate income because they were unable to see alternative profitable businesses. Based on the findings, scaling up to resettle those expropriated farmers in other farming areas to continue their farming in the well-studied area and giving them essential training when they engage in city life and non-farming activities about how they generate income and how they should spend their money properly to avoid being extravagant, as well as the government or the concerned body giving attention to a policy of vertical urban development that helps to minimize the expropriation of farmers, are also recommended.

Keywords: Expropriate, horizontal expansion, resettlement, outskirt, intervention

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Introduction

Particularly in developing and poor nations, the rate of urbanization is increasing with time. Urbanization causes cities to encroach on nearby rural areas, where farming is the primary means of subsistence for the local populations. Farmers' livelihoods will be impacted when cities move into rural areas, converting agricultural land for urban use and uprooting the rural population. The infrastructure and socio-spatial morphologies of cities intrude on agricultural socio-economic activities as a result of urbanization. The livelihoods and standard of living of rural populations who rely on agriculture as their primary economic activity have been impacted by this. In 2019, the World Bank predicted that the sub-Saharan African countries urbanization rate was 41%, with a projected growth of 78% by 2050. Current research advocates that urbanization in sub-Saharan Africa is distinguished as urbanization without growth. (Fay, M.; Opal, C., 2000).

Urban sprawl, urban expansion, or suburban sprawl are all terms for the rapid growth of a city or town's geographic size. Single-use zoning, low-density housing, and a greater reliance on personal vehicles for transportation are typically characteristics. It is nevertheless a result of the increased demand for housing and other residential amenities in many urban neighborhoods. Urban sprawl has been related to increased energy use, pollution, traffic congestion, and a loss of community identity and cohesion. Because of this and other factors that have exposed them to risk, the majority of peri-urban farmers in Ethiopia lose out on the process of horizontal urban expansion and development. They do not receive adequate compensation, and even when they do, they lack a pre-organized plan for how to continue living by earning an income. In contrast, a small number of private investors and city dwellers profit (Mohammed, I.; Kosa, A.; Juhar, N., 2017). Farmland is taken away from peri-urban households for infrastructure and horizontal urban expansion initiatives (Tilahun et al., 2021).

There are other researches on similar topics such as urbanization, farmer expropriation, and compensations, but this study demonstrates the effects of expropriation on particular variables. In general, this research paper discusses the issue of how cities are encroaching on nearby rural areas by displacing the farmers who now reside there because of the high pace of urbanization in our nation. Farmers will be forced to engage in non-farming activities as a result of being removed from their farming land, and they will earn money from non-farming activities that lower crop yields, altering their income and expenses.

And because they were unable to improve their scholastic standing, most farmers who had been expropriated from their farming land worked in unskilled labor. Farmers are supposed to receive compensation for the income they lose in order to maintain their way of life, but in the context of our nation, farmers complain about unfair compensation and that even after receiving the compensation, they are unable to engage in income-generating activities because the majority of them lack the skills and knowledge necessary for anything other than farming. As a result, they need training and advice that will enable them to think creatively and look for alternative businesses.

Related Literature Review

Even though urbanization is viewed as a new way of life that promotes economic growth and development, it nevertheless has a number of economic and social concerns, particularly because it alters livelihoods. Cities will grow toward the surrounding region as urbanization increases, which may be a forest or a rural area used for farming by the local farmers. The high pace of migration from rural to urban areas, which results in a lack of land for urban infrastructure, is another factor contributing to urban sprawl. Cities are anticipated to spread out horizontally to neighboring areas in order to alleviate this infrastructural shortage. Another type of spatial development is urban sprawl, which is characterized by low densities, intermittent "leapfrog" growth, separation of land uses, and a high rate of personal automobile and strip mall use. The majority of these types of developments are found in open, rural areas on the outskirts of cities. (1989 Richard).

Urban sprawl or expansion is a worldwide incident that started with the oldest human civilization, the Babylonians (Firew, 2010). This situation is currently a rising trend seen almost all over the world, especially in developing countries, where it is highly rising and at an alarming stage. This makes cities grow both in population number and in physical size (Haregewoin, 2005). The process of urban expansion may involve the expansion of the physical structure of urban areas, and it can result in the loss of agricultural land, natural beauties, range lands, parks, and scenic areas, as well as a change in livelihoods. (Minwuyelet, 2005).

According to Danan Gu, Kirill Andreev, and Matthew E. Dupre (2021), the global population is expected to grow by 1.05% annually, but the urban population will double in size in 38 years at a rate of 1.8%. This growth will be even faster in the urban areas of the least developed countries,

where the population is expected to increase by 2.3% annually and double in size in 30 years (UN Habitat, 2001).

Farmers' displacement has been observed as they migrate from farming to non-agricultural industries and abandon their agricultural land, which will then be used for urban infrastructure. The conversion of agricultural lands for urban use and fabrics lowers agricultural productivity, and the involvement of farmers in non-agricultural activities to generate income will also have many effects on their way of life. Agriculture is the foundation of developing countries' economies, particularly in Ethiopia. In order to better understand how land use change and farmer displacement affect expropriated farmers' quality of life, including their income, expenses, and capacity to further their academic careers after receiving compensation and relocating to a new living environment, read the report. This paper focuses on the expropriated farmers around Addis Ababa. Nifas Silk Lafto Sub-city District 01 Lebu.

According to studies, some displaced farmers use their compensation money for personal expenses, while others use it for things like land leasing and commercial business ventures. This finding demonstrates that farmers are unable to build production, businesses, or apprenticeships to generate a steady income to support their livelihoods after losing their agricultural land. Typically, a farmer's only field of expertise and experience is land cultivation. As a result, some farmers attempted to share or rent their fields with others while investing their income or investing their money in unprofitable ventures. Nevertheless, the costs of the rented and sharecropped land make their operations unprofitable, and they were disoriented in their business because they lacked any business-related skills or expertise. When the settlement funds ran out, farmers were left with little choice except to cultivate the land that had not been taken by force. Elderly farmers would frequently take their payments and utilize them to pay family expenditures.

Several researches have established that the compensated farmers use the funds for expenditure and basic needs. (S.K. Agegnehu and R. Mansberger, 2020) Most of the farmers who were expropriated used a large portion of their pay for everyday costs. (T.T. Nguyen, G. Hegeds, and T.L. Nguyen, 2019) The expropriated farmers have no idea how to use the sum they received for the expropriated land because there were no incentive programs for families, such as training or facilities. Several promises to set up post-exportation services and training for displaced households

were noted in other investigations. After being displaced, farmers were given training and organization in a variety of micro-level businesses as a possible solution to their unemployment. However, none of the promised pieces of training and social services were delivered after displacement (Ayele, 2014).

Expropriation of farmers from their lands differed throughout the world, but according to meta-analysis and systematic reviews of the impact assessment, it has a generally negative influence on farmers' ability to make a living. Even if the expropriated farmers are interested in engaging in non-farming activities, compensations should allow them to maintain their lives either the same as before or to produce a sustainable income. Many impact evaluation studies have examined issues such as farmer expropriation, farmer compensation, and urban sprawl.

Urban sprawl is a global issue that mostly affects rapidly developing areas and alters the landscape (Nguyen Ninh Hai, Nguyen Tuan Anh, Tran Nguyen Lam Khuong, Bach Quang Dung, and Nguyen Minh Ky, 2019). Due to horizontal urban expansion and development-induced projects, the effects of urban expansion on the rural society in the area and expropriation and compensation measures have become a major problem (Tilahun Dires, Derjew Fentie, Yeneneh Hunie, Worku Nega, Mulugeta Tenaw, Sayeh Kassaw Agegnehu, Reinfried Mansberger, 2021). Due to the varying rates and effects of urban sprawl within a metropolis, farmers are forced to be expropriated, which can have both beneficial and bad implications on their ability to support themselves (KASSA, 2014). Finding the effects of urban sprawl and landscape requires understanding how urban areas' spatial configuration has changed over time (Nguyen Ninh Hai, Nguyen Tuan Anh, Tran Nguyen Lam Khuong, Bach Quang Dung, and Nguyen Minh Ky, 2019).

As urbanization increases, cities spread into the surrounding rural areas, which leads the government to evict farmers who were already residing there and making a living from farming. When farmers are evicted from their homes and places of employment, they experience loneliness, participate in non-farming activities, and relocate, which modifies their way of life. As a result of giving up farming, their income and expenses also altered. In addition to increasing transportation costs and other expenses, they also had to pay rent for their home and for food. This has an impact on their ability to advance academically as well. After relocating to the new environment, they were unable to engage in professional work, and the majority of them began working as laborers

to make a living. As a result of these difficulties, they were denied the opportunity to learn new skills and continue working in unskilled jobs that would not increase their income at the expense of their expenses.

In order to ensure food security, farming is crucial for all nations, but especially for underdeveloped ones. As a result, the agriculture industry as well as farmers should receive attention. When farmers are expropriated near cities as a result of horizontal city expansion, they are exposed to new environments and may even change their way of life by taking part in non-farming activities and spending their compensation money on sundries. With the help of the World Bank, Ethiopia's updated resettlement policy was approved in 2020. It aims to reduce the effects of expropriation by minimizing the number of affected people to the greatest extent possible, compensating for losses incurred and displaced incomes and livelihoods, and ensuring resettlement assistance or rehabilitation, as needed, to address impacts on affected families. For the compensation funds to be used properly, expropriated farmers must receive technical and administrative support. Additionally, to minimize externalities and compensation-related claims, the affected rural community and city around them should actively participate in the expropriation and compensation process (Kassaw, 2020).

Numerous Ethiopian scholars have conducted studies and found that the majority of expropriated farmers do not lead sustainable lives. Farmers suffer from compensation criteria as well because they frequently vary in accordance with the political whims of the government, especially in Addis Abeba. The standard primarily addresses how the farmers were removed from their land; it does not address how they continued to live in a sustainable environment or how they engaged in viable income-generating activities. This is because not enough studies have been conducted to prepare the standard. The most crucial thing for policymakers to ensure is that this training occurs either immediately after or before compensation.

Method of the Study

For this specific paper, a quasi-experimental or non-experimental model will be used for the controlled and treated groups; to analyze the data and extract the relationship, we will treat the farmers who are exposed to being displaced from or expropriated from their farmland as treated and the controls as those who are not exposed to expropriation. Propensity score matching will be used

after the treatment and control groups have been categorized; however, due to the issue of counterfactual difficulties, it will be very difficult to examine what would happen to the displaced and expropriated farmers rather than being displaced.

Hence, using the propensity score matching method for displaced and non-displaced farmers, this research will evaluate and explore the average effect of urban expansion and farmer displacement. A more pertinent parametric evaluation that only considers the impact for individuals who the intervention was intended to help is the average treatment effect on treated (ATT). ATT is equal to E(T/D), E(Yi/D=1), and E(Yi/D)-E(Y0/D-1). This will gauge the impact on farmers who have been uprooted or expropriated. Laura B. Rawlings, Christel M. J. Vermeersch, Sebastian Martinez, Paul J. Gertiler, Patrick Premand, and Laura J. Gertiler, 2011, The evaluation of a program's impact also includes determining how it contributed to the results. For the majority of policy concerns involving cause-and-effect linkages, establishing the cause-and-effect relationship is crucial.

Can urban growth speed up the eviction of farmers from their farms? Does the average income of those displaced farmers change as a result of being evicted from their farming lands? Does losing access to their farmland cause their average cost to increase? These are the important issues that this study concentrated on. Nevertheless, establishing a cause-and-effect relationship on its own won't be sufficient to provide answers to policy questions because the impact or result might not be attributable to the anticipated intervention and the exposed groups might already be receiving other social and development interventions. Impact evaluation can assist us solve this issue by emphatically demonstrating the scope of a particular program and demonstrating that the program alone is responsible for the outcome or impact. The following formula provides the response to the fundamental evaluation question, "What is the influence or causal effect of exposing P on an outcome of interest Y?" ATE = (Y/P = 1) - (Y/P=0) According to the formula, the difference between the result (Y) with the exposed (P = 1) and the same outcome (Y) with the non-exposed (P = 0) is the causal influence (ATE) of the exposed P on the outcome (Y).

By considering the factors that predict receiving the therapy, the analytical matching technique known as propensity score matching (PSM) seeks to evaluate the impact of a treatment, policy, or other intervention. In this study, displaced or expropriated farmers and non-expropriated farmers were used as the intervention variables in PSM in an effort to lessen bias caused by confounding

variables that could be present in an estimate of the treatment effect obtained by simply comparing outcomes between units that received the treated versus the untreated.

The outcome variables are Average Monthly Income (Income) and Average Monthly Expenditure. The model includes the following covariates:

Table 1

Summary of All Covariates

Covariate variables	definition
Sex of the householder (sex):	A binary variable which is the sex of the respondent.
Age of the respondent (age):	A continuous variable the age of the respondent it is continuous
Saving status of the respondent	The status saving of the respondent yes or no
Marital status	The marriage status of the respondents which is categorical variable categorized into four categories married, unmarried, divorced, widowed.
Training	Whether they are taking training or not before or after they expropriate
Family size	A continuous variable that indicates the number of family members
Active labor family members	The active labor family member in the household with ages between (15-64)
Compensation	Tab compensation being expropriated, chi
Ability to fulfill basic needs	The ability to fulfill the basic needs of their families

Source: - Survey

Sampling Method and Population

The data required to carry out this investigation will be collected using random and purposeful sampling techniques. The Addis Ababa land administration and city renewal offices in each of the outskirt sub-cities are where the information for the treated group is obtained. This information includes the number of farmers who have been uprooted from their farmland over the past few years among the sub-cities and districts that are adjacent to the rural areas and outlets from the city within the sub-cities. The NIFAS Silk Sub-city, particularly the area around Debrezeit, has the fastest rate of urban growth and farmer eviction among the five outlets, with district 01 Lebu having the greatest rate of urban expansion ever observed in this region. The selection was based on the number of expropriated farmer householders over the previous ten years, and according to the data, Addis Ababa City Renewal Office recorded the highest number of farmer householders who

have been uprooted from their farmland. Consider the farmers who are not expropriated, who continue to farm and support their families through agriculture, as the controlled group. The comparison between these two groups—those who were expropriated as a treatment group and those who were not—will then demonstrate the impact of expropriation on those chosen sample.

As previously stated, the district 01 of the outskirt sub-city of Nifas Silk was chosen because it contained the highest concentration of expropriated farmer households—1625 farmer householders who had lost their farming lands in the previous ten years. The sample size for this research study was determined using the total population of expropriated farmers as the base population. According to Yamane, 238 homeowners are picked from the total population (1967). The study, however, only looked at 109 from the treatment group and 101 from the control group because they were both complete.

Results and Discussion

The research's conclusions are presented in this section of the study, along with a brief explanation of its results. The questionnaire response rates for the treatment and control groups are first shown. One of the respondent's demographic characteristics is their educational background, and statistical tools are employed to reflect their socioeconomic and financial condition. Then, it uses econometric techniques like Logistic Regression and Propensity Score Matching to estimate the outcome (PSM).

During this experiment, a total of 238 questionnaires were delivered. Nonetheless, only 229 surveys were really returned, and 20 of those weren't accepted because they had too many open-ended questions. 259 questionnaires were therefore analyzed. Also, secondary information was acquired from the four sub-cities that make up Addis Ababa's outskirts, particularly from the Nifas Silk Sub City Renewal and Land Administration Office and Nifas Silk Sub City District 01 Administration. The treated group received one hundred twenty-eight of the disseminated questionnaires, while the control group received the remaining one hundred seven. The proportion of the treatment and control groups that filled out questionnaires is shown in Table 2 below.

Table 2

The Response rate of the questionnaire

No.	Groups	Questionnaire Distributed		Questionnaire Returned		Failed Questionnaire		Analyzed Questionnaire	
		No.	%	No.	%	No.	%	No.	%
	Treated Groups	134	54.47	120	52.51	15	81.25	108	51.67
	Controlled Groups	114	45.53	109	47.49	5	18.75	101	48.33
	Total	248	100	229	100	20	100	209	100

Source: Own Computation

Respondents' Characteristics

The survey respondents' average age is 49.73 years old, as stated in Table 3's survey data. A family can also be shown to have a minimum of one member and a maximum of 13 members. The respondents' mean level of education is 4.65; in addition, there are between 1 and 9 household members who are now employed. Table 3 further demonstrates that 4428.23 m2 is the typical size of agricultural land nowadays.

Table 3

Summary Statistics of Respondents' Characteristics for Continuous Variables.

Variable	Obs.	Mean	Std. dev.	Min	Max
Age	209	49.73	12.29	26	96
Education	209	4.65	5.11	0	16
Family size	209	6.12	2.01	1	13
Active labor f. size	209	3.75	1.52	1	9
Farming land size before	209	13508.55	10794.06	2000	70000
Current farming land	209	4428.23	4384.7	0	20000
Compensation	209	1,274,120	2,144,123	0	10,200,000
Monthly income	209	9327.75	3781.79	2000	24000
Monthly expense	209	5637.32	3308.72	1800	16000

Source: Own Computation

Table 4's display of the socioeconomic position of the respondents indicates that, of the total respondents, 67.46% (N=141) are men, and the remaining 32.54% (N=68) are women. However, none of the respondents in either the treated or the control groups attended any training aimed at enhancing production or engaging in income-generating activities prior to or during expropriation, resulting in a training status of 0, which denotes that no training was provided at all.

Table 4

Summary Statistics of Respondents' Characteristics for Categorical Variables.

Characteristics	frequency	Percentage
Sex		
Female	68	32.54
Male	141	67.46
Being expropriate		
Yes	108	51.67
No	101	48.33
Compensation		
Yes	99	47.37
No	110	52.63
Training		
Yes	0	0
No	209	100
Saving		
Yes	104	49.76
No	105	50.24
Fulfilling basic needs		
Fully	99	47.37
Partially	19	9.09
Not able	91	43.54
Marital status		
Single	23	11
Married	151	72.25
Divorced	21	10.05
Widowed	14	6.7

Source: Own survey (2022)

Respondents' Characteristics and Being Expropriated from Farming Land

According to Table 5 below, there was a significant difference in mean values for age, sex, education, family size, active labor family size, marital status, saving status, ability to meet basic necessities, and size of farmland between the treatment and control groups. At a 1% level of significance, the mean academic status difference between the groups is statistically significant. At a 1% level of significance, the mean average land size difference is statistically significant. As a result, treated respondents had more farming land than controlled respondents. Also, the average monthly expenses of the treated respondents were 7,845.37birr and the average expense of the controlled respondents was 3,245.569 birrs. The mean difference of both treated and controlled groups is 4569.133 birr with a t-test value of 13.782 therefore, we conclude that the mean difference is statistically significant at a 1% level of significance. However, the age and family size of the respondents are statistically insignificant ($p>0.01$) between the two treatment groups.

Table 5

Descriptive Statistics of Respondents (For Continuous Variables)

	Treated		**Controlled**		**Difference**	**T-Test**
Variable	Mean	STD	Mean	STD	Mean	STD
Age	50.21	13.26	49.21	11.19	1.00	0.59
Education	3.0093	3.6596	6.396	5.8225	3.3868	5.069
Family size	6.1667	2.1939	6.079	1.798	0.0877	0.314
Active labor	3.7593	1.6959	3.7426	1.324	0.017	0.0789
Land size before	18988.76	12357.15	7648.515	3440	6631.61	8.9045
Land size current	1416.667	2714.189	7648.515	3440.599	6231.848	14.586
Compensation	2474120	2443635	0	0	2474120	10.139
Monthly income	9328.704	4785.181	9326.733	2290.672	1.97	0.0039
Monthly expense	7845.37	3245.569	3276.238	777.1935	4569.133	13.782

Source: own survey (2022)

Table 6 below presents the levels of exposure to displaced effects that existed among different categories of respondents' characteristics with a chi2 test of independence to understand the presence of significant independence between treatment and control. Accordingly, based on Pearson's chi-square test for categorical variables, the variable ability to fulfill basic needs is statistically significant between the treated respondents and the control respondents, as the p-value is less than 0.01 (p = 0.000). Similarly, the respondents' saving status is statistically significant between the two comparison groups because the p-value is less than 0.01 (p=0.000). However, sex and marital status have no statistically significant difference (p > 0.01) between treated and controlled groups on the categorical variables of sex and marital status.

Table 6

Descriptive Statistics of Respondents (For Categorical Variables)

Variable	Category	Controlled (N=101)		Treated (N=108)		Chi2	P- value
		N	%	N	%		
Sex	Female	35	33.98	33	30.56	0.3993	0.527
	Male	68	66.02	75	69.44		
Compensation	Yes	0	0	99	91.67	175.908	0.000
	No	101	100	9	8.33		
Marital status	Single	9	8.91	14	12.96	2.8683	0.412
	Married	71	70.29	80	74.07		
	Divorced	13	12.87	8	7.41		
	widowed	8	7.92	6	5.56		
Basic need	Fully	93	92.08	6	5.56	157.39	0.000
	Partially	3	2.97	16	14.81		
	Not	5	4.95	86	79.63		
Saving	Yes	79	78.22	25	23.15	63.313	0.000
	No	22	21.78	83	76.85		

Source: Own survey (2022)

Relationship Between Being Expropriated and Matching Variables

Table 7 below illustrates the relationships between some of the independent variables and the treatment variable (being expropriated). Unless when we are computing the marginal effects, which we are not doing, the coefficients are not accurate indications of the relationship. So, for

our straightforward analysis and observation, we merely employ the probabilities. Expropriating, as the name suggests, is only an option for individuals who are farmers in the nearby rural area. This leads us to the conclusion that, in contrast to non-expropriated farmers, farmers who are evicted from their farming lands are expected to receive compensation for what they lost. This suggests that the covariate compensation has a substantial relationship with the treatment variable.

Table 7

Relationship Between Being Expropriated and Matching Variables

Being expro-priated	Coef.	Std. Err.	Z	P> |z|
Age	-0.08719	0.07396	-1.18	0.238
Sex	1.5983	1.5983	1.06	0.291
Education	-0.3406	0.19849	-1.71	0.0086
family mem-ber	-0.69225	0.40399	-2.23	0.026
Land size before	0.0008713	0.0004549	1.92	0.055
Basic needs	-4.8383	2.4926	-1.94	0.052
Saving	-4.1121	2.5006	-1.64	.1

Source: own survey (2022)

Two Sample T-tests on Outcome Variables

A two-sample t-test has been employed to check whether there is a significant difference between the two treated and control groups. A two-sample t-test is checked if there exists a significant difference in covariate means for both groups (Rosenbour and Rubin 1995). Since the covariates are expected to be balanced in both groups after matching, a significant difference should not be found.

Two Sample T-tests on Average Monthly Income

Table 8 below shows the treated and control groups of respondents with their monthly income. The expropriated respondents or treated group's average monthly income is greater than the non-expropriated respondents' or controlled group's monthly income. But the difference is not very

significant. Therefore, treated or expropriated respondents (Obs. = 108, mean = 9328.785, Std. Err. =460.454, and Std. Dev. =4785.181) have lesser monthly income than the controlled respondents. The t-test (t = 0.681) indicates that there is no significant mean difference between the treated and control groups. Table 8 shows the average monthly income between the controlled and treated groups (Obs. = 101, Mean = 9693.07, Std. Err. =460.454, Std. Dev. = 4785.181) with a T-value of 0.681.

Table 8

Average Monthly Income Between Treated and Controlled Groups

Groups	Obs.	Mean	Std. Err.	Std. Dev.	T- Value
Treated	108	9326.733	227.930	2290.672	T= 0.681
Controlled	101	9328.704	460.454	4785.907	
Diff		-1.97103	524.74		

Source: Own survey (2022)

Two Sample T-tests on Average Expenses

A two-sample t-test has been employed to check whether there is a significant difference between the expropriated (treated) and non-expropriated (controlled) groups in terms of average monthly expense. Accordingly, the mean difference of 4569.133 Birr shows that treated or expropriated respondents have higher monthly expenses than the controlled, non-expropriated groups. The non-expropriated group's average monthly expense is lower than the expropriated or treated group's monthly expense. This difference is significant at a 1% level of significance. Therefore, treated or expropriated respondents (Obs. = 108, mean = 7845.37, standard deviation = 3245.569, and standard error = 312.305) have lesser monthly expenses than the controlled respondents. The t-test (t= -13.782) shows a significant mean difference between the treated and control groups.

Table 9

Monthly Expense Between Treated and Controlled Groups

Groups	Obs.	Mean	Std. Err.	Std. Dev	T -value
Treated	108	7845.37	312.305	3245.569	-13.782
Controlled	101	3276.238	77.334	777.194	
Diff		4569.133	331.539		

Source: Own survey (2022)

Econometric Analysis

Propensity score matching relates the characteristics and/or the variables to one another. It is important to know how being expropriated affected householders as compared to those who were not expropriated. The impact of being displaced is limited to two outcome variables for this study, which are the average monthly expense and average monthly income of the householder. As previously seen, it is very difficult to analyze the effect of the intervention on all respondents in each group at the same time before and after the intervention. So, it is necessary to establish an appropriate control group that is used as a comparison to see the treatment effect on the treated group. Therefore, this study used different matching mechanisms to solve the counterfactual problem. Control groups are matched with treatment groups based on covariant characteristics that are observed in both groups and are not affected by interventions. PSM is used to match these two groups and produce a probability that makes comparison under common support possible. This study checked results using various methods since results can vary depending on the type of matching method. The methods used include PS Match.

Model

The probit regression model was used for propensity score matching between the treated and the control groups. In this study, being expropriated is the dependent variable and takes the value of 1 if the respondent is expropriated and 0 otherwise. For propensity scores, the study has used different observable characteristics, including sex, age, marital status, and family size. In addition, the characteristics of the respondents farming land size, number of active labor family members, ability to fulfill basic needs, and saving status are also considered. According to Table 10, there are

two factors that have a substantial impact on being expropriated. The amount of land they own and the size of the household are important factors that influence the likelihood that they may lose their farming grounds.

Table 10

Covariates in Relation to Being Expropriated

Being expropriate	Coef.	Std. Err.	Z	p>|z|
Age	0.020399	0.05444	0.37	0.708
Sex				
Male	0.637556	1.17205	0.54	0.586
Saving				
yes	-0.5429	0.33859	-1.60	0.109
Marital status				
Single				
Married	-0.99328	1.28698	-0.77	0.440
Divorced	-0.51593	2.07515	-0.25	0.804
Widowed	0.575112	8.9655	0.06	0.949
Land size before	0.0006013	0.00018	3.39	0.001
Education	-0.16102	0.10687	-1.51	0.132
Basic need				
yes				
Partially	6.06577	1.8609	3.26	0.001
Not	7.87202	1.9611	4.01	0.000
Family size	-0.3159	0.4152	-0.08	0.044
Number of active labor family members	-1.0917	0.6118	-1.78	0.939
N	209			
LR chi2(22)	208.11			
Prob>chi2	0.0000			
Log -likelihood	-40.6971			
Pseudo R2	0.7188			

Source: own survey (2022)

Defining the Region of Common Support

As it was explained previously, four main tasks should be accomplished before the matching task is accomplished and before the values of program participation (propensity scores) are estimated for both treatment groups. Next, common support should be imposed on the propensity score distribution of respondents who are expropriated and non-expropriated from their farmlands. Table 11 below describes the common support among the untreated and treated groups. Accordingly, 101 respondents from the total observation are receiving support from untreated and controlled groups. 108 respondents are on support. From the estimated propensity score, it can be seen that the region of common support is [0.68, 1.46]. Observations that are less or greater than the minimum common support value or maximum common support value, respectively, are discarded from the region.

Table 11

Common Support Region

Treated groups	Common support	
	On support	Total
Untreated	101	101
Treated	108	108
Total	209	209

Source: Own survey (2022)

Average Treatment Effect on Treated

The average monthly expenses of the treated and controlled households were measured by taking the average that allowed to measure the indicators of the monthly expense of respondent householders mentioned in previous sections, which are farming land size, family size, sex, age, and saving. As it can be seen in the above table, the average monthly expense of the treated enterprises has increased by 4569.133 Birr due to their displacement from their farming areas and exposure to non-farming activities. but the average income of respondent householders shows no significant difference between the controlled and treated groups.

Table 12

Average Treatment Effect on Treated

Variable	Sample	Treated	Control	Difference	S. E	T-stat
Average monthly expense	Unmatched	7845.37	3276.238	4569.133	331.539	13.78
	ATT	7845.37	2793.518	5051.852	533.830	9.46
Average monthly in-come	Unmatched	9328.704	9326.733	1.971	524.740	0.00
	ATT	9266.355	9247.664	18.692	585.212	-2.28

Source: Own survey (2022)

Conclusion and Recommendation

This study's main goal is to determine how expropriating farmers on the outskirts of cities affects their household members' average monthly income and expenses. Hence, in accordance with the goal of this research, the major conclusion has been reached below based on the results acquired. The difference in average monthly income between the treatment (expropriated farmer house-holder) and controls (non-expropriated farmer householder) groups is not statistically significant, according to the t-test result before matching. In order to demonstrate how exposure to expropriation from agricultural land also impacts people's methods of earning a living, this research work uses two outcome variables to quantify the influence of being expropriated on income. The average treatment effect on the treated indicated nearly no difference in the value of the average monthly income when the treatment groups were matched. Hence, expropriation does not help farmer homeowners' ability to earn more money. Farmers are evicted from their farms without having their exit strategies well thought out and researched, especially in terms of how they will adapt to their new surroundings once they have been relocated and how they will use their compensation to spend it wisely and engage in income-generating activities or businesses.

But the average monthly expense between two groups of treated (expropriated) and controlled (non-expropriated) farmer householders proved that they had a statistically significant difference. The mean nominal average monthly expense of the treated (expropriated farmers) is 7845.37 ETB, which is greater than that of the controlled or non-expropriated (3276.33), and they have a mean difference of 4569.13 ETB. Therefore, it can be concluded that being expropriated from farming land increases their average expense since they are exposed to additional expenses such as food expenses, transportation costs, and house rent expenses added in addition to their previous expenses, and they are also extravagant since they have compensation money and spend it on their daily consumptions. At the same time, their saving status is also negatively affected by being expropriated; as they change their living environment, they are also exposed to losing their social activities, which encourage saving, like in Equb and Edir. These saving mechanisms are very common, especially in rural societies, so for those expropriated farmer householders as they resettle in a new environment, it takes time to be involved in such saving mechanisms. So, saving will be affected or lowered compared with non-expropriated respondents. Furthermore, because they were expropriated, they have been unable to improve their academic standing due to the numerous challenges they face, such as an unstable living environment and increased expenses. As a result of this, they weren't able to fit for professional work, so they continued the rest of their lives on unskilled and labor jobs with low wages.

References

Admasu, W.F., Boerema, A., Nyssen, J., Minale, A.S., Tsegaye, E.A., Van Passel,S. (2020). *Uncovering economic services of exproriated land in the case of urban expansion in BahirDar.*

Agegnehu, S.K., Mansberger, R. . (2020). *Community involvement and compensation money in Ethiopia in case of Bahir Dar and Debre Markos.*

Agegnehu, S.K., Mansberger, R. . (2020). *Community involvement and compensation money utilization in Ethiopia: Case studies from Bahir Dar and Debre Markos peri-urban areas.*

Ayele, B. (2014). *The impact of development induced displacement and relocation on the livelihoods of households in Dukem area.*

Balakrishnan, S. (2013). Highway urbanization and land conflicts: The challenges to decentralization in India. *Pacific Affairs* 86.

Bank, w. (2021). *Analysis of shape of urban growth underpins livvability and sustainable growth.* washington : the world bank group.

Central Statistics Agency, C. (2007).

Coulibaly, B.; Li, S. . (2020). *Impact of agricultural land loss onrural livelihoods in peri-urban areas. 470.*

Danan G., Kirill A., and Matthew E. D. (2021). *Major trends in population growth around the world.*

Fay, M.; opal, C. (2000). *Urbanization without growth*. USA, Washington: world bank.

Fetene, W., Van Passel, S., Sewnet, A.; Adgo, E., Azadi, H., Nyssen, J. (2019). Land use policy take out the farmer: An economic assessment of land expropriation for urban expansion in bahir dar, northwest ethiopia. *Land Use Policy*.

Firew, B. (2010). The impact of horizontal urban expansion on sub- urban agricultural.

Gebreegziabher, T.T. . (2014). The effect of development induced displacement on relocated house hold in addis ababa.

Guo, S.L., Li, C.J., Wei, Y.L., Zhou, K., Liu, S.Q., Li, Q.Y. . (2019). Impact of land expropriation on farmers livelihood in mountanious regions of china. 2484-2501.

Haregewoin. (2005). Urbanization and urban sprawl . *M.Sc thesis* , number 294.

Jemberu, D. (2014). Effectiveness of agricultural led industrialization development. *Thesis*.

Karen, C.S., Michail, F. (2005). Quantifying spatiotemporal patterns of urban land-use. 872-888.

KASSA, F. (2014). The rates and effects of urban sprawl in developing countries.

Kassaw, S. (2020). Community involvement and compensation money utilization in ethiopia. 1-18.

Khandker,Shahidur R.,Koolwal, Gayatri B.,Samad Hussain A. (2010). *Handbook on impact evaluation.*

kumsa, G. k. (2011). Issue of expropriation: The law and the practice in Oromia.

Lin, Q., Tan, S., Zhang, L., Wang, S., Wei, C., Li, Y. (2018). Land use policy conflicts of land expropriation in china. 246-251.

Matousa, P., Todob, Y., &Mojoc, D. (2013). Role of extension and ethino-religious networks in acceptance of resource-conserving agriculture among Ethiopian farmers. *International Journal of Agricultural Sustainability*, 301-316.

Mohammed, A. (2018). Land expropriation for cooperative housing in Amhara Region.

Mohammed, I., Kosa, A., Juhar, N. . (2017). Urbanization in Ethiopia: Expropriation process and rehabilitation mechanism of evicted peri-urban farmers (policies and practices).

Mohammed, I., Kosa, A., Juhar, N. (2017). Urbanization in Ethiopia.

Nguyen Ninh Hai, Nguyen Tuan Anh, Tran Nguyen Lam Khuong, Bach Quang Dung, Nguyen Minh Ky. (2019). Uban sprawl trends and landscape change in Pleiku City, Gia Lai Province. *Research on Urban Sprawl Trends and Landscape Change*.

Nguyen, T.T., Heged us, G.; Nguyen, T.L., (2019). Effects of land acquisition and compensation on the livelihoods of peoples in Quang Ninh District.

paul J. Gertiler, Sebastian Martinez, Patrick Premand, laura B. Rawlings, Christel M. J. Vermeersch. (2011). Impact evaluation in practice.

Rafferty, B. J. (2021). Urban sprawl.

Richard, B. (1989). Density and Urban sprawl. *Land Economics.* 193-204.

Satterthwaite, D., G. McGranahan, and C. Tacoli. (2010). *Urbanization and its implications for food and farming. Philosophical Transactions of the Royal Society B: Biological.*

Schenck, L. (2018). *Small family farms country factsheet .* Food and agriculture organization.

Slemp, C., M. A. Davenport, E. Seekamp, J. M. Brehm, J. E. Schoonover, and K. W. J. Williard. (2012). Growing too fast: Local stakeholders speak out about growth and its consequences for community wellbeing in the urban–rural interface. 139-148.

Song, J., H. Du, and S. Li. (2018). Urbanization and employment of former peasants in Western China.

Tassie Wegedie, K. (2018). Determinants of peri-urban households' livelihood strategy choices. 1-22.

Tilahun Dires, Derjew Fentie, Yeneneh Hunie, Worku Nega, Mulugeta Tenaw, Sayeh Kassaw Agegnehu, Reinfried Mansberger . (2021). Assessing the impacts of expropriation and compansation on livelihood of farmers. 614.

UN Habitat. (2020). World cities report. *United Nations Human Settlements Programme, 2020*, 50.

UN Habitat. (2016). *World Cities Report 2016: Urbanization and Development–Emerging Future; UN-Habitat:.* Nairobi, Kenyas.

World Bank .*(2019). World Population Prospects.*

World Bank. (2021). *Analysis of shape of urban growth underpins livability and sustainable growth.* Washington: the worldbank groups.

zhifeng liu, chunyang he, yuyu zhou,jianguo wu. (2014). How much of the worlds land has been urbanized.