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Analysis of Farm Households' Price Efficiency in Production of Maize: The case of Bilo Nopa District, Illu Ababor Zone, Oromia Regional State, Ethiopia: An application of Stochastic Frontier Analysis and Dual Cost approach

By

Teka Etefa[1]

Abstract

Even though agriculture is the backbone of Ethiopian economy, its performance is unsatisfactory and food production is very low as compared with population growth. As the possibility to improve production by bringing extra resources into use became more and more restricted, the efficiency with which the farmers use existing resources has received the utmost attention to block the gap between supply and demand of food. This study was carried out to analyze productivity and price efficiency of smallholder farmers in maize production in Bilo Nopa district. To meet the objectives of the study, secondary data were used in addition to primary data. The Primary data was gathered via structured questionnaires from randomly selected 152 sample households during the 2020/21 production year as well as secondary data was collected from different sources. Cobb-Douglas production function was applied to analyze the productivity where as Tobit Model is used to estimate farm households' price efficiency. The mean price efficiency was 70.9%. Thus, there exist considerable levels of price inefficiencies in production of maize in the study area. The Tobit model results revealed that livestock holding, frequency of extension contact, land fragmentation and off/non farm activity had a considerable effect on price efficiency. The result of the study shows that there exists an opportunity to boost the efficiency of maize producers in the study area. In addition, policy measures derived from the results of the study include: increasing the livestock production, strengthening the extension services, promote off/non farm activity and raising the resettlement programs in the study area.

Keywords: *Cobb-Douglas, Dual Cost, Price Efficiency, Stochastic frontier, Tobit*

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1. INTRODUCTION

Currently the world population is 7.9 billion. About 80% of the world population depends on farming, live in rural areas and almost they are poor. On the world, agricultural development is expected to have the potential of supporting in sinking down poverty. Maize (Zea mays L.) was domesticated from teosinte in Mexico and it spread to the rest of the world in the 16th through 18th centuries. It is the most widely distributed and the first most important cereal crops followed by rice and wheat in the world (Shiferaw et al., 2011, Njeru, 2010, FAOSTAT, 2013). Africa is an agrarian continent whereby two thirds of the people directly or indirectly engaged their livelihood depending on agriculture sector. The Sub-Saharan Africa region accounts for more than 950 million people, approximately 13% of the global population (FAO, 2015). Maize accounts for calories and protein consumed in ESA and in West Africa. Aside from its staple food use, it makes a significant contribution to animal feed (especially poultry), bio-fuel and industrial uses (Ntabakirabose, 2017; Wongnaa, 2016). In developed countries, 70% of maize is destined for feed, 3% consumed directly by humans and the remaining 27% uses for bio-fuels, industrial products, and seed. While in Sub-Saharan Africa, 77% of maize is used as food and only 12% serves as feed (Inuwa, 2018). In Ethiopia, cereals are the major food crops both in terms of area coverage and volume of production (Haile et al., 2018).

The major cereal crops grown in Ethiopia are teff, maize, wheat, barley, sorghum and millet (CSA, 2017; Mustefa, 2014). Maize is one of the major five staple cereal crops in Ethiopia. Among those crops grown in Ethiopia, maize is the most significant cereal crop in terms of total production, area coverage and better availability and utilization of new production technologies (CSA, 2017). Maize is a major source of food and cash for smallholder farmers (Abdulai et al., 2018). It is the highly demanded food crop in the South-western part of Ethiopia. High productivity and efficiency in maize production is critical to improve food security, reduce the level of poverty and achieve or maintain agricultural growth (Inuwa, 2018).

According to the CSA (2017) report, maize is cultivated on over 2.13 million hectares of land, with an annual production of 7.8 million tons with a yield of 36.75 qt/ha, contributing about 27.02% of the total cereal production in Ethiopia. In terms of area of production, maize stands second by covering 16.98% of the total cereal crops areas preceded by only teff (24.00%), and followed by sorghum (14.97%) and wheat (13.49%). From total cereal production, maize ranks first in the country. In Oromia region, the total area covered by maize in the production year of 2016/17 was 1.143 million hectares and 43.62 million quintals of maize was produced by 5.36 million smallholder farmers and average productivity was 38.18 qt/ha (CSA, 2017). At the same time, there were 329,242 smallholders' producing 4.6 million quintals of maize with a yield of 42.30 qt/ha from 108,914 ha of land in Illubabor zone.

In the Bilo Nopa woreda, where this study was conducted, maize (Zea mays L.) production is the means of livelihood of the people to meet the household consumptions and to generate income. However, there was no study conducted in the district before to identify whether the farmers are using the inputs in an optimal proportion, given input prices for maize production. So, this study aimed to estimate the levels of price efficiency and to identify the major factors affecting it by collecting cross-sectional data from maize producing smallholder farmers in Bilo Nopa district.

2 RESEARCH METHODOLOGY

2.1 Description of the Study Area

Bilo-Nopa district is found in Illu Ababor zone of Oromia Regional State at about 615 km from Finfinne and 18 km from Mettu, which is the administrative seat of Ilu Abba Bora zone. The total land area of the district is 37,009 hectors and the district is composed of 16 Kebeles. Agro-ecological zone of the district is fall in high land and lowland. The mean annual temperature of the district is 180c up to 230c and the mean annual rainfall is from 1200mm-2100mm per year. The total population of the district is 39,848 from this the number of males is 22,269 and the number of females is 17,579. With regard to the economic activities of the local community, the majority of them engaged in agriculture and agriculture-related activities. Forest-derived goods and service like (coffee and honey) are the major agricultural activities of the community in the study area.

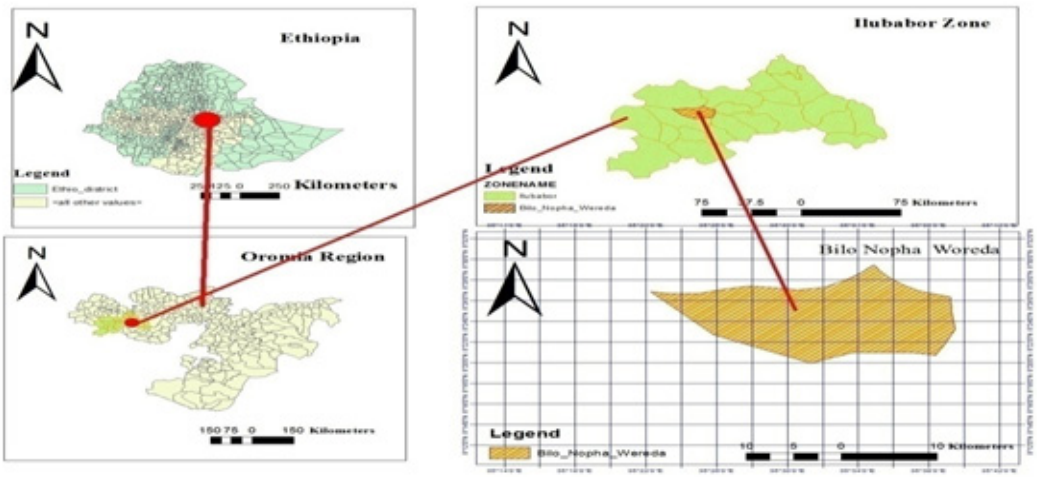


Fig. 1: Map of the study area

2.2 Sampling Technique and Sample Size Determination

In this study, two-stage random sampling technique was used to select sample households. In the first stage out of 16 kebeles exist in the district; three kebeles (Kitabir, Bilo Karo, and Abu) were randomly selected. In the second stage, the total of 152 sample farmers were selected using simple random sampling technique based on probability proportional to the size of the maize producers in each of the three selected kebeles.

2.3 Data Types, Sources and Method of Data Collection

This study was used both qualitative and quantitative type of data. Both primary and secondary data sources were used. The primary data was collected from sample households using a structured questionnaire that was administered by the trained enumerators based on the actual farming practices existed in the study area. Moreover, local measurement scales customarily used by the farmers was converted into their respective standard units to minimize measurement errors that could arise from the variability of local units. Secondary data was collected from local administration offices, governmental and NGOs, published and unpublished documents and CSA which were used as additional information to strengthen the primary information provided by the sample households in the study area. FGD and key

informant interviews were made with farmers, development agents, concerned agricultural professionals and administration offices at all levels by the researcher.

2.4 Method of Data Analysis

To address the objectives of the study, the data collected from the sampled households and other sources were analyzed using descriptive statistics and econometric models using SPSS and STATA 13 software. Econometric model like Cobb-Douglas stochastic production frontier model was used to predict the price efficiency scores of sample farmers and Tobit model was used to analyze the determinants of price efficiency.

Dual cost approach of Efficiency measurement

According to Sharma et al. (1999), the dual cost frontier of the Cobb-Douglas production functional form is defined as:

$$\ln(C_i) = \beta_o + \sum_{j=1}^{n} \beta_j \ln P_{ji} + \beta_j Y^* \qquad (2)$$

Given input oriented function, the efficient cost function can be specified as follows:

$$\min \sum_{X} c = \sum_{j=1}^{6} W_j X_j \qquad (3)$$

Subjects to

$$Y^* = \hat{\Lambda} \prod Xj^{\beta j} \text{ Where } \hat{\Lambda} = Exp\,(\beta \hat{}\, 0\,) \qquad (4)$$

The solution for the problem in the above equation is the basis for driving dual cost frontier. Substituting the input demand equations derived using shepherd`s lemma (4) and Yield adjusted for stochastic noise (predicted value of yield) in the minimization problem above, the dual cost function can be written as follows:

$$C(Yi^*, W) = HYi^{\mu} \prod_j W_j^{\alpha j} \qquad (5)$$

According to (Sharma et al., 1999), the explained cost measures which enable to estimate PE is:

$$C_i = C\,(W_i, Y_i^*, \alpha) \qquad (6)$$

Where i refers to the ith sample household; Ci is the minimum cost of production; Wi denotes input prices; Y* refers to farm output which is adjusted for noise and a‘ s is parameters to be estimated.

Efficiency measurement

Most empirical studies on efficiency in Ethiopia were analyzed using Cobb-Douglas stochastic

production frontier model (Nigusu 2018; Asfaw et. al, 2019 and Tolesa et. al, 2019). The main reason is that the stochastic production frontier model allows for statistical noise such as measurement error and climate change which are beyond the control of the farmers. Following Aigner et al. (1977) the specified stochastic production frontier (SPF) model was defined as follows:

$$\ln(Y_i) = F(X_i, \beta_i) + v_i - \mu_i \quad i = 1,2,3 \ldots n \qquad (1)$$

Where:

i - Indicates the number of sample households

ln(Yi)- Indicates the natural log of (scalar) output of the ith household;

F(Xi,βi) - is a convenient frontier production function (e.g. Cobb-Douglas);

Xi - Represent a vector of input quantities used by the ith household

βi - Indicates a vector of unknown parameters to be estimated

vi - is a symmetric component and permits a random variation in output due to factors beyond the control of the decision making unit such as weather, measurement error, omitted variables and other exogenous shocks. It is assumed to be independently and identically distributed N~ $(0,\sigma^2 v)$ and

μi - intended to capture inefficiency effects in the production of maize measured as the ratio of observed output to maximum feasible output of the i^thfarmer. It was assumed to be independently and identically distributed as half-normal, u~N $(u,\sigma^2 u)$.

Determinants of price efficiency

In this study, to analyze the effect of demographic, socio-economic, farm attributes and institutional variables on price efficiencies, a second stage procedure used where the efficiency scores estimated from stochastic production frontier was regress on hypothesized explanatory variables using Tobit model. This model is best suited for such analysis because of the nature of the dependent variable (efficiency scores), which takes values between 0 and 1 and yield the consistent estimates for unknown parameter vector (Maddala, 1999). Estimation with OLS regression of the efficiency score would lead to a biased parameter estimate since OLS regression assumes normal and homoscedastic distribution of the disturbance and the dependent variable (Greene, 2003). Following Maddala (1999) the model can be specified as:

$$y^*_{iPE} = \delta_0 + \sum_{n=1}^{n} \delta_n Z_{in} + \mu_i \qquad (9)$$

Where: i refers to the i^{th} farm in the sample households; n is the number of factors affecting price efficiency; y_i is efficiency scores representing the price efficiency of the i^{th} farm. y_i* is the latent variable, δ_n are unknown parameters to be estimated and μ^i is a random error term that is independently and normally distributed with mean zero and common variance of σ^2 ($\mu i \sim IN(0,\sigma^2)$). Z_{in} are demographic, institutional, socio-economic and farm-related variables which were expected to affect price efficiency. Denoting yi as the observed variables,

$$y_i = \begin{vmatrix} 1 & if y_i^* \geq 1 \\ y_i^* & if 0 < y_i^* < 1 \\ 0 & if y_i^* \leq 1 \end{vmatrix} \quad (10)$$

The distribution of the dependent variable in equation (10) is not a normal distribution because its value varies between 0 and 1. The ordinary least square (OLS) estimation will give biased estimates (Maddala, 1999). Therefore, the alternative approach is using the maximum likelihood estimation which can yield the consistent estimates for unknown parameters. Following Maddala (1999), the likelihood function of this model is given by:

$$L(\beta, \delta | y_j X_j L_{1j}, L_{2j}) = \prod_{y_j = L_{1j}} \varphi\left(\frac{L_{1j} - \beta' X_j}{\delta}\right) \prod_{y_j = y_j^*} \frac{1}{\delta} \phi\left(\frac{y_j - \beta' X_j}{\delta}\right) \prod_{y_j = L_{2j}} 1 - \varphi\left(\frac{L_{2j} - \beta' X_j}{\delta}\right) \quad (11)$$

Where $L_{1j} = 0$ (lower limit) and $L_{2j} = 1$ (upper limit) where φ(.) and φ(.) are normal and standard density functions. In practice, since the log function is monotonically increasing function, it is simpler to work with log of likelihood function rather than likelihood function and the maximum values of these two functions are the same (Greene, 2003).

The regression coefficients of the Tobit regression model cannot be interpreted like traditional regression coefficients that give the magnitude of the marginal effects of change in the explanatory variables on the expected value of the dependent variable. In a Tobit model, each marginal effect includes both the influence of explanatory variables on the probability of dependent variable to fall in the uncensored part of the distribution and on the expected value of the dependent variable conditional on it being larger than the lower bound. Thus, the total marginal effect takes into account that a change in the explanatory variable will have a simultaneous effect on the probability of being allocatively efficient and value of allocative efficiency score. A useful decomposition of marginal effects that was extended by Gould et al. (1989) was proposed by McDonald and Moffitt (1980). From the likelihood function of this model stated in equation (6), Gould et al. (1989) showed the equations of three marginal effects as follows:

1) The unconditional expected value of the dependent variable:

$$\frac{\partial E(y)}{\partial x_j} = [\varphi(Z_U) - \varphi(Z_L)].\frac{\partial E(y^*)}{\partial x_j} + \frac{\partial[\varphi(Z_U - \varphi(Z_L)]}{\partial x_j} + \frac{\partial(1 - \varphi(Z_U)}{\partial x_j} \quad (12)$$

2) The expected value of the dependent variable conditional upon being between the limits

$$\frac{\partial E(y^*)}{\partial x_j} = \beta_n.\left[1 + \frac{\{Z_L\,\phi(Z_L) - Z_U\,\phi(Z_U)\}}{\{\{\varphi(Z_U) - \varphi(Z_L)\}\}}\right] - \left[\frac{\{\phi(Z_L) - \phi(Z_U)\}^2}{\{\varphi(Z_U) - \varphi(Z_L)\}^2}\right] \quad (13)$$

3) The probability of being between the limits

$$\frac{\partial[(\varphi(Z_U) - \varphi(Z_L)]}{\partial x_j} = \frac{\beta_n}{\sigma}.[\phi(Z_L) - \phi(Z_U)] \quad (14)$$

Where φ(.) = the cumulative normal distribution, φ(.) = the normal density function, $Z_L = -\beta'X/\sigma$ and $Z_U = (1-\beta X/(\sigma)$ are standardized variables that came from the likelihood function given the limits of y*,

and σ=standard deviation of the model. The marginal effects represented by the equations above were calculated by the STATA command mfx which was complemented by specific options that allowed the estimation of marginal effects of change in explanatory variables.

3 RESULTS AND DISCUSSIONS

3.1 Descriptive Results

3.1.1 Demographic and socio-economic features of sampled households

Age is one of the most important factors which determine the management experience of the farmers. The average age of the sample households, during the survey period, was about 42.24 years. This implies that most of the household heads were within their productive age (Table 1). Family labor plays an important role in the success of smallholder farming practices. In the study area, the average family size of the sampled households was found to be 6.22 with a minimum of 1 and a maximum of 14 (Table 1). Education is a tool to enhance the quality of labor and hence increases the efficiency of producers. According to the survey result, the average years of formal schooling of the sampled farmers was grade 4.20 (Table 1).

Table 1: Descriptive statistics for continuous variables

Variable description	Mean	Std. Dev.	Min	Max
Age (Year)	42.24	9.35	24	72
Education level(Year)	4.20	3.08	0	12
Family size (No.)	6.19	2.40	1	14
Total Cultivated land (ha)	1.48	0.87	0.25	4.75

Source: Own computation (2021)

3.1.2 Farm and institutional characteristics of sample households

Land utilization and availability in the study area: Land is a scarce resource and the most important factors of production for the rural people of the country in general and the study area in particular. Survey result shows, the mean land owned by the sampled farmers in the study area during the survey period was 1.78 ha. The mean cultivated land was 1.48 ha (Table 1).

Major crops grown in the study area: In the study area, the most important annual crops produced by the sampled households were maize, sorghum, teff, finger millet, wheat, barley, and bean. On average, sample households allocated 0.81 ha (57.86%) of the total cultivated land for maize production. Next, to maize, sorghum and teff were crops that took the largest proportion of the household's total cultivated land covering 0.32 ha and 0.13 ha, respectively. The sample households allocated 0.11 ha and 0.06 ha of the total cultivated land for finger millet, and wheat respectively. Moreover, barley and bean were crops that took a certain share of household's total cultivated land covering 0.03 ha and 0.02 ha, respectively (Table 2). The survey result also reveals that the average production of major crops in quintals in the study area. Given the difference in productivity among crops, sample households on average got 23.25 quintals of maize which is 54.21% of total production. The total average production of sorghum, teff, finger millet and wheat was 7.21 (16.81%), 4.26 (9.93%), 3.57 (8.31%) and 2.41(5.61%) quintals of the

total major crops production respectively. Sampled households on average got 1.24 and 0.95 qt of barley and bean respectively (Table 2).

Table 2: Average production of the major crops

Crop types	N	Production (Qt)	Area allocated (ha)		
		Mean	Percent	Mean	Percent
Maize	152	23.25	54.24	0.81	57.86
Sorghum	112	7.21	16.81	0.32	20.12
Teff	88	4.26	9.93	0.13	8.18
Finger Millet	64	3.57	8.31	0.11	6.92
Wheat	36	2.41	5.61	0.06	3.77
Barley	28	1.24	2.89	0.03	1.89
Bean	22	0.95	2.21	0.02	1.26

Source: Own computation (2021)

3.1.3 Major problems of maize production in the study area

In the study area, farmers may face different problems in farming activities. From the problems; weed infection, shortage of oxen, shortage of land, labor shortage, soil factors, maize disease, poor land preparation, seed productivity problem were the major ones. As a result of the study shows, soil factors were the main serious problem that farmers were facing followed by maize disease (American Gerry) and oxen shortage. From the total sample, about 19.74% of respondents reported that they were facing soil factors while 17.76% were facing maize disease (especially American Gerry) and 13.81% of the farmers were facing oxen shortage. In addition, according to information obtained from the sampled respondents, American Gerry is a recently occurred disease that affects the yield of their maize crop. As they reported, it needs immediate control. Additionally, 13.16% and 12.50% of the respondent faces seed productivity problem and weed infection respectively (Table 3). Farmers also reported that there was a labor shortage during peak agricultural production seasons.

Table 3: Major problems of maize production

Variables	Frequency	Percent
Weed infection	19	12.50
Shortage of oxen	21	13.81
Shortage of land	15	9.87
Labour shortage	11	7.24
Soil factors	30	19.74
Maize disease	27	17.76
Poor land preparation	9	5.92
Seed productivity problem	20	13.16
Total	152	100.00

Source: Own computation (2021)

3.2 Econometrics Model Outputs

3.2.1 Descriptive statistics of variables used to estimate the cost function

Similar to the production function, the mean and standard deviation of each variable used in the cost function along with their contribution to the total cost of production are presented (Table 4). On average, the total cost of 9197.11 birr was required to produce 23.25 quintal of maize. Among the various factors of production, the cost of labor and land accounted for the highest share 2808.55 birr and 2421.88 birr respectively. Following the cost of labor and land, cost of urea, oxen, and NPS takes 1380.62 birr, 1320.32 birr, and 866.19 birr respectively out of the total cost of production. Among the total input used to produce maize output, the cost of seed took the smallest share 380.15 birr (Table 4).

Table 4: Descriptive statistics of variables used to estimate the cost function

Variable	Unit	Mean	Std. Dev.	Min	Max
Output	Quintal	23.25	14.67	5	72
Total cost of production	Birr	9197.11	6201.91	610	35410
Cost seed	Birr	380.15	226.32	99.92	1471.2
Cost land	Birr	2421.88	1438.79	700	7510
Cost NPS	Birr	866.19	553.55	190.3	3015
Cost urea	Birr	1380.62	898.13	262.75	4432
Cost oxen	Birr	1320.32	726.45	360	3440
Cost human labor	Birr	2808.55	1517.92	634	7830

Source: Own computation (2021)

3.2.2 The MLE of the parametric SPF and cost functions

Using ML estimates of the parameters, the SPF specified in equation (3.3), were obtained using the Stata 13 computer program. The results of ML estimates of the average production function are presented in Table 5. The result of the model showed that, from the total of six variables considered in the production function, four inputs (land, seed, oxen, and labor) had a significant effect in explaining the variation in maize yield among sampled farmers. The coefficients of the production function are interpreted as the elasticity of output produced with respect to the input used. If there is a 1% increase in the area of land, amount of seed, amount of oxen and amount of labor allotted for maize production, maize output would increase by 0.3190%, 0.2827%, 0.1244% and 0.1574% respectively, suggesting that maize production was responsive to land, seed, oxen, and labor in the study area. The result is in line with the finding of Sisay et al. (2015); Meftu (2016) and Mustefa et al. (2017). Hence, the increase in these inputs would increase the production of maize significantly as expected. Moreover, the coefficient for land used was 0.3190, which implies that, at ceterus paribus, a 1% increase in the area of land would result in 0.3190% increase in maize production. Alternatively, this indicates maize production was more responsive to land.

Return to the scale of all input used in the production process is the measure of total factors productivity. The scale coefficient was calculated to be 1.035, indicating increasing returns to scale (Table 5). This implies that there is potential for maize producers to continue to expand their production because they

are in stage I of the production surface, where resource use and production is believed to be inefficient. Therefore, a percent increase in all inputs proportionally would increase the total production by 1.035%. This is consistent with the finding of Solomon (2012); Mustefa (2014) and Tolesa et al. (2019), who estimated the returns to scale to be 1.0404%, 1.039% and 1.0341% respectively in their studies, which falls in stage I of production surface. The diagnostic statistics of inefficiency component reveals that sigma squared (σ^2) 0.2306 was statistically significant at 1%. This indicates the goodness of fit and the correctness of the distributional form assumed for the composite error term.

Table 5: Estimation of the Cobb-Douglas frontier production function

Variables	MLE		
	Parameters	Coefficient	Std. Err.
Constant	β0	1.1751**	0.5064
LNSEED	β1	0.2827***	0.0945
LNLAND	β2	0.3190***	0.1031
LNPS	β3	0.0615	0.0704
LNUREA	β4	0.0900	0.0690
LNOXN	β5	0.1244*	0.0609
LNLBR	β6	0.1574*	0.0800
Variance Parameters			
$\sigma^2=\sigma_v^2+\sigma_u^2$		0.2306***	0.0512
λ =σu/σv		2.3802***	0.1130
Gamma (v)		0.850	
Log likelihood		-40.97	
Return to scale		1.035	

Note: *, **and *** refers to 10%, 5% and 1% significance level, respectively.

Source: Model Output (2021)

The ratio of the standard error of u (σu) to standard error v (σv) known as lambda (σ), was 2.3802. Based on the value of lambda, gamma value is derived using the formula $\gamma = \sigma^2/(1+\sigma^2)$ the gamma (γ) was 85%. It also shows that about 85% of the variations in output of maize are caused by technical inefficiency. The remaining 15% variation was due to random noise that is beyond the control of the smallholder farmers.

The dual cost function which was derived analytically from the SPF is given as follows basis for computing price efficiency:

$$\ln C_{Mi} = 2.51 + 0.03\ln w_{1i} + 0.32\ln w_{2i} + 0.01\ln w_{3i} + 0.17\ln w_{4i} + 0.08\ln w_{5i} + 0.02\ln w_{6i} + 0.48\ln Y^*$$

Where ln is the natural logarithm; C_{Mi} is the minimum cost of maize production of the i^{th} farmer; w_{1i} refers to the price of seed per kg; w_{2i} is the cost of land per ha; w3i is cost of NPS per kg; w_{4i} is cost of

urea per kg; w_{5i} is cost of oxen per day; w_{6i} is cost of labor per day; Y* is an index of output adjusted for any statistical noise and scale effects; i^{th} refers to the i^{th} sample household.

Efficiency score of maize producers in the study area

The mean level of price efficiency of farmers in the study area was 70.9% and ranges from 35.03% to 91.80% indicating that on average, maize producer households can save 29.1% of their current cost of inputs if resources are efficiently utilized (Table 6). This shows that there is enormous opportunity to increase the efficiency of maize producing households by reallocation of resources in cost minimizing way. For instance, a farmer with an average level of price efficiency would enjoy a cost saving of about 22.77% derived from (1 – 0.709/1.000)*100 to attain the level of the most efficient farmer. The most price inefficient farmer would have an efficiency gain of 61.84% derived from (1 - 0.3503/ 1.000) * 100 to attain the level of the most price efficient household. This result is close to the results of Tukela et al. (2013); Alelign (2017) and Tolesa et al. (2019).

Table 6: Summary statistics of efficiency score of sample households

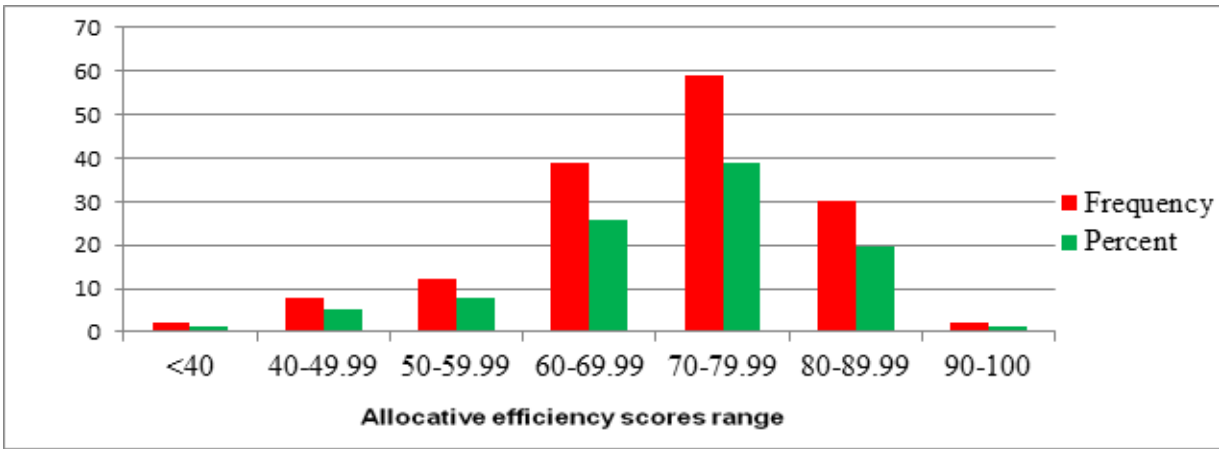
Variable	Observation	Mean	Std. Deviation	Minimum	Maximum
PE	152	0.709	0.110	0.350	91.80

Source: Model output (2021)

Distribution of price efficiency scores

The price efficiency distribution score shows that 38.82% of the sample households had price efficiency score between 70 to 79.99%. Households in this group can save at least 20% of their current cost of inputs by behaving in a cost-minimizing way. About 25.66% of maize farmers in the study area were operating between the efficiency score of 60 to 69.99% (Fig. 2). Only 1.32% of the total sample households had an price efficiency score above 90%. This shows that almost maize producing households (98.68%) can at least save 10% of their current input cost by reallocation of resources in cost minimizing way.

Fig. 2: Distribution of price efficiency scores (%)



Source: Model Output (2021)

3.2.3 Determinants of price efficiency of maize producing farmers

The results of the Tobit regression model showed that among the hypothesized variables three variables (livestock holding, frequency of extension contact and land fragmentation) significantly influence price efficiency of smallholder farmers in maize production in the study area.

Livestock holding: The coefficient for livestock holding (TLU) was positive and had a significant influence on PE at the 10% significance level. The result reveals that having the largest number of livestock holding helps to shifts cash constraint, provide manure and to satisfy all needs of farmers in the study area. Each unit increase in the value of TLU would increase the probability of a farmer being price efficient by 0.238% and the expected value of PE by about 0.398% with an overall increase in the probability and the level of PE by 0.442%. This finding was consistent with the result obtained by Solomon (2012); Mustefa (2014); Saulos (2015); Kifle et al. (2017) and Getachew et al. (2017).

Frequency of extension contact: But unfortunately, the frequency of extension contact affects price efficiencies significantly and negatively at a 10% significance level. This might be due to the fact that as a farmer contacted the extension worker frequently he/she would not have enough time to potentially and appropriately allocate the resources. They are basically trained to maximize the output of the farmers to solve the problem of food security and they have limited knowledge for appropriate resource allocation. In addition to this, during data collection farmers in the area said that most of the time extension workers did not raise issues specific to agricultural production mechanisms (agronomic practices, post-harvest handling, crop disease control methods, etc.) rather they spend more time in involving on the activities which are not related to their professions or non-farm activities. For instance, health-related issues (construction of toilet, initiating farmers to vaccinate their children, etc.), awareness creation on political issues and collection of loans and taxes. So, there is no new knowledge they got from extension workers regarding agricultural production in order to improve their skills. Generally, these factors would make the efficiency of the farmers to decline. Furthermore, the computed marginal effect indicated that a unit increase in the number of extension contact would decrease the probability of a farmer being price efficient by 0.094% and the mean value of price efficiency by about 0.156% with an overall decrease in the probability and the level of price efficiency by 0.174%. This result is in line with the previous finding of Jema (2008); Ermiyas (2013); Musa (2013); Mustefa (2014); Mustefa et al. (2017) and Fetagn et al. (2017).

Land fragmentation: The coefficient of land fragmentation for price efficiency is negative and statistically significant at 10% significance level as it was expected. The result confirms the expectation because fragmented land leads to reduce efficiency by creating a lack of family labor, wastage of time and other resources that would have been available at the same time. Moreover, as the number of plots operated by the farmer increases, it may be difficult to manage those plots. Moreover, the computed marginal effect indicated, a unit increase in the number of the plot would decrease the probability of the farmer being price efficient by 0.084% and the mean value of price efficiency by about 0.141% with an overall decrease in the probability and the level of price efficiency by 0.157%. This result is in line with the empirical results of Assefa et al. (2016) and Mustefa et al. (2017).

Variable	PE		Marginal effects (PE)		
	Coefficient	Std.Err	∂E(y)/∂xj	∂E(y^*)/∂xj	∂[(φ(Z_U)-φ(Z_L)]/(∂xj
Constant	0.8385***	0.06723	0.00896	0.00759	0.00752
LIVESTSIZ	0.0045*	0.00269	0.00442	0.00398	0.00238
EXTENCNT	-0.0017*	0.00095	-0.00174	-0.00156	-0.00094
LNDFRGMNT	-0.0016*	0.00082	-0.00157	-0.00141	-0.00084

Note: *, **and *** significant at 10%, 5% and 1% level of significance, respectively

∂E(y)/∂xj (Total change), ∂E(y*)/∂xj (Expected change) and ∂[(φ(Z_U)-φ(Z_L)])/(∂xj (change in probability).

Source: Model Output (2021)

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

By and large, agricultural sector in Ethiopia is characterized by its poor performance and subsistence oriented. While maize farmers are producing more than ever before, but the demand for the grain has consistently outpaced supply. This requires looking for a means to increase agricultural productivity of smallholder farmers. In this context, the measurement of existing efficiency in agricultural production and identifying the determinant to seeking alternative solutions for these problem becomes paramount important. This study was aimed to analyze the level of price efficiency and factors that explain the variation in price efficiency among

maize producers' farmers in Bilo Nopa district. A two stage random sampling procedure was employed for the selection of sample respondents. From three Kebele administrations, a total of 152 households were selected using probability proportional to sample size. The required data were collected through interviews of farm household heads using structured questionnaire. Cross-sectional data were used to analyze the effects of farmers' socioeconomic and institutional setting on the efficiency and determinants of production efficiencies.

The result of the study shows that, on average, 23.25 quintal of maize was produced by the total cost of 9197.11 birr. Among the those factors of production, the cost of labor and land accounted for the highest share, 2808.55 birr and 2421.88 birr respectively. Among the total input used to produce maize output, the cost of seed took the smallest share 380.15 birr. The estimated mean values of price efficiency levels were 70.9%. The Tobit models were used to identify factors that affect the price efficiency of the sampled households to help different stakeholders to boost the current level of efficiency in maize production. Accordingly, as it was expected livestock holding had a positive and significant effect on price efficiencies, implying that household heads that had more livestock were more price efficient than the others. Furthermore, frequency of extension contact and land fragmentation had a negative and significant impact on price efficiency.

In general, the main conclusion stemming from the analysis of the price efficiency in maize production is

that maize producers in the study area are not operating at full levels of AE and there exists a considerable room to improve the levels of AE of maize producers in the study area.

4.2 Recommendations

The results of this study give information to policy makers on how to minimize the cost of production and improve the AE in the study area. The following policy recommendations have been drawn based on the results of the study. First, using best practices of the efficient farmers as a point of reference would help setting targets in improving price efficiency levels and finding the weakness of the present farm practices. The relatively efficient farmers can also improve their efficiency more through learning the best resource allocation decision from others. This can be achieved by arranging field days, cross-visits, creating forum for experience sharing with elder households and on job trainings.

Given the mixed farming system in the study area, farmers with more number of livestock were relatively better in the price efficiency. Hence, there is a need to design appropriate policy and strategies for improving livestock production systems by solving the shortage of feed and health services which in turn will enhance the efficiency.

The study also indicated that extension contact has a negative and significant contribution to price efficiencies. Therefore, it's recommended that extension agents give due attention to appropriate input allocation and cost minimization in addition to their acknowledgeable efforts to increase production. This calls more effective policy support for extension services and additional efforts need to be devoted to upgrading the skills and knowledge of the extension agents.

Farmers that operated a larger number of plots are less efficient than others. Thus, Land fragmentation requires policies that consolidate the fragmented farms and increase farm size per household for the case of this particular study by either strengthening the resettlement programs or absorbing the underutilized labor in these areas to off-farm opportunities.

As a final point, it is interesting to note that most efficiency studies in the developing countries have focused only on the measurement of technical efficiency, even though it is by improving the price efficiency that major gains in production could be achieved. This means, additional efforts should be dedicated to examining the impact of both allocative and economic efficiencies on performance for different types of crops and areas at various points in time.

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REFERENCES

Abdulai, S., Nkegbe, P.K. and Donkoh, S.A., 2018.Assessing the technical efficiency production in northern Ghana: The data envelopment analysis approach. Cogent Food & vmn Agriculture, 4(1), pp.1-14.

Aigner, D., Lovell, C.K. and Schmidt, P., 1977. Formulation and estimation of stochastic frontier production function models. Journal of econometrics. 6(1): 21-37.

Alelign, A.M., 2017. Crop Productivity, Efficiency and Commercialization of Smallholder Farmers in the Highlands of Eastern Ethiopia (Doctoral dissertation, Haramaya University).

Asfaw, M., Geta, E., Mitiku, F., 2019. Economic Efficiency of Smallholder Farmers in Wheat Production: The Case of Abuna Gindeberet District, Oromia National Regional State, Ethiopia. Open Acc J Agri Res: OAJAR-100013

Assefa, A., Jema, H. and Bosena, T., 2016. Technical Efficiency of Smallholder Wheat Production in Soro District of Hadiya Zone, Southern Ethiopia. An M.Sc. thesis Presented to the School of Graduate Studies of Haramaya University, Ethiopia.

CSA, 2017. Agricultural Sample Survey 2016/2017 (2009 E.C.): Volume I – Report on area and production of major crops (Private peasant holdings, Meher season). Statistical Bulletin, Central Statistical Agency, Addis Ababa, Ethiopia.

Ermiyas, M., 2013. Economic Efficiency of Sesame Production in Selamago District of South Omo Zone, Southern Ethiopia. An M.Sc. thesis Presented to the School of Graduate Studies of Haramaya University, Ethiopia.FAOSTAT (2013) http://faostat.fao.org/

Fetagn, G., Jema, H. and Bosena T., 2017. Economic Efficiency of Smallholder Wheat Producers in Damot Gale District, Southern Ethiopia. An MSc Thesis submitted to the School of Graduate Studies of Haramaya University.

Mustefa, B.G., 2014. Economic Efficiency in Barely Production: The Case of Chole District, East Arsi Zone, Oromia National Regional State, Ethiopia An M.Sc. thesis Presented to the School of Graduate Studies of Haramaya University, Ethiopia.

Getachew, W., Lemma, Z. and Bosena, T., 2017. Economic Efficiency of Barley Production: The Case of Smallholder Farmers in Meket District, Amhara National Regional State, Ethiopia. An MSc Thesis submitted to the School of Graduate Studies of Haramaya University.

Gould, B.W., Saupe, W.E. and Klemme, R.M., 1989. Conservation Tillage: The Role of Farm and Operator Characteristics and the Perception of Soil Erosion. Land economics, 65(2).

Greene, W.H. 2003. Econometric Analysis, 5th ed. Pearson Education Inc., Upper Saddle River, New Jersey.

Haile, K., Haji, J. and Tegegne, B., 2018. Technical Efficiency of Sorghum Production: The Case of Smallholder Farmers in Konso District, Southern Ethiopia. Journal of Agriculture and Crops, 4(5), pp.50-62.

Inuwa, M.M., 2018. Economic Analysis and Resource Use Efficiency on Maize Production under Sasakawa Technologies in Bauchi, Nigeria.

Jema, H., 2008. Economic efficiency and marketing performance of vegetable production in the eastern

and central parts of Ethiopia. 2008: 17.

Kifle, D., Moti, J., Belaineh L., 2017. Economic efficiency of smallholder farmers in maize production in Bako Tibe district, Ethiopia. Development Country Studies. 7(2).

Maddala, G.S., 1999. Limited dependent variable in econometrics. Cambridge University Press, New York.

McDonald, J.F. and R.A. Moffitt. 1980. The use of Tobit analysis. Review of Economics and Statistics. 62(2): 318-321.

Meftu A. 2016. Economic Efficiency Of Groundnut Production: The Case Of Gursum District, East Hararghe Zone, Oromia National Regional State, Ethiopia. An M.Sc. thesis Presented to the School of Graduate Studies of Haramaya University, Ethiopia.

Musa H, A., 2013. Economic Efficiency of Smallholder Farmers in Maize Production: The Case of Arsi Negelle District, Oromia National Regional State, Ethiopia. An M.Sc. thesis Presented to the School of Graduate Studies of Haramaya University, Ethiopia.

Mustefa, B., Mulugeta T., and Raja K.P., 2017. Economic efficiency in maize production in Ilu Ababor zone, Ethiopia. Research Journal of Agriculture and Forestry Sciences. 5(12):1-8.

Mustefa, B.G., 2014. Economic Efficiency in Barely Production: The Case of Chole District, East Arsi Zone, Oromia National Regional State, Ethiopia. An M.Sc. thesis Presented to the School of Graduate Studies of Haramaya University, Ethiopia.

Nigusu, A., 2018. Economic Efficiency of smallholder Teff Production: The Case of Debra Libanos District, Oromia National Regional State, Ethiopia. An M.Sc. Thesis presented to the school of graduate studies of Jimma University.

Njeru, J. (2010). Factors Influencing Technical Efficiencies among Selected Wheat Farmers in Uas inGishi District, Kenya. AERC Research Paper. Retrieved from xwceoiyi.pdf

Ntabakirabose, G., 2017. An economic analysis of the factors influencing maize productivity and efficiency in Rwanda: An M.Sc. thesis Presented to the School of Graduate Studies of Jomo Kenyatta University, Rwanda.

Saulos J.C., 2015. A survey on Technical, allocative, and economic efficiency of maize production using the parametric stochastic frontier production function. African Journal of Agricultural Economics and Rural Development, 3 (6): 237-245.

Sharma, K.R., Leung, P. and Zalleski, H.M.,1999.The technical, allocative, and economic efficiencies in swine production in Hawaii: A comparison of parametric and non-parametric approaches, Agricultural Economics, 20: 23-35.

Shiferaw, B., Prasanna, B.M., Hellin, J., Bänziger, M. (2011) Crops that feed the world 6. Past successes and future challenges to the role played by maize in global food security. Food Security 3: 307-327.

Sisay, D., Jema, H., Degye, G,. and Kahlil, A. E., 2015. Technical, allocative, and economic efficiency

among smallholder maize farmers in Southwestern Ethiopia: Parametric approach. Journal of Development and Agricultural Economics. 7(8): 282-291.

Solomon, B., 2012. Economic efficiency of wheat seed production in the case of smallholders in west Gojjam zone. An M.Sc. thesis presented to the School of Graduate Studies of Haramaya University, Ethiopia.

Tolesa, T., Temesgen, K. and Zekarias, S., 2019. Economic Efficiency of Smallholder Farmers in Maize Production in Gudeya Bila District, Oromia National Regional State, Ethiopia: Parametric Approach. Journal of Applied Agricultural Economics and Policy Analysis. 2: (1): 1-7. doi: 10.12691/jaaepa-2-1-1.

Tukela, B., Geta, E. and Ababu, T., 2013. Factors Affecting Economic Efficiency in Maize Production: The Case Of Boricha Woreda in Sidama Zone, Southern Ethiopia.

Wongnaa, C.A., 2016. Economic efficiency and productivity of maize farmers in Ghana (Doctoral dissertation).

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Livestock's and Livestock Products Marketing effect on Pastoral Community Economic Status with mediation of market intermediaries in Ethiopia

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Abstract

The fiscal impacts of livestock sales and livestock products on pastoral communities, as well as the mediating function of marketing intermediaries, are the main subjects of this study. Livelihoods approach, value chain analysis and market access and market power theories served as the theoretical framework for the study's meta-analysis. Theories take a pragmatic approach to their research. The sample size is 384 sample, and the selected sampling strategies are multistage, purposive, and simple random sampling. The ideal technique for data analysis is indicated to be AMOS software, whereas questionnaires, interviews, and observation are recommended as the data gathering techniques. The results of AMOS demonstrated that the mediation of marketing intermediaries is essential for the sale of commodities and livestock in order to improve the economic standing of Ethiopia's pastoralist community. These links also imply that livestock trading by itself (without the assistance of marketing intermediaries) would not enhance the economic status of the pastoralist group. Since marketing intermediates are the ones who are fully mediating the relationship, policy makers should concentrate on them. It implies that intermediaries play a critical role in the marketing process and are essential to the survival of the pastoral economy.

Keywords: Intermediaries; Marketing; Economic status; Pastoral Communities; Livestock; Livestock Products Marketing

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1. Introduction

1.1 Background of Study

Providing a substantial source of revenue and a means of subsistence for numerous households, livestock have a vital position in the economies of Ethiopia's pastoral communities (Ayele, 2019). The important activities that affect these communities' economic standing are livestock marketing and the shift from producing animals to marketing livestock and its products (Tiki & Little, 2022). To guarantee effectiveness, openness, and reasonable market pricing, market intermediaries or mediators must be involved in these procedures (Bassa, 2018). Researchers aiming to examine the economic dynamics of pastoral communities in Ethiopia must comprehend the function of market intermediaries in the selling of livestock and livestock products. The intricate interplay of producers, intermediaries, and consumers within these markets necessitates a thorough analysis to pinpoint possible obstacles, prospects, and the effects on the financial stability of pastoral communities.

The purpose of this study is to look at how important market intermediaries are in helping Ethiopians, especially those living in pastoral regions, market livestock and livestock products. This study intends to add significant insights to the body of knowledge on market dynamics, rural development, and agricultural economics in developing nations by illuminating the function of intermediaries. Through a fuller knowledge of the complex web of actors participating in livestock markets and the ramifications for pastoral communities, future academics might acquire valuable insights from this research. Future studies can investigate new paths for boosting farmer livelihoods, increasing market efficiency, and supporting sustainable agricultural practices in comparable situations by expanding on the findings of this study.

The results of this study should provide light on the difficulties pastoral communities have in reaching markets, the function intermediaries play in connecting producers and consumers, and the effects of intermediary behavior on market pricing and financial results. This research intends to offer useful insights into the operation of livestock markets in Ethiopia and recommendations for policy-makers, practitioners, and stakeholders to improve market efficiency and support the economic development of pastoral communities by examining the interactions between market intermediaries, livestock producers, and consumers.

1.2 Statement of problem

The pastoralist community in Ethiopia encounters substantial financial difficulties when it comes to the sale of livestock and associated products (Lutta et al., 2021). Using marketing intermediaries to facilitate trade and improve the pastoralists' economic status is one possible avenue for improvement

(Seid, 2019); however, there is a dearth of thorough research and understanding regarding the necessity and efficacy of mediation in the sale of livestock and products (Ayele, 2019). This knowledge gap impedes the development of evidence-based policies and interventions that can address the financial difficulties faced by pastoralists.

The complex dynamics of Ethiopia's livestock markets are poorly studied, especially as they relate to pastoralist communities (Girmay & Yeserah, 2019). It is essential to have a thorough grasp of market dynamics, including supply chains, pricing strategies, and buyer-seller relationships, in order to pinpoint the unique difficulties pastoralists encounter and the possible advantages of mediation (Ayele, 2019). There are many different kinds of marketing intermediates, including merchants, brokers, and cooperatives (Abebe et al., 2022). There isn't enough data, though, to compare the effectiveness and effects of these various intermediate models in the setting of pastoralist communities (Yitbarek, 2020). Creating the right interventions requires an understanding of which intermediate models work best to raise pastoralists' economic status.

Few studies have been done on the socioeconomic effects of mediated livestock trade on pastoralist communities. Examining the impact of mediation on employment prospects, social cohesiveness, and economic distribution in these communities is crucial (Girmay & Yeserah, 2019). Furthermore, studies have to delve into the possible unforeseen outcomes and compromises linked to mediation, such heightened reliance on middlemen or modifications to customary subsistence methods. Many pastoralist villages in Ethiopia are geographically isolated and distant, making it difficult for them to access markets (Abebe et al., 2022). Inadequate road and transportation infrastructure makes it more difficult to move goods and livestock efficiently. For mediation to be successful, workable solutions to these logistical obstacles must be found.

A lot of pastoralists are not very knowledgeable or skilled in value chain management, negotiating strategies, or market transactions (Yitbarek, 2020). Optimizing the advantages of mediation requires strengthening pastoralists' ability to interact with marketing intermediaries in an efficient manner. It might be difficult to create and carry out appropriate capacity-building initiatives that are suited to the unique requirements of pastoralists Working together, government institutions, non-governmental organizations, and pastoralist communities may address these institutional difficulties (Seid, 2019).

The study will look at how mediation affects social dynamics in pastoralist groups, as well as how revenue is distributed and jobs are created. It will investigate the possible advantages and disadvantages of mediation for customs and means of subsistence. Based on the results, the research will offer useful suggestions to development organizations, government agencies, and legislators on how to create and carry out initiatives that improve pastoralists' economic situation. Additionally, it will offer solutions for

the real-world issues pertaining to institutional support, capacity building, and market access.

2 Literature Review

2.1 Theoretical foundation

Livelihoods Approach: The Livelihoods Approach, often used in development studies, emphasizes the diverse livelihood strategies of pastoralist communities and the importance of understanding their assets, capabilities, and vulnerabilities (Hitt et al., 2019). Munir et al., (2022), summed up, this approach recognizes that livestock marketing and livestock product marketing can significantly influence the economic status of pastoralists. By leveraging market opportunities, pastoralists can improve their economic well-being and reduce their dependence on a single livelihood activity (Seid, 2019).

Value Chain Analysis: Value Chain Analysis is a framework that examines the entire value chain of a product or service, from production to consumption, including the various actors and activities involved (Prasetyo & Dzaki, 2020). Applying this framework to livestock marketing and livestock product marketing enables an understanding of how value is created and distributed along the chain and how it affects the economic status of pastoralist communities(Seid, 2019; Chesos, et, al., 2021).

Market Access and Market Power Theories: BIRHANU CHAMO, (2022), said that market Access Theory and Market Power Theory are relevant to understanding the economic status of pastoralist communities in relation to livestock marketing. Enhancing market access through improved transportation, communication, and market information systems can enable pastoralists to reach wider markets, negotiate better prices, and improve their economic status (Seid, 2019).

2.1.1 Concept and Definitions

Livestock marketing

According to Ag et al. (2019), livestock marketing refers to the activities, processes, and systems involved in buying, selling, and promoting livestock and livestock products within the country and in international markets (BIRHANU CHAMO, 2022). Ethiopia has a rich livestock sector, and livestock production plays a significant role in the country's economy, culture, and food security (Seid, 2019).

The origin of livestock marketing in Ethiopia can be traced back to ancient times when livestock rearing was an integral part of the country's agricultural practices and livelihood systems (Alemneh & Getabalew, 2019). Traditionally, livestock markets in Ethiopia were informal and operated in local, regional, and even national contexts (Yitbarek, 2020). These markets, known as "souks" or "marts," were places where livestock owners, traders, and buyers would converge to buy and sell animals (Girmay &

Yeserah, 2019). They served as important social and economic hubs, facilitating trade and exchange of livestock, as well as fostering social interactions and cultural practices (Ahmed, 2019).

Livestock marketing determinants

In the context of livestock marketing, sheep marketing, goat marketing, cattle marketing, and camel marketing refer to the specific processes and strategies involved in buying, selling, and promoting these different types of livestock species (Abebe et al., 2022).

Sheep marketing involves the buying and selling of sheep for various purposes, such as meat production, wool production, and breeding (Al-ghaswyneh & Oweis, 2022). It includes activities such as sourcing sheep from producers, organizing sales and auctions, negotiating prices, managing transportation logistics, and promoting sheep products to potential buyers (Yitayew et al., 2019; Erick, 2022).

Goat marketing Studied by Eshetie et al., (2018) stated that goat marketing refers to the buying and selling of goats for purposes such as meat production, milk production, and breeding. Goat marketing strategies may focus on specific market segments, such as ethnic or specialty markets, and may involve value addition through processing goat meat or milk into various products (Wafula, 2021).

Cattle marketing involve the buying and selling of cattle, typically for meat production, dairy production, or breeding purposes (Mohamed, 2019). Cattle marketing strategies may vary depending on the specific market segment targeted, such as the beef industry or the dairy industry. Value addition can also be a part of cattle marketing, such as processing beef or dairy products (Lombebo & Wosoro, 2019).

Camel marketing refers to the buying and selling of camels for various purposes, including meat production, milk production, transport, and tourism (Garba, 2022). Camel marketing strategies may involve targeting specific market segments, such as ethnic cuisines or traditional medicine, as well as exploring niche markets related to camel milk products or camel riding experiences (Endris et al., 2020).

Livestock product marketing

Livestock product marketing refers to the activities, processes, and systems involved in buying, selling, and promoting the various products derived from livestock, such as meat, milk, hides, skins, wool, and other by-products (BIRHANU CHAMO, 2022). Livestock product marketing in Ethiopia is an essential component of the overall livestock value chain and plays a significant role in the country's economy, food security, and rural livelihoods (Yitbarek, 2020).

The origin of livestock product marketing in Ethiopia can be traced back to its long history of livestock production and the traditional practices associated with it (Yitbarek, 2020; Lutta et al., 2021). Traditionally,

livestock product marketing in Ethiopia was often conducted through informal channels, such as local markets, souks, or direct sales between producers and consumers (Ahmed, 2019; Abebe et al., 2022; Birhanu et al., 2021; Benti, 2022). Ethiopia's diverse livestock resources, including cattle, sheep, goats, camels, and poultry, provide a wide range of products that cater to both domestic and international markets (Faraz et al., 2021).

2.1.2 Determinates of livestock product marketing

Meat marketing involves the buying and selling of meat products derived from livestock such as cattle, sheep, goats, pigs, and poultry (Abebe et al., 2022). Meat marketing strategies focus on factors such as product quality, packaging, branding, pricing, distribution channels, and advertising to attract and retain customers (Mengistu, 2022).

Milk marketing refers to the buying and selling of milk and dairy products. The concept of milk marketing developed with the domestication of animals for milk production, primarily cows, goats, and sheep (Benti, 2022). Milk marketing strategies aim to ensure the freshness, quality, and safety of milk products while meeting consumer preferences and demands.

Hide marketing involves the buying and selling of animal hides and skins, primarily from livestock such as cattle, sheep, goats, and pigs. Hide marketing strategies focus on factors such as hide quality, grading, processing, tanning, and finding buyers in industries such as fashion, upholstery, and accessories (Kenea, 2019).

Market intermediaries

In the context of livestock marketing, market intermediaries refer to individuals or entities that facilitate the buying and selling of livestock between producers and consumers. These intermediaries play a crucial role in the livestock market by providing services such as gathering, sorting, transporting, and selling livestock on behalf of producers (Duguma, 2022). According to Hi et al. (2018), Overall, markets intermediaries help connect livestock producers with buyers, enabling transactions to occur smoothly and efficiently within the livestock market (Tiki & Little, 2022).

Market intermediaries' determinants

In the context of market intermediaries, there are three primary functions that intermediaries perform: transactional function, logistical function, and facilitation function (Birhanu et al., 2021).

The transactional function of market intermediation involves facilitating the exchange of goods and services between buyers and sellers. Intermediaries play a crucial role in completing transactions by

acting as a link between the two parties. Intermediaries often add value by providing convenience, efficiency, and expertise in the transaction process (Mengistu, 2022).

Study done by Tarekegn et al., (2019) demonstrate that the logistical function of market intermediation focuses on the physical movement and storage of goods. Intermediaries play a role in managing the flow of products from producers to consumers or other businesses. The facilitation function of market intermediation involves providing various support services to facilitate smooth transactions between buyers and sellers. Intermediaries assist in reducing transaction costs, improving market information, and enhancing efficiency in the market (Gebremariam & Tassew, 2020).

Pastoralist Community Economic Status

The economic status of a pastoralist community in the context of livestock marketing refers to the financial condition and well-being of the community members who rely on livestock for their livelihood (Emana et al., 2017). Understanding the economic status of pastoralist communities is crucial for developing strategies to enhance their market opportunities, improve their income levels, and ensure sustainable livelihoods (Wafula, 2021).

Pastoralist Community Economic Status determinants

Study done by Al-ghaswyneh & Oweis, (2022), in the context of pastoralist communities, several concepts are relevant to understanding their social, economic, and traditional values. These concepts include intrinsic value, extensional value, social value, economic value, traditional value, and option value.

Intrinsic value refers to the inherent worth or importance of something, independent of its usefulness or exchange value (Mengistu, 2022). Pastoralist communities often have deep cultural, spiritual, and historical connections to their lands, animals, and ecosystems, considering them intrinsically valuable beyond their practical or economic significance (Benti et al., 2022).

Extensional value refers to the practical or utilitarian value of something (Yitayew et al., 2019). In the case of pastoralist communities, extensional value can be associated with the tangible benefits derived from their livestock and natural resources (Adem, 2019).

Social value pertains to the significance and importance of something within a social context (Hi et al., 2018). Pastoralist communities often place high social value on their livestock and traditional knowledge systems (Eshetie et al., 2018).

Economic value refers to the worth or importance of something in terms of its contribution to economic

activities and market transactions (Lamesegn, 2018; Mengistu, 2022).

2.2 Empirical literature review and hypotheses development

a. Livestock marketing and economic status of pastoral community

Study done by Zewdie Birhanu et al., (2021) demonstrate that livestock marketing provides pastoralists with opportunities to generate income. By selling livestock and livestock products such as meat, milk, wool, hides, and skins, pastoralists can earn revenue and improve their economic well-being. Study done by Tolera & Eik, (2020) conclude that, income from livestock marketing can be used to meet basic needs, invest in education and healthcare, and diversify livelihood activities.

Study done by Tiki & Little, (2022), engaging in livestock marketing allows pastoralists to access broader markets beyond their immediate communities. The study done By Al-ghaswyneh & Oweis, (2022) the results indicate that Livestock marketing can involve value addition activities such as processing, packaging, and branding of livestock products. By adding value to their products, pastoralists can command higher prices and capture more significant economic benefits. Erick, (2022) mention Value addition also enables pastoralists to differentiate their products, meet specific market demands, and access niche markets, leading to improved economic returns.

Study done by Tiki & Little, (2022) livestock marketing activities create employment and entrepreneurship opportunities for pastoralist communities. Ombasa, (2020) mention that participating in livestock marketing exposes pastoralists to market intelligence and information. They gain insights into market trends, demand patterns, pricing mechanisms, and quality standards. Study done by Eshetie et al., (2018) stated that engaging in livestock marketing can contribute to the development of value chains within pastoralist communities.

H1: Livestock marketing has significant effect on the economic status of pastoral community

b. Livestock marketing product effect on the economic status of pastoral community

According to Abebe et al., (2022), livestock product marketing enables pastoralists to generate income by selling products such as meat, milk, wool, hides, skins, and other by-products. These products can be sold in local, regional, and even international markets, providing pastoralists with revenue streams and opportunities to improve their economic well-being. According to Gebremariam & Tassew, (2020) income generated from livestock product marketing can be used for meeting daily household needs, investing in education and healthcare, and diversifying livelihood activities.

Study done by Ja'afar-Furo et al.,(2021), demonstrate that marketing livestock products allows pastoralists

to add value to their raw products through processing, packaging, and branding. Value addition can lead to higher prices and increased economic returns. Livestock product marketing provides pastoralist communities with access to wider markets beyond their immediate surroundings (Arage, 2021).

Bimrew, (2018), According to the study's conclusion, engaging in livestock product marketing allows pastoralists to integrate into larger market systems. Market integration provides pastoralists with access to market information, trends, and opportunities. Study done by Yitayew et al., (2019) demonstrate that livestock product marketing activities create employment and entrepreneurship opportunities within pastoralist communities. Study done by Bassa, (2018) stated that participating in livestock product marketing often involves complying with quality standards and meeting customer expectations. According to Abebe et al., (2022), the economic impact of livestock product marketing on pastoralist communities can be influenced by factors such as infrastructure, market access, market information, value chain development, and supportive policies.

H2: Livestock marketing product has significant effect on the economic status of pastoral community

Mediation of market intermediation in between livestock marketing and economic status of pastoral community

Research done by Lutta et al., (2021), findings indicate that market intermediaries are individuals or organizations that facilitate the exchange of livestock and livestock products between producers (pastoralists) and consumers (buyers). Market intermediaries help pastoralist's access markets that they may not be able to reach directly. Study done by Tessema et al., (2019) claimed that market intermediaries negotiate prices on behalf of pastoralists, leveraging their knowledge of market dynamics and price trends. They act as information brokers, providing pastoralists with valuable market information, such as prevailing prices, demand patterns, quality requirements, and market trends.

As study done by Tiki & Little, (2022) believes that market intermediaries have insights into market demands, consumer preferences, and product standards. They can provide feedback to pastoralists on the quality and marketability of their products. Study done by Benti et al., (2022) results indicate that markets intermediaries help mitigate market risks for pastoralist communities. Mohamed, (2019) demonstrate market intermediaries often play a role in value chain development by facilitating coordination and collaboration among different actors in the livestock marketing process. Kena, (2022) demonstrate intermediaries can provide training, capacity building, and technical assistance to pastoralists, equipping them with market and business skills. By enhancing the capabilities of pastoralists, market intermediaries contribute to their economic empowerment, enabling them to make informed decisions, adapt to changing market conditions, and improve their economic status.

H3: Mediation of market intermediation existed relation in between livestock marketing and economic status of pastoral community

Mediation of market intermediators in between livestock product marketing and economic status of pastoral community

Gonfa, (2019) highlighted market intermediators help pastoralists gain access to a wider range of markets and buyers. By connecting pastoralists with a broader customer base, intermediators expand market access for pastoral communities, enabling them to sell their livestock products at competitive prices and capture economic benefits. Yecheng Xu et al., (2019) demonstrate that market intermediators often engage in value addition activities, such as processing, packaging, and branding of livestock products. They transform raw livestock products into processed or value-added products that command higher prices in the market.

Study done And & Abduku, (2022) demonstrate intermediaries possess market intelligence and information about consumer preferences, market trends, and quality requirements. By sharing market intelligence, intermediaries enable pastoralists to make informed decisions, improve product quality, and meet market standards, thereby enhancing their economic status. Study done by Azeb Lemma et al., (2020), market intermediaries negotiate prices on behalf of pastoralists, leveraging their market knowledge and bargaining power. Intermediaries act as intermediaries in price negotiations, reducing information asymmetry and improving the economic outcomes for pastoralist communities.

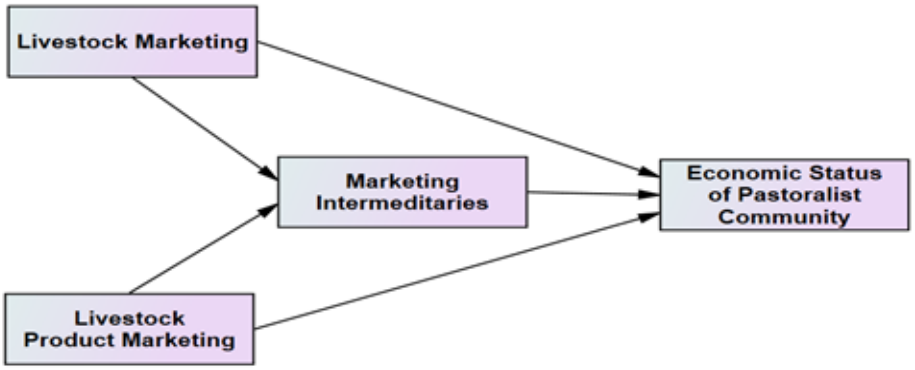
The study done by Mamo et al., (2021), intermediaries play a role in mitigating market risks for pastoralist communities engaged in livestock product marketing. They help manage price volatility, market uncertainties, and supply chain disruptions. According to Dirriba M et al, (2022), market intermediaries often provide training, capacity building, and technical assistance to pastoralists. By enhancing the capabilities of pastoralists, intermediaries contribute to their economic empowerment, enabling them to make informed decisions, adapt to market dynamics, and improve their economic status in livestock product marketing.

H4: Mediation of market intermediates in between livestock product marketing and economic status of pastoral community

2.3 Conceptual Framework

The theoretical and empirical review previously indicated was used to build the framework that follows.

Figure 1: Theoretical Construction



Source: Compiled From Reviewed Theories and Literature, 2023

3. Research Methodology

Finding evidence for a characteristic or relationship—preferably a cause-and-effect relationship—is the primary goal of quantitative research. The results are then extrapolated to the population using statistical inference (Dattalo, 2008). Consequently, searching through, purifying, converting, and modelling data to locate pertinent information, suggestions, conclusions, and assistance in decision-making is data analysis. SPSS and AMOS 23 version will be used for the data analysis in this project. Arbuckle (2014) claims that AMOS (Analysis of Moment Structures) is a user-friendly application for visual SEM. Amos made it simple for you to describe, inspect, and change your model graphically using simple sketching tools.

After that, assess how well the model fits the data, make any required changes, and print a final model graphic that is ready for publishing. With the aid of a standardised questionnaire based on a likert scale, 385 pastoralists were questioned to gather data. As a result, the entire sample size will be determined in this study using the following formula.

$n = z^2pq/1+N\ (e)^2$

$n = z^2pq/1+N\ (e)^2 \quad n = (1.96)^2(0.5)\ (0.5)/\ (0.05)^2 = 384$

4. Results

4.1 Data Adequacy test

The minimal sufficiency of data, as determined by the KMO under table 1, needs to be more than 0.5 for a factor analysis to be considered both acceptable and integer.

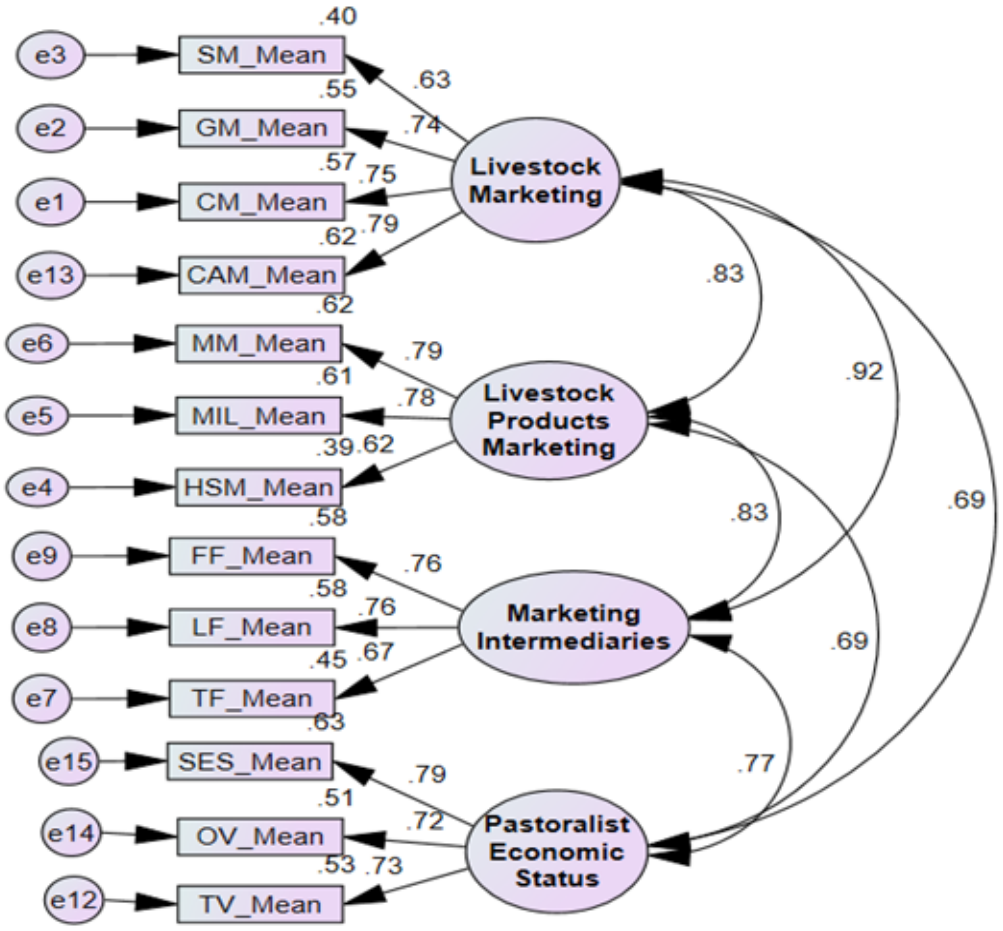
Table 1: Test for Sample Adequacy

"Kaiser-Meyer-Olkin" evaluate of data sufficiency.		.762
"Bartlett's investigation for Sphericity"	Likelihood value	983.198
	Degree of freedom	19
	P-Value	.000

Source: SPSS result, 2023

Assessment of Latent Variable Behavior:

Figure 2: Exploratory factor analysis (EFA)



Source: AMOS result, 2023

Path analysis, structural equation modelling (SEM), exploratory factor analysis (EFA), and confirmatory factor analysis (CFA) have long been used in exploratory investigations. EFA is a data-driven method that determines the number of factors and which observable variables are indicative of each hidden variable. CFA is confirmatory. Predetermined are the overall numbers of variables as well as the indicator factors'

loading pattern.

Table 2: Covariance testing

			Estimate	S.E.	C.R.	P
Livestock Marketing	<-->	Livestock Products Marketing	.169	.019	9.059	***
Livestock Marketing	<-->	Marketing Intermediaries	.215	.022	9.808	***
Livestock Marketing	<-->	Pastoralist Economic Status	.159	.017	9.429	***
Livestock Products Marketing	<-->	Marketing Intermediaries	.164	.021	7.914	***
Livestock Products Marketing	<-->	Pastoralist Economic Status	.136	.016	8.713	***
Marketing Intermediaries	<-->	Pastoralist Economic Status	.173	.019	9.346	***

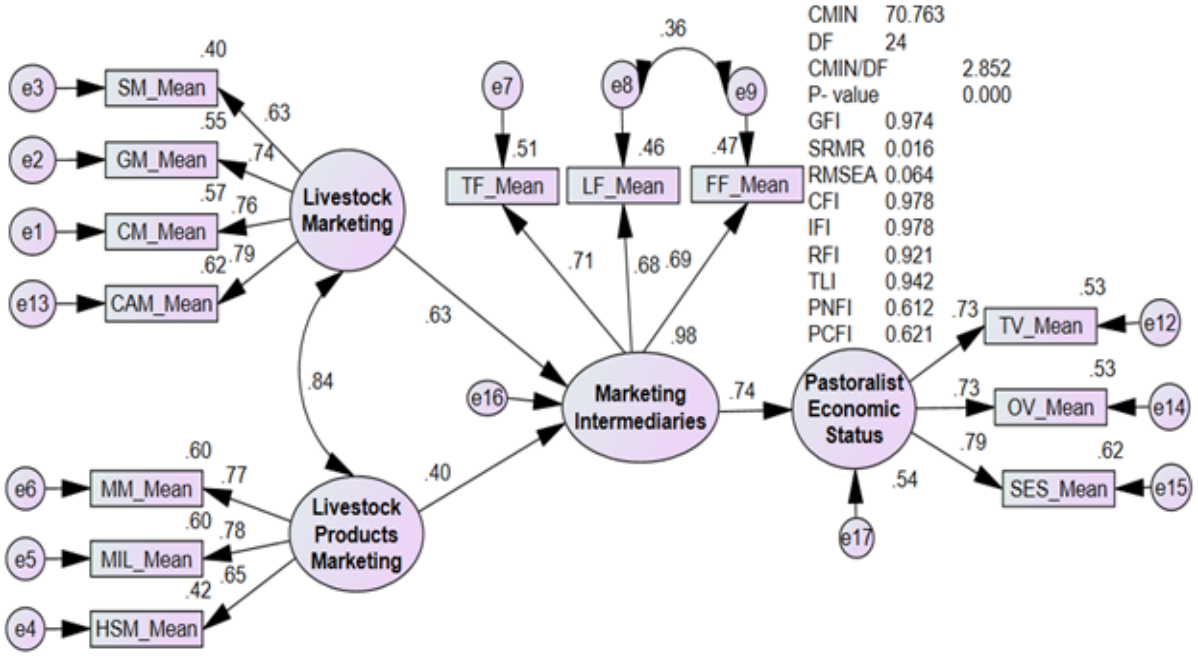
Source: AMOS result, 2023

The findings of the covariance tests manifested in table 2, showed that there is a positive correlation between the marketing of cattle and livestock products, as indicated by the estimate of 0.169. The accuracy of the estimate may be seen in the standard error (S.E.) of 0.019. The statistical significance of the association is indicated by the critical ratio (C.R.) of 9.059. The association is very significant, as indicated by the p-value of "***" ($p < 0.001$).

A favourable correlation between cattle marketing and marketing intermediaries is indicated by the value of 0.215. The estimate's accuracy is shown by the S.E. of 0.022. The estimate of 0.159 showed that the economic standing of pastoralists and cattle selling are positively correlated. The estimate's accuracy is shown by the S.E. of 0.017 at $p < 0.001$. These findings suggest a robust and favourable relationship between the pastoralist community's financial situation and cattle trading.

The estimate of 0.136 showed that the economic standing of pastoralists and the selling of animal products are positively correlated. The estimate's accuracy is shown by the S.E. of 0.016 with C.R. of 8.713 at $p < 0.001$. These findings suggest a robust and favourable relationship between the pastoralist community's financial situation and the commercialization of livestock products. These results demonstrate the significance of livestock selling and the role played by marketing intermediaries in improving the pastoralist community's economic situation in Ethiopia.

Figure 3: Structure Equation Model



Source: AMOS result, 2023

Table 3: Hypothesis Testing

			Estimate	S.E.	C.R.	P	Hypotheis
Marketing Intermediaries	<---	Livestock Marketing	.647	.100	6.446	***	Accepted
Marketing Intermediaries	<---	Livestock Products Marketing	.469	.118	3.959	***	Accepted
Pastoralist Economic Status	<---	Marketing Intermediaries	.680	.058	11.781	***	Accepted

Source: AMOS result, 2023

Researchers used the estimates, standard errors (S.E.), critical ratios (C.R.), p-values, and related hypotheses in order to verify the findings of the hypothesis tests shown in Table 3. A favourable correlation between cattle marketing and marketing intermediaries is indicated by the value of 0.647. The estimate's accuracy is shown by the S.E. of 0.100. The statistical significance of the link is indicated by the C.R. of 6.446. High statistical significance is indicated by the "***" p-value ($p < 0.001$).This relationship's underlying theory is acknowledged. Consequently, the idea that there is a strong positive correlation between cattle marketing and marketing intermediaries is supported by data.

The estimate of 0.469 showed that the marketing of animal products and marketing intermediaries have a positive association. The estimate's accuracy is shown by the S.E. of 0.118. The statistical significance of the link is indicated by the C.R. of 3.959. High statistical significance is indicated by the "***" p-value ($p < 0.001$). This relationship's underlying theory is acknowledged. Consequently, the idea that there is a strong positive correlation between the marketing of cattle products and marketing intermediaries is supported by data.

Similarly, all of the tested hypotheses are accepted in light of the results of the hypothesis testing that are reported. This suggests that there is a substantial body of data in favour of the existence of beneficial connections between marketing intermediaries and the marketing of livestock and livestock products. Furthermore, a strong body of research indicates that pastoralist economic status and marketing intermediaries are positively correlated. These results point to the value of marketing middlemen in enabling livestock sales as well as their effect on pastoralist communities' financial standing.

Table 4: GOF Indices and Model fitness

Measurement Category	Fit Indices Expected Value	Model Value	Cut-off Value	Remark
Chi-Square	CMIN	70.763	-	
	DF	24	-	
	CMIN/DF	2.852	3-5	Good fit
	P- value	0.000	P>0.5	Not fit
Absolute fit measurement	GFI	0.974	>0.9	Good fit
	SRMR	0.016	< 0.08	Fit
	RMSEA	0.064	< 0.08	Fit
Incremental fit measurement	CFI	0.978	>0.9	Good fit
	IFI	0.978	>0.9	Good fit
	RFI	0.921	>0.9	Fit
	TLI	0.942	>0.9	Fit
parsimony fit measure	PNFI	0.612	>0.5	Fit
	PCFI	0.621	>0.5	Fit

Source: AMOS result, 2023

According to table 4, there is a good match when the CMIN/DF ratio is between 2 and 5. The model does not; however, appear to match the data well, as indicated by the p-value (0.000). A strong match is shown by the GFI's exceeding of the predicted value of 0.9. A good fit is indicated by the Standardised Root Mean Square Residual (SRMR), which is less than the suggested cut-off of 0.08.

A satisfactory fit is indicated when the Root Mean Square Error of Approximation (RMSEA) is less than the suggested cut-off of 0.08. A good match is shown when the CFI (Comparative match Index) value of 0.978 is greater than the predicted value of 0.9. A good match is indicated when the IFI (Incremental match Index) value of 0.978 is greater than the predicted value of 0.9. The RFI (Relative Fit Index) score of 0.921 indicates a fit as it is equal to the predicted value of 0.9. The Tucker-Lewis Index (TLI) value of 0.942 indicates a fit as it is less than the predicted value of 0.9. There is a fit when the PNFI (Parsimony Normed Fit Index) value of 0.612 is greater than the predicted value of 0.5. The Parsimony Comparative Fit Index (PCFI) score of 0.621 indicates a fit as it is less than the predicted value of 0.5.

Table 5: Mediation Analysis

	Livestock Products Marketing	Livestock Marketing	Marketing Intermediaries	Pastoralist Economic Status
Marketing Intermediaries	.469	.647	.000	.000
Pastoralist Economic Status	.319	.441	.680	.000

Source: AMOS result, 2023

Mediation analysis shown in the above Table 5 is to address the question of whether mediation is necessary to enhance the economic condition of Ethiopian pastoralist communities selling livestock and goods through marketing intermediaries. A favourable correlation between marketing intermediaries and livestock products marketing is indicated by the coefficient of 0.469. A favourable correlation between livestock marketing and marketing intermediaries is indicated by the coefficient of 0.647. A favourable correlation between Pastoralist Economic Status and Marketing Intermediaries is shown by the value of 0.680.

These connections suggest that the pastoralist community's economic standing may not be enhanced by livestock marketing on its own (without the assistance of marketing intermediaries). This is due to the fact that, in connection to pastoralist economic status, the coefficient for livestock marketing (0.647) is less significant than the coefficient for marketing intermediaries (0.680). However, the Pastoralist Economic Status may be more significantly impacted by Livestock Products Marketing in conjunction with Marketing Intermediaries. The fact that the livestock products marketing coefficient (0.469) is greater than the livestock marketing coefficient (0.647) lends credence to this.

It implies that the pastoralist community's financial situation may be enhanced by using Marketing Intermediaries in the sale of livestock products. Thus, it is advantageous to concentrate on a mix of

livestock marketing and livestock product marketing, assisted by marketing intermediaries, in order to improve the economic standing of Ethiopia's pastoralist population.

4.2 Discussion and Conclusion

In summary, intermediaries involved in the trading of livestock and livestock products have a big influence on pastoral communities' financial standing. Opportunities for revenue generating, job creation, market access, value addition, and skill development are offered by livestock marketing. Intermediaries in the marketing of livestock goods are essential for reaching a wider audience, enhancing the value of products, enabling capacity-building possibilities, supplying market knowledge, guaranteeing quality standards, and creating connections with other businesses. Pastoralists may enhance their economic status, lessen poverty, diversify their sources of income, and accomplish sustained economic progress by engaging in livestock markets and using the knowledge of middlemen. To fully use their livestock resources and realise economic advantages for the communities involved, pastoral communities and livestock trading intermediaries must work together.

There are significant managerial and real-world ramifications to the study on how pastoral communities' economic standing is impacted by the sale of livestock products and livestock marketing intermediaries. Having a clear understanding of these consequences can help direct initiatives to raise pastoralists' economic standing. Having acknowledged the importance of intermediaries in livestock marketing, stakeholders and policymakers may concentrate on enhancing the market connections between pastoralists and intermediaries. This may be achieved via creating cooperatives, networking opportunities, and collaborations. Establishing forums that unite pastoralists and middlemen can improve cooperation, information exchange, and understanding of the workings of the market.

References

Abebe, B. K., Alemayehu, M. T., & Haile, S. M. (2022). Opportunities and Challenges for Pastoral Beef Cattle Production in Ethiopia. Advances in Agriculture, 8. https://doi.org/10.1155/2022/1087060

Adem, M. (2019). Production of hide and skin in Ethiopia; marketing opportunities and constraints: A review paper. Cogent Food and Agriculture, 5(1).

Ag, V., Parcell, J., Tonsor, G., Schroeder, T., & Parcell, J. (2019). BASELINE STUDY OF LIVESTOCK AND MEAT MARKETING TRENDS AND IMPLICATIONS FOR Agricultural Marketing Service United States Department of Agriculture (Issue August).

Ahmed, J. (2019a). Review on Live Animal and Meat Value Chain in Ethiopia : Challenges , Opportunities and Intervention Strategies Review on Live Animal and Meat Value Chain in Ethiopia : Challenges

, Opportunities and Intervention Strategies. Industrial Engineering Letters, Vol.9(September). https://doi.org/10.7176/IEL

Al-ghaswyneh, O. F. M., & Oweis, K. A. (2022). Marketing of the Livestock Sector and Its Impacts on Food Security : A Case Study of the Northern Border Region. International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies ISSN, 13(4), 1–10. https://doi.org/10.14456/ITJEMAST.2022.72

Alemneh, T., & Getabalew, M. (2019). Beef Cattle Production Systems , Challenges and Opportunities in Ethiopia. Juniper Online Journal of Public Health, 5(1), 2019. https://doi.org/10.19080/JOJPH.2019.05.555651

And, D. D., & Abduku, H. (2022). REVIEW ON CATTLE BREED IMPROVEMENT PRACTICES AND MARKETING REVIEW ON CATTLE BREED IMPROVEMENT PRACTICES AND MARKETING SYSTEM IN SOUTH AND SOUTH EAST OROMIA PASTORAL. International Journal of Research and Analytical Reviews (IJRAR), 7(2), 74–83. https://doi.org/E-ISSN 2348-1269

Arage, A. (2021). Review on Determinants of Milk and Milk Product Post-Harvest Loss in Ethiopia. Accelerat Ing the World's Research.

Ayele, A. (2019). A Review on Livestock Marketing in Ethiopia: Opportunities and Challenges. Journal of Marketing and Consumer Research, 59, 1–8. https://doi.org/10.7176/jmcr/59-01

Azeb Lemma, K., Adune, D., & Mohammed, S. (2020). Value chain analysis of smallholder milk producer in West Hararghe Zone, Ethiopia. International Journal of Agricultural Science and Food Technology, 6, 093–100. https://doi.org/10.17352/2455-815x.000061

Bassa, Z. (2018). Market Structure Conduct and Performance of Live Cattle in Borana Pastoral area: The Case of Moyalle District, Oromiya Regional State. Current Investigations in Agriculture and Current Research, 4(3), 29–37. https://doi.org/10.32474/ciacr.2018.04.000189

Benti et al. (2022). The Effects of Commercial Orientation on (Agro) Pastoralists' Household Food Security: Evidence from (Agro) Pastoral Communities of Afar, Northeastern Ethiopia. Sustainability (Switzerland), 14(2). https://doi.org/10.3390/su14020731

Benti, M. (2022). Review on Potential of Small Scale Cooperatives on Milk Marketing and Processing in Ethiopia. International Journal of Food Science and Agriculture, 6(1), 76–82. https://doi.org/10.26855/ijfsa.2022.03.010

Bereda, A., Yilma, Z., Asefa, Z., Kassa, F., Berhan, D., & Agricultural, H. (2016). Livestock and Livestock Products and By-Product Trade in Ethiopia. A Review on Developing Country Studies, Vol.6(7), 44–51.

Bimrew, A. (2018). Smallholder farmers livestock production and marketing in Bahir Dar Zuria District, Northwestern Ethiopia. Journal of Development and Agricultural Economics, 10(5), 159–164. https://doi.org/10.5897/jdae2017.0897

Birhanu, B., Anaf, O., Adem, K., & Beshir, H. (2021). Indigenous knowledge on camel milk and k2camel milk products hygienic handling, processing and utilization in Borana Area, Southern Ethiopia. Journal of Food Science and Nutrition Therapy, 7, 025–032. https://doi.org/10.17352/jfsnt.000029

BIRHANU CHAMO. (2022). FACTORS INFLUENCING LIVESTOCK MARKET IN PASTORALIST AREA: A CASE OF HAMMER WOREDA.

Chesos, et, al. (2021). Influence of Milk Collection and Milk Utility Form aspects of Value Chain Innovation on the Performance of the Dairy Sector in Moiben Sub- County, Uasin Gishu County, Kenya. African Journal of Education, Science and Technology, 6(3), 1–23.

Dirriba M et al. (2022). Hides and Skins Market in Borana. In Livestock Research Results (Issue January).

Duguma, B. (2022). Milk composition , traditional processing , marketing , and consumption among smallholder dairy farmers in selected towns of Jimma Zone , Oromia Regional State , Ethiopia. Wiley Periodicals LLC, march, 1–17. https://doi.org/10.1002/fsn3.2884

Emana et al., 2017. (2017). Analysis of G ender Role in Cattle Value Chain in Dugda Dawa District, Borena Zone, Ethiopia. International Journal of Research in Economics and Social Sciences (IJRESS), 7(Issue 11), 665–694.

Endris, M., Jemaneh, M., & Mohammed, H. (2020). Study on challenges and opportunies of Cattle Milk Production and Marketing in the Case of Aysaita District in Afar National Regional State, Northeast Ethiopia. In Researchgate.Net (Issue December). https://doi.org/10.13140/RG.2.2.22080.56328

Erick, D. S. (2022). THE ROLE OF LIVESTOCK MARKETING IN IMPROVING THE LIVELIHOODS OF PASTORALISTS. International Journal Og Livestock Policy, 1(1), 2003–2005. https://www.who.int/news-room/fact-sheets/detail/autism-spectrum-disorders

Eshetie, T., Hussien, K., Teshome, T., Mekonnen, A., & Ababa, A. (2018). Meat Production , Consumption and Marketing Tradeoffs and Potentials in Ethiopia and Its Effect on GDP Growth : A Review. Journal of Marketing and Consumer Research, 42, 17–24.

Faraz, A., Younas, M., Pastrana, C. I., Waheed, A., Tauqir, N. A., & Nabeel, M. S. (2021). Socio-economic constraints on camel production in Pakistan's extensive pastoral farming. Pastoralism, 11(1). https://doi.org/10.1186/s13570-020-00183-0

Garba, S. (2022). ECONOMIC SIGNIFICANCE OF THE LIVESTOCK SECTOR IN NIGERIA. Yobe State University, Damaturu, Nigeria, 10(2), 17.

Gebremariam, T., & Tassew, A. T. (2020). Status of hides and skins production and marketing system in Tahtay-Koraro district of Tigray , northern Ethiopia. JOURNAL OF THE DRYLANDS, 9(1), 948–956.

Girmay, G., & Yeserah, S. (2019). the Impact of Live Animal Export on Meat and Meat Products Export in Ethiopia. International Journal of Research -GRANTHAALAYAH, 7(9), 162–171. https://doi.org/10.29121/granthaalayah.v7.i9.2019.585

Gonfa, L. (2019). Determinants of Food Insecurity in Pastoral and Agro-Pastoral Households of Ethiopia. Food Science and Quality Managemen, 85, 40–47. https://doi.org/10.7176/FSQM

Hinestroza, D. (2018). FACTORS INFLUENCING LIVESTOCK MARKETING IN MARSABIT REGION: A CASE OF MERILLE LIVESTOCK MARKET ARERO. In American Research Journal of Agriculture (Vol. 7).

Hitt, M. A., Xu, K., & Carnes, C. M. (2019). Resource based theory in operations management research. Journal of Operations Management, 41, 77–94. https://doi.org/10.1016/j.jom.2015.11.002

Kena, D. (2022). Review on camel production and marketing status in Ethiopia. Pastoralism: Research, Policy and Practice, 12(6), 1–10. https://doi.org/10.1186/s13570-022-00248-2

Kenea, T. (2019). Review on Hide and Skin Value Chain in Ethiopia. American Research Journal of Agriculture, 5(1), 15. https://doi.org/10.21694/2378-9018.19001

Lamesegn, D. (2018). Goat Production and Marketing System in Ethiopia. European Journal of Applied Sciences, 10 (2)(2079–2077), 48–54. https://doi.org/10.5829/idosi.ejas.2018.48.54

Lombebo, W. A., & Wosoro, E. S. (2019). Challenges and Opportunities of Urban Dairy Cattle Keeping and its Role in Poverty Reduction of Livelihoods in Hosanna Town, Southern Ethiopia. Veterinary Science and Research, 1(1).

Lutta, A. I., Wasonga, O. V., Robinson, L. W., Nyangito, M. M., & Sircely, J. (2021). Determinants of livestock market participation among pastoral communities of Tana River County, Kenya.

Environment, Development and Sustainability, 23(5), 7393–7411. https://doi.org/10.1007/s10668-020-00922-8

M, A. (2019). Production of hide and skin in Ethiopia ; marketing opportunities and constraints : A review paper Production of hide and skin in Ethiopia ; marketing opportunities and constraints : A review paper. Cogent Food & Agriculture, 5(1). https://doi.org/10.1080/23311932.2019.1565078

Mamo, G. D. (2019). Assessment on Impact of Live Animal Export on Meat Export Performance in Ethiopia ; Policy Implications. Business and Management Studies, Vol. 5(3), 21–28. https://doi.org/10.11114/bms.v5i3.4467

Mengistu, D. (2021). Assessment of Hides and Skins Market in Borana, Southern Ethiopia. Journal of Marketing and Consumer Research, 76(April). https://doi.org/10.7176/jmcr/76-01

Mengistu, D. (2022). Milk Value chain Analysis in Borana Zone , Southern Oromia. In Oromia Agricultural Research Institute (Issue June).

Mohamed, A. A. (2019). Pastoralism and Development Policy in Ethiopia : A Review Study. Budapest International Research and Critics Institute-Journal, 2(4), 1–11. https://doi.org/https://doi.org/10.33258/birci.v2i4.562 1

Ombasa, B. B. M. (2020). THE INFLUENCE OF LIVESTOCK POLICY AND LIVESTOCK PRODUCTIVITY PROGRAMS ON PASTORAL PRODUCTION IN GARISSA COUNTY , KENYA. International Academic Journal of Social Sciences and Education, 2(2), 253–269.

Prasetyo, P. E., & Dzaki, F. Z. (2020). Institutional performance and new product development value chain for entrepreneurial competitive advantage. Uncertain Supply Chain Management, 8(4), 753–760. https://doi.org/10.5267/j.uscm.2020.7.004

Seid, A. B. B. (2019). The Effects of Determinant Factors on Livestock Market Participation : A case of pastoralists at Dullessa Woreda of Afar Region . The thesis Research is Submitted to Hawassa University School of Graduate Studies in Partial Fulfillment of the Requirements

Tarekegn, K., Asado, A., Shitaye, Y., & Gafaro, T. (2019). Dairy Value Chain Analysis in Bench Sheko and Sheka Zones, South Western Ethiopia. Trends in Applied Sciences Research, 15(1), 21–28. https://doi.org/10.3923/tasr.2020.21.28

Tessema, W. K., Ingenbleek, P. T. M., & van Trijp, H. C. M. (2019). Refining the smallholder market integration framework: A qualitative study of Ethiopian pastoralists. NJAS - Wageningen Journal of Life Sciences, 88(January), 45–56. https://doi.org/10.1016/j.njas.2018.12.001

Tiki, W., & Little, P. D. (2022). Deception and default in a global marketplace : the political economy of livestock export trade in Ethiopia. The Journal of Peasant Studies. https://doi.org/10.1080/03066150.2021.2010714

Tolera, A., & Eik, L. O. (2020). Stratified Livestock Production and Live Animal and Meat Export from Ethiopia: Lessons from the Experience of a Donor Funded Project. Climate Impacts on Agricultural and Natural Resource Sustainability in Africa, 301–311. https://doi.org/10.1007/978-3-030-37537-9_18

Wafula, W. M. (2021). Analysis of Actors and Activities at Dagoretti Livestock Market in Nairobi City, Kenya Walter. Kenya Agricultural and Livestock Research Organization.

Wako, P. (2020). Factors Contributing for Livestock Excessive Mortality in Borana Pastoralist Area: Signal for Leadership and Disaster Risk Management Policy of Ethiopia. Public Policy and Administration Research, February. https://doi.org/10.7176/ppar/10-2-04

Wondimagegn, K. A. (2017). Value chain assessment of beef cattle production and marketing in Ethiopia : Challenges and opportunities of linking smallholder farmers to the markets Value chain assessment of beef cattle production and marketing in Ethiopia : Challenges and opportuniti. Livestock Research for Rural Development, 12(3).

Yecheng Xu et al. (2019). Livestock dynamics under changing economy and climate in Mongolia. Elsevier, 0–33.

Yitayew, A., Yigezu, Y. A., Kassie, G. T., Deneke, T. T., Haile, A., Hassen, H., & Rischkowsky, B. (2019). Identification of strategies to improve goat marketing in the lowlands of Ethiopia: a hedonic price analysis. Applied Economics, 51(1), 61–75. https://doi.org/10.1080/00036846.2018.1490693

Yitbarek, M. B. (2020). LIVESTOCK AND LIVESTOCK PRODUCT TRENDS BY 2050 : International Journal of Animal Research, September.

Zewdie Birhanu et al. (2021). Prevalence of household food insecurity and associated factors in drought-prone pastoralist communities in Borana ,. Ethiop. J. Health Dev., 35(1), 38–49.

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Industrial Parks in Ethiopia: A Catalyst for Economic Competitiveness

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Abstract

Industrial Parks (IPs), since its inception as integrated industrialization strategy, have played a significant role in socio-economic development. Recognizing their importance, developing countries, including Ethiopia, have prioritized their expansion. By 2023, Ethiopia had established 24 IPs. This study investigates the role of IPs for economic competitiveness in Ethiopia. Using a cross-sectional study design, primary data was collected from randomly selected 395 managerial, administrative, and technical staff in both private and public IPs. The data, collected via a structured questionnaire based on UNIDO's IPs performance assessment variables, was analyzed using a binary logistic regression model. The findings underscore the substantial contribution of IPs to Ethiopia's economic competitiveness, facilitated by initiatives such as open competitive tender systems, infrastructure development, job creation, and export promotion. Despite facing challenges such as water supply, reliability, and limited financial support, IPs hold the potential to drive sustainable economic growth in the country. This research highlights the critical role of IPs in Ethiopia's economic development and underscores the need for targeted interventions to address existing challenges and fully leverage the potential of IPs in driving sustainable economic growth and competitiveness. The study recommends enhancing private sector engagement in IP management, implementing customer relationship management systems, and providing business support services to maximize the impact of IPs on economic competitiveness.

Keywords: Industrial Parks, Economic Competitiveness, Sustainable, Ethiopia

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1. Background of the study

Academic research has shown a clear link between increased industrial production and the growth of a country's Gross Domestic Product (GDP) (Opoku & Yan, 2019, Chang & Zach, 2019, Qaiser, 2020). Industrial Parks (IPs) are created based on two main reasons. First, it's easier to build efficient infrastructure in a specific, limited area, especially for governments with limited resources. Second, having many firms close together in one area can lead to big benefits. These benefits include sharing information and technology, dividing work among firms, training a skilled workforce, and growing markets near the parks (Anh et al, 2020, Borodavkina & Mukovnina, 2021).

Industrial parks are an effective way to achieve widespread industrialization and urbanization (Kihiko, 2018). Developing IPs is a strategic way to quickly grow industry on a large scale, it helps companies become more competitive by increasing their productivity and efficiency, It also addresses major economic challenges like market inefficiency, lack of technology and capital, infrastructure deficits, and unsuitable policies (Weldesilassie et al, 2017). Around the world, IPs have become the main way to implement industrial development as part of local economic development initiatives (Novyidarskova,2020). Governments in Asia, Africa and Latin America have been using Special Economic Zones (SEZs) or IPs as a strategic way to encourage industrialization and stimulate structural transformation. However, modern SEZs or IPs have seen a mix of positive results and challenges over the past 50 years (Barrera et al., 2021).

Over the past ten years, Ethiopia has been actively involved in industrial development programs. The main goal of these programs is to increase the economic impact of the manufacturing sector on the country's economy (Staritz et al, 2016). This includes increasing exports and foreign investment, addressing shortages in foreign exchange, reducing the government's reliance on borrowing for investment, and shifting the leadership of growth from the public to the private sector (Oqubay, 2018). Currently, Ethiopia has twenty-four Industrial Parks (IPs), seven of which are privately owned, thirteen are federally owned, and four are Integrated Agriculture Processing Industrial Parks (IAPIPs) set up by regional state governments (IPDC, 2022).

Despite many initiatives, the contribution of the national value-added manufacturing sector to the Gross Domestic Product (GDP) is four percent (World Bank, 2022). Also, the percentage of exports from IPs compared to the total export value has remained low, around six percent in the fiscal year 2022 (Trend Economy, 2023). The export value from IPs in 2022 was much lower than planned, less than 200 million USD, which is a big contrast to the initial plan. It was projected that the Hawassa industrial park would generate annual revenue of one billion USD (IPDC, 2022). The manufacturing sector is not contributing significantly to economic development, with a limited impact on job creation, exports, and production

and fails to effectively promote linkages within the local economy (Oqubay,2018).

Establishment of IPs in several countries has increased, leading to more competition for investors and a higher demand for efficient services (Wu & Gao, 2022). With the increase in urbanization and the development of residential and mixed-use areas within or near IPs, it's important to better integrate these parks into the wider urban framework to create economic competitiveness (Ntasiou & Andreou, 2017). Since the first IP established in 2008, the institutional initiatives aimed at fostering IPs development in Ethiopia warrant a comprehensive assessment. This evaluation should focus on their contribution to enhancing the nation's economic competitiveness, in alignment with the objective of Inclusive and Sustainable Industrial Development (ISID). The UNIDO's IPs Performance Evaluation framework serves as a suitable tool for this analysis. Furthermore, it is noteworthy that there is a dearth of research in this specific field, particularly concerning the Ethiopian context.

2. Literature Review

Industrialization is a key part of regional development strategies, helping countries become more global (Chang & Zach, 2019). The impact of industrialization on society, the economy, and the environment is similar to the big changes brought about by the British industrial revolution (Stearns, 2019). The level of industrialization and growth path of countries can show their political power and global importance (Sugihara, 2019).

People often feel skeptical and uncertain about the impact of IPs or economic zones on allocative efficiency (Ngwu et al, 2023). From the neoclassical point of view, economic zones are seen as a less optimal alternative to national trade liberalization (Wenwen, 2023). Special Economic Zones (SEZs) are seen as a temporary policy tool used by the government during the implementation of comprehensive market reforms (Hazakis, 2014). On the other hand, the heterodox perspective highlights the dynamic effects and sees SEZs as playing a key role in stimulating overall economic development (Guteta & Worku, 2023). The heterodox viewpoint attributes dynamic spillover effects to SEZs, leading to benefits that go beyond their confined boundaries (Tesfaw, 2023). These effects are shown through their impact on backward linkages, human resources, technology, and institutional changes (Bulfone, 2023).

The New Structural Economics (NSE) supports the use of IPs as a policy tool to address the challenges faced by developing countries (Wu, 2017). According to Lin (2012), these parks are seen as a critical part of the framework for promoting and facilitating economic development. The establishment of Special Economic Zones (SEZs) aims to achieve four key strategic objectives. They aim to facilitate an integrative approach to economic reform, serve as a way to address the growing issue of unemployment, function as experimental laboratories to test innovative policies and methods, and attract foreign direct

investment (Chen et al, 2022).

The pursuit of economic development presents a significant challenge in augmenting competitiveness through industrial parks (Alipour et al., 2024). Marshall (1920) underscored three primary advantages of industrial parks or districts: improved access to suppliers and markets, labor market consolidation, and the transfer of technological knowledge. The proximity to markets for final goods and intermediate inputs allows firms to minimize marketing and purchasing costs. In industries with a high density of firms, workers are more likely to invest in their skills due to the ease of transferring their abilities to other businesses within the same cluster (Grimpe et al., 2023).

Competitiveness is defined as an economy's ability to meet "increasing aggregate demand and maintain exports" (Law, 2016) and "the ability of a country or location to create welfare" (Aiginger, 2006). Michael Porter, a leading figure in the development of modern competitiveness theory, noted that competitiveness can be understood at various levels. These levels include the country's available resources, macroeconomic competitiveness represented by the overall economic conditions, and the microeconomic layer, which includes the specific environment in which individual firms operate, in this case, the establishment of industrial parks.

Porter underscored the significance of clusters, which are aggregations of firms in a specific field that generate a critical mass and stimulate the growth of supporting institutions for economic competitiveness (Porter, 2011). The successful development of IPs necessitates not only the formulation of achievable goals but also the identification and execution of effective strategies to realize these goals (UNIDO, 2019). Furthermore, the development of IPs demands an exhaustive analysis of the policy frameworks and motivations that drive the initiative (Sosnovskikh, 2017).

The competitiveness of industrial parks is heavily dependent on the quality and functionality of its infrastructure facilities and connectivity (Palei, 2015). Infrastructure quality, easy access to transportation, and appropriate office arrangements are critical factors that affect employees' quality of life (Zajontz & Bagwandeen, 2023). These elements are vital for attracting firms and contribute to the parks' effectiveness (Lee, 2019). Among the infrastructures, industrial parks primarily depend on a continuous and stable energy supply for efficient production without causing harm to their employees or the environment (Bailey, 2022). Consistent and reliable electric power load data at the individual building level in industrial parks is crucial as it provides valuable insights into the specific operational schedules of the building (Yoon, 2022).

Open bidding and transparent land allocation are key elements in enhancing the economic competitiveness of industrial parks (Zeng, 2015). In 2007, China initiated a market-oriented reform of industrial land to

improve land distribution efficiency, as reported in a study by Zhang et al. (2024). The results highlight the effectiveness of market-oriented reform in China. State-owned firms have gradually integrated into the market-oriented distribution of industrial land, leading to a more transparent and efficient land allocation process.

Yang et al. (2023) conducted a study investigating the impact of land marketization, without privatization, on China's industrial structure. The study used data from China's urban land transactions from 2003 to 2015 and data covering 29 sectors in China's industrial and manufacturing sectors. This study enriches our understanding of land marketization reform in developing countries. It shows that even when land ownership remains unchanged, land use rights can still be allocated through market mechanisms such as auctions. This method can result in an improved industrial structure and enhanced economic efficiency. A separate study by Pakdeenurit et al. (2014) found that the presence of fundamental infrastructures, such as reliable electricity and power supply, proximity to transportation and logistics centers, access to export and trade processing facilities, and the availability of a skilled workforce, are critical factors in determining economic competitiveness through industrial parks.

For more than a decade and a half, the Ethiopian government has leveraged IPs as a tool to stimulate industrial growth and facilitate economic restructuring. Despite these efforts, the Ethiopian economy remains largely non-industrial. The creation of IPs for economic competitiveness requires substantial efforts, resources, and compromises. However, these endeavors have not resulted in the anticipated economic structural transformation. Consequently, it is imperative to conduct a thorough assessment of the role of existing IPs in economic competitiveness, an area that has not been extensively explored in previous academic research. This evaluation should align with the principles of Inclusive Sustainable Industrial Development (ISID) as outlined by the United Nations Industrial Development Organization (UNIDO). Ethiopia currently boasts twenty-four established IPs, with additional parks being considered for development by the IPDC in 2023. To further stimulate the growth of clustering in Ethiopia, it is crucial to assess the performance of existing IPs in terms of economic competitiveness.

3. Materials and Methods

This study employs a cross-sectional research design, utilizing both descriptive and explanatory approaches. The required samples were selected using a proportional stratified sampling technique. The study population was determined based on data from the IPDC, indicating that there are 203 business enterprises in the 10 most functional IPs. Each company, whether operating in private or public IPs in Ethiopia, has a management staff ranging from 24 to 40. This includes Managerial, administrative, and technical staff who have close access to enterprise performance. Given the variation in enterprise size, the minimum number of managerial staff per company was used to determine the study population.

This resulted in a total study population of 4,872 .The sample size that is 375 was determined using the sample size determination formula developed by Yemane (1967). An additional 10% (i.e., 37) was added to the initial sample size to account for potential non-responses, bringing the total sample size to 412. This sample was proportionally distributed across 203 enterprises operating in ten private and public industrial parks. Respondents were selected from each enterprise using a simple random sampling method. Prior to the initiation of data collection, the research proposal was subjected to an ethical clearance review by the Institutional Review Board (IRB). 412 self-administered questionnaires were distributed. A total of 395 questionnaires were returned, yielding a 96% response rate, the data was analyzed using a binary logistic regression model to fulfill the study's objectives.

The questionnaire consisted of open-ended categorical questions pertaining to the dependent variable and 24 quantifiable variables. The standard variables, derived from UNIDO (2019), were categorized into four primary factors that served as explanatory variables. Responses to questions about these explanatory variables, also referred to as economic competitiveness variables, were measured on a 5-point Likert scale, with 1 denoting strong disagreement and 5 denoting strong agreement. Prior to the commencement of full-scale data collection, a pilot study was conducted with 30 randomly selected participants to assess the reliability of the structured questionnaire using Cronbach's alpha. According to Kothari (2004), a data collection tool is considered reliable if it produces consistent results. Cronbach's alpha is commonly used to evaluate the internal consistency or reliability of a data collection instrument. Sekaran and Bougie (2013) further noted that a Cronbach's alpha value below 0.6 is considered poor, 0.7 is acceptable, 0.8 is very good and 0.9 or higher is excellent. As indicated in Table 1, the structured questionnaire exhibited reliability as Cronbach's alpha values for all four major economic competitiveness factors exceeded 0.7.

Table 1: Reliability Test results for individual items

Impact of Industrial Parks (Advancing Economic Competitiveness)	No of items	Cronbach's alpha
Good Economic Governance	3	0.7981
Economically Enabling site & Infrastructure 'hardware' (Appropriate site selection)	5	0.8556
Economically Enabling Services 'software'	8	0.8027
Economically Impactful Nature: Employment, Investment, and Turn-over	4	0.7890

After verifying reliability and internal consistency, the questionnaire was personally administered to the sample respondents. As previously stated, individual Likert-type questions serve as explanatory variables and are classified as ordinal due to their clear rank order despite lacking an even distribution.

Concerning the dependent variable, respondents were asked to rate their agreement with the binary question: Do IPs in Ethiopia play a role in enhancing economic competitiveness? Consequently, a binary logistic regression model is deemed most suitable for this study.

The study exclusively relied on primary data collected using structured questionnaire under four broad factors, Which are "good economic governance, economically enabling site & infrastructure 'hardware" ,economically enabling services 'software', and economically impactful nature".

Table 2: Description of variables

No	Variables	Categories variables contained
1	Operator sourced on the basis of an open competitive tender	Good economic governance
2	Private sector represented on Board of Regulator	
3	Operator Customer Relationship Management (CRM) system	
4	Proximity to appropriate highway	Economically enabling site & infrastructure 'hardware'
5	Proximity to power transmission or distribution grid	
6	Proximity Operational Public Port, Airport of use	
7	Hours power outage per period in Industrial Park	
8	Regular, Scheduled Maintenance of facilities	Economically enabling services 'software'
9	Emergency Maintenance	
10	Repair, Rectification & restoration service	
11	Dedicated or localized industrial park Business Support	
12	Access to specific financial support programs	
13	Dedicated One-Stop Shop/ Single-Window in industrial park	
14	Formal industrial park B2B Gatherings held on formal Ips	
15	Presence of Human Resources Agency & Recruiting Services	
16	Per Capita Income in the industrial park	Economically impactful nature: Employment, investment, turn-over
17	Regular, Scheduled Maintenance of facilities	
18	Full-time equivalent employment/hectare in industrial park	
19	FDI % of total investment (or GFCF) In Industrial Park	
20	US$.$ exports of processed or semi-processed goods as % of total Industrial Park US$ exports	

Source: UNIDO (2019)

Thus, letting Zij be the ith respondent perception/feeling on Ethiopia's achievement of economic competitiveness objective through IPs development (a binary outcome, 1= if the response is yes, 0=otherwise) operating in the jth public or private IPs as the dependent variable and Xi observable economic indicators expected to flourish following the establishment of IPs selected from the four major

economic performance measuring indicators suggested by UNIDO (2019) as explanatory variables, the role of IPs on economic competitiveness of Ethiopia was assessed based on the dependent variable indicated below.

Zij~Bernoulli (Pj) ---------- (1)

This leads to the response or outcome variable:

$$Z_{ij} = \begin{cases} 1 \; if \; the \; respondent \; believe \; Ethiopia \; acheive \; economic \; competitivness \; obj \\ 0 \; if \; the \; respondent \; does \; not \; believe \; Eth. \; acheive \; econ. competitivness \; obj \end{cases}$$

Then, supposing Zij=1 as Ethiopia's achievement of economic competitiveness through (as a result of) IPs development, the linear functional relationship between the probabilities of achieving economic competitiveness objective through the development of IPs in Ethiopia and key observed economic indicators used as explanatory variables is specified as:

$$P_i = E(Z = 1/X) = \alpha + \beta_1 X_1 + \beta_2 X_2 + - - - + \beta_i X_i \text{ ---------- (2)}$$

For simplicity equation (2) can be written as:

$$P_i = E(Z = 1/X) = \frac{1}{1+e^{-(\alpha+\beta_1 X_1+\beta_2 X_2+---+\beta_i X_i)}} \text{ ---------- (3)}$$

Thus, following, Gugarati's (2004) work the cumulative logistic distribution model is specified as: $P_i = E(Z = 1/X) = \frac{1}{1+e^{-Z_i}} = \frac{e^Z}{1+e^Z}$ ---------- (4)

Where, $Z_i = \alpha + \beta_1 X_1 + \beta_2 X_1 + - - - + \beta_i X_i$

If Pi is the probability of Ethiopia's achievement of economic competitiveness through IPs development, given by equation (2), then (1-Pi), the probability of not-achieving economic competitiveness objective is written as:

$$1 - P_i = \frac{1}{1+e^{Z_i}} \text{ ---------- (5)}$$

Therefore, dividing equation (4) by equation (5), we get an expression as

$$Odds\ P(Z) = \frac{P_i}{1-P_i} = \frac{e^{Z_i}}{1+e^{-Z_i}} = e^{Z_i} \text{ ---------- (6)}$$

Furthermore, Cramer (2003) indicates that for logistic probabilities, the above odds are

$$Odds\ (Z_i) = \exp(Z) = \exp(\alpha + \beta_i X_i)$$

The above equation estimates odds ratios (Pi/1-Pi) for each independent variable in the model. Thus, taking take the natural log on both sides of equation (6), we obtain the log odds or logit regression model employed in this study to evaluate the role of IPs on economic competitiveness of Ethiopia as:

$$logit[P/(Z_i)] = log\frac{P/(Z_i)}{1-P/(Z_i)} = Z_i \text{ , which is also}$$

$$logit = log\left(\frac{P_i}{1-P_i}\right) = \frac{e^{Z_i}}{1+e^{-Z_i}} = Z_i \text{. Finally,}$$

$$Z_i = \alpha + \beta_1 X_1 + \beta_2 X_1 + - - - + \beta_i X_i \text{ -------- (7)}$$

Therefore, equation (7) is the logit model, where

Zi= represents the dependent variable (economic competitiveness objective of Ethiopia)

Xi= the vector of explanatory variables

βi = is the vector of unknown coefficients/ the parameter estimates

There are several reasons for using the Logit model in this study:

First, while both Probit and Logit models are suitable when the dependent variable is binary or dichotomous, the Logit model is preferred because it's simpler to estimate than the Probit model and serves as a standard for comparison with other models (Maddala, 1999). Moreover, if we have data collected on individual clients, as in this study, then Ordinary Least Squares (OLS) estimation is not feasible (Gujarati, & Porter , 2010).

Second, the Logit model provides a more realistic pattern of change in probability compared to other models like the Probit. This is because the odds ratio, a measure of the relationship between two variables, doesn't require variables to be normally distributed. The mathematical transformation of the odds ratio is the Logit model, which removes the problem of asymmetry in the odds ratio, making it a superior method (Peng et al., 2005).

Third, the logistic regression model has strong predictive power. Its close relationship to log-linear analysis of contingency tables and linear discriminant function analysis makes the logistic model more popular than other related models.

Fourth, compared to its competitor, the Probit model, the Logit model is less sensitive to outliers and it's easier to correct a bias (Copas and Corbett, 2002). Finally, the basic assumptions required for statistical tests in logistic regression are less restrictive than those for ordinary least squares regression.

4. Results and Discussine

4.1 Results

In this study, a sample size of 412 respondents was determined for data collection through questionnaires. These questionnaires were distributed among selected Ethiopian Industrial Parks, administrative and

technical managers, and employers' representatives working in 203 Industrial Parks (IPs), of which 138 are privately owned and 65 are publicly owned, with various manufacturing specialization including construction materials, textile, leather & apparel, automotive, and food & beverage. These IPs are located in seven cities namely, Dukem, Hawassa, Bahir Dar, Mojo, Dire Dawa, Adamma, and Addis Ababa.

The socio-demographic characteristics of the respondents, as presented in Table 2, reveal that 84.3% of respondents were male and 15.7% were female. The majority (about 72%) was aged between 31 and 40 years, with 22.28% aged 18 to 30, and about 5.8% of the respondents were above 41 years of age. The mean age of the sample respondents was 35.17 (SD=4.76). A majority (60.5%) held a master's degree, while others had a terminal degree (1.77%) or a bachelor's degree (37.72%). Over half (52.91%) had experience in the manufacturing sector, and 81.77% were employed in the private sector, providing insights into the opportunities and challenges faced by private operators within industrial parks. The vast socio-demographic characteristics of the respondents have important implications for this research finding in understanding the role of IPs for economic competitiveness.

Table 3. Socio-Demographic Characteristics of Respondents

Variable	Category	Frequency	Percentage (%)
Sex	Male	333	84.30
	Female	62	15.70
Age group			
	1=18 – 30	88	22.28
	2=31 – 40	284	71.90
	3=41 – 60	23	5.82
Educational Qualification	1=BA degree	149	37.72
	2=Masters' degree	239	60.50
	3= PhD degree	7	1.77
Do you have experience working in the manufacturing sector?	Yes	229	57.97
	No	166	42.03
What is the business form of your company?	Public	70	17.72
	Private	323	81.77
	Joint venture	2	0.51
Total respondents		395	100%

Source: Survey (2024)

The logistic regression results presented in Table 4 showcase the comprehensive analysis conducted using all 395 observations in the survey data, with no missing values in any of the variables utilized in the Logit model. The rapid convergence of the model, as indicated by the iteration log likelihood

value of -169.244881, signifies the efficiency in comparing nested models. The Pearson chi-square value of 161.61 on 20 degrees of freedom, with a highly significant p-value of 0.0000, demonstrates the strong goodness of fit of the logistic regression model, underscoring the joint significance of the explanatory variables in influencing the economic competitiveness of Ethiopia through Industrial Parks (IPs) development.

The Pseudo R2 value of 0.3229 indicates that approximately 32.3% of the variance in the dependent variable is explained by the changes in explanatory variables in the logistic regression model, aligning with the acceptable coefficient of determination range suggested by Maydeu-Olivares and Garcia-Forero (2010) in social science research. The coefficients, standard errors, z-statistics, p-values, and 95% confidence intervals presented in columns 2 to 6 offer insights into the estimated effects of the variables on economic competitiveness. Additionally, columns 7 and 8 provide the odds ratios and marginal effects, showcasing the probability of Ethiopia achieving its economic competitiveness objectives through IPs development.

Among the 20 economic indicators analyzed, twelve were found to significantly enhance Ethiopia's economic competitiveness. Notably, the presence of an open competitive tender system for private sector selection emerged as a key driver of economic competitiveness. Improving transparency in competitive tenders was associated with a 1.74 increase in the log odds of achieving economic competitiveness. Infrastructure connectivity, Stable electricity supply and proximity to key facilities is also among the factors that plays pivotal role in enhancing economic competitiveness in Ethiopian industrial parks. The economic competitiveness of industrial parks relies heavily on the quality and functionality of its infrastructure facilities and connectivity and access to stable power.

Table 4. Multivariate Logit Model Result

Logit Regression				Number of obs. = 395 LR chi2 (20) = 161.61			
Prob. > chi2 = 0.0000				Log Likelihood = -169.44881 Pseudo R2 = 0.3229			
Variables	Logit Regression					Logistic	Mfx
	Coeff.	S.E	Z	P>Z	(95%conf. Inter.)	Odds Ratio	dy/dx
Operator sourced on the basis of an open competitive tender	0.5545	0.1928	2.88	0.004**	0.1766 0.9324	1.7410	0.1028
Private sector represented on Board of Regulator	-0.1565	0.1424	0.71	0.272	-0.4355 0.1225	0.8552	-0.0290
Operator Customer Relationship Management (CRM) system	0.0679	0.1728	6.32	0.694	-0.2707 0.4066	1.0703	0.1260

Proximity to appropriate highway	0.2844	0.1624	1.75	0.080*	-0.0340	0.6027	1.3289	0.0527
Proximity to power transmission or distribution grid	0.4781	0.2131	2.27	0.025**	0.0604	0.8958	1.6130	0.0887
Proximity Operational Public Port, Airport of use	0.4832	0.1919	2.52	0.012**	0.1072	0.8592	1.6213	0.0896
Hours power outage per period in Industrial Park	0.6054	0.2019	3.00	0.003***	0.2098	1.0010	1.8320	0.1123
Hours of interruption of water supply	-0.5506	0.2242	-2.46	0.014**	0.9900	-0.1111	0.5766	-0.1021
Regular, Scheduled Maintenance of facilities	0.4089	0.2054	1.99	0.046**	0.0064	0.8114	1.5051	0.0758
Emergency Maintenance	0.7688	0.2758	2.79	0.005***	0.2283	1.3093	2.1572	0.1426
Repair, Rectification & Restoration Service	-1.0642	0.3151	-3.38	0.001***	-1.6819	-0.4466	0.3450	-0.1974
Dedicated or localized industrial park Business Support	0.2020	0.1790	1.13	0.259	-0.1488	0.5527	1.2238	0.0375
Access to specific financial support programs	-0.3458	0.1766	-1.96	0.050*	-0.6920	0.0004	0.7077	-0.0641
Dedicated One-Stop Shop/ Single-Window in industrial park	0.1257	0.2304	0.55	0.585	-0.3259	0.5773	1.1340	0.0233
Formal industrial park B2B Gatherings held on formal Ips	-0.0031	0.1969	-0.02	0.987	-0.3890	0.3828	0.9969	-0.0006
Presence of Human Resources Agency & Recruiting Services	-0.5982	0.1729	-3.46	0.001***	-0.9371	-0.2592	0.5498	-0.1109
Per Capita Income in the industrial park	-0.9014	0.2341	-3.85	0.000***	-1.3602	-0.4426	0.4060	-0.1672
Full-time equivalent employment/hectare in industrial park	0.9185	0.1832	5.01	0.000***	0.5595	1.2776	2.5056	0.1704
FDI % of total investment (or GFCF) In Industrial Park	-0.5091	0.2496	-2.04	0.041**	-0.9983	-0.0198	0.6011	-0.0944
US$.$ exports of processed or semi-processed goods as % of total Industrial park US$ exports	1.0126	0.3001	3.37	0.001***	0.4243	1.6009	2.7528	0.1878
Cons	-5.7647	1.0692	-5.39	0.000***	-7.8604	-3.6690	0.0031	

Note: Values in this table are rounded to 4 decimal place. ***, **, & * indicate significance at 1%, 5% & 10% level, respectively.

Source: Authors computation from survey data (2024)

4.2 Discussion

In the realm of economic competitiveness analysis within the context of Ethiopia's Industrial Parks (IPs) development, a detailed examination of the economically enabling services 'software' indicators reveals

meticulous insights. Among the array of indicators scrutinized in the binary response regression models, only specific factors emerge as pivotal drivers of economic competitiveness for the country. Notably, the presence of regular and scheduled maintenance for buildings and power sources, alongside dedicated rapid-response or emergency maintenance services, stands out as catalysts for enhancing economic competitiveness within the Ethiopian landscape.

It underscores the substantial contributions of IPs in enhancing various economically enabling factors, such as the establishment of open competitive tender systems, development of essential site infrastructure, creation of employment opportunities, and promotion of exports of processed goods. These findings support the previous research conducted by Pakdeenurit et al. (2014), which highlights the important role of industrial sector growth through IPs in strengthening key economic indicators such as proximity and access to basic infrastructure facilities, the ability to establish export processing arrangements, and the availability of skilled manpower.

In contrast to the perspectives of Farole and Moberg (2014), who questioned the success of African IPs in fostering economic development, this study highlights the potential of IPs in Ethiopia to drive sustainable economic growth and competitiveness. However, it also identifies areas that require immediate attention, including the reliability of water supply, access to financial support, and the establishment of human resources agencies for recruitment and training. Strengthening these aspects, along with enhancing sales revenue and attracting foreign direct investment, will be instrumental in maximizing the impact of IPs on economic competitiveness.

The presence of an open competitive tender system, Particularly, for private sector selection emerged as a key driver of economic competitiveness. Improving transparency in competitive tenders was associated with a 1.74 increase in the log odds of achieving economic competitiveness. This aligns with the findings made by Zhang et al. (2024), which state that China initiated a market-oriented reform of industrial land allocation in 2007, aiming to achieve the most efficient land distribution. The findings demonstrate the effectiveness of market-oriented reform and the significance of the process of allocating land with transparency to enhance economic competitiveness through industrial parks development.

Infrastructure connectivity is also one of the factor that plays pivotal role in enhancing economic competitiveness in Ethiopian industrial parks. The economic competitiveness of industrial parks relies heavily on the quality and functionality of its infrastructure facilities and connectivity. The result is compatible with the conclusions Zajontz & Bagwandeen (2023) which asserts the quality of infrastructure, ease access to transportation, and suitable office arrangement are crucial variables that influence the quality of life for employees.

Stable power supply is another variable found to impact economic competitiveness of industrial parks in Ethiopia. The finding is consistent with the study conducted by Bailey (2022) and Yoon (2022) that Stable and reliable electric power load data at the individual building level in industrial parks is essential as it offers valuable information on the specific operational schedules of the building (Yoon, 2022).

The analysis has also signified the significance of industrial parks proximity to key facilities as one factor that creates economic competitiveness. The finding is synergistic with Marshal (1920) theoretical argument, where proximity of final goods and intermediate-input markets enables firms to reduce marketing and purchasing expenses. Moreover, due to the proximity, In industries with a high concentration of firms, workers are more inclined to invest in their talents as they may readily transfer their skills to other enterprises within the same cluster(Marshal,1920).

Furthermore, the ratios of full-time to part-time employment in IPs and revenues derived from exports of processed or semi-processed goods play crucial roles in bolstering economic competitiveness. Particularly striking is the finding that a ratio greater than 1 for full-time to part-time employment, as well as the ratio of revenues from processed goods exports to total IPs exports compared to national exports, significantly contribute to the economic advancement of Ethiopia. These indicators, identified through the development and expansion of IPs, exhibit substantial impact on promoting economic competitiveness, underscored by their statistical significance at the 1% level.

The odds ratio results shed light on the magnitude of impact of these indicators. A 1% enhancement in the availability of regular and scheduled maintenance of buildings translates to a 1.5051-fold increase in the odds favoring the achievement of economic competitiveness objectives. Similarly, improvements in power sources and dedicated rapid-response or emergency maintenance in IPs yield substantial gains, with odds ratios of 2.1572 and 0.3450, respectively. Moreover, the ratios of full-time to part-time workers and revenues from processed goods exports exhibit notable effects, with corresponding increases in the log odds of achieving economic competitiveness objectives by factors of 2.5056 and 2.7528, respectively.

Conversely, the analysis also uncovers six economic factors within IPs that significantly impede Ethiopia's economic competitiveness. These include challenges related to water supply interruptions, repair services for utilities, access to financial support programs, human resources agency services, per capita income levels, and FDI-to-investment ratios. The observed discrepancies in these factors highlight areas where improvements are imperative to bolster economic competitiveness. Notably, the disparities in water supply, financial support mechanisms, income levels, and investment ratios compared to national averages underscore critical areas for policy intervention and strategic reform.

Therefore, the comprehensive analysis of these economically enabling indicators and deterrent factors provides a nuanced understanding of the dynamics influencing economic competitiveness within Ethiopia's industrial landscape. These findings offer valuable insights for policymakers, stakeholders, and investors seeking to foster sustainable economic growth and competitiveness in the region.

5. Conclusion and Recommendations

5.1 Conclusion

The study's findings underscore the significant role that IPs play in promoting economic competitiveness in Ethiopia. The logit regression analysis identified some key indicators that foster economic competitiveness within IPs in Ethiopia.

1. Sourcing of Operators Based on an Open Competitive Tender: This practice ensures that the most competent and efficient operators are selected, enhancing the productivity and competitiveness of the IPs.

2. Proximity to Appropriate Infrastructure: IPs located near essential infrastructure such as roads, electricity, and water supply can significantly improve the efficiency of operations.

3. Presence of Certain Facilities and Services: The availability of facilities and services such as waste management systems, security services, and administrative support can contribute to the smooth operation of businesses within the IPs.

However, the study also identified some variables that pose challenges to achieving economic competitiveness:

1. High Average Commute Time to IPs: Longer commute times for employees can reduce productivity and hinder economic competitiveness.

2. Weak Social Impact Management System: A weak social impact management system can limit the ability of IPs to effectively manage and mitigate social impacts, which can negatively affect their competitiveness.

3. Low Certification Rates: A lower percentage of firms with OHSAS 18001/ ISO 45001 certification in IPs than the national average can indicate a lack of adherence to international standards, which can negatively impact competitiveness.

4. High Percentage of Employees with Open-Ended Contracts: This could indicate a lack of job security for employees, which can negatively affect productivity and competitiveness.

5. Wage Disparity Between Genders: Wage disparity can lead to lower job satisfaction and productivity among employees, which can hinder economic competitiveness.

These findings highlight the need for a holistic approach in leveraging IPs for economic competitiveness. It is crucial to capitalize on the identified indicators that foster economic competitiveness while addressing the challenges that hinder it.

5.2 Recommendations

Based on the study's findings, the following measures could be considered by the government and all stakeholders.

1. Promote Competitive Tendering: Encourage the sourcing of operators based on an open competitive tender to increase the likelihood of economic competitiveness.

2. Improve Infrastructure: Enhance the proximity to appropriate infrastructure such as highways, power transmission or distribution grids, and operational public ports or airports.

3. Enhance Facilities and Services: Regularly maintain facilities and provide emergency maintenance services. Also, consider implementing a dedicated one-stop shop or single-window in industrial parks.

4. Address Challenges: Address the identified challenges such as the representation of the private sector on the Board of Regulator, interruptions in water supply, the presence of a repair, rectification, and restoration service, access to specific financial support programs, the presence of human resources agencies and recruiting services, and the percentage of foreign direct investment (FDI) in total investment.

5. Conduct Further Research: Given the complex nature of the relationships found in the study, further research is needed to explore these relationships in more detail and to understand the underlying mechanisms.

These recommendations aim to leverage the potential of IPs in promoting economic competitiveness in Ethiopia. However, they should be considered in conjunction with other relevant factors and tailored to the specific context and needs of each IP.

References

Alipour, Q., Modiri, M., Faqhihi, M., & Soltani, R. (2024). An interpretative-structural model of effective investments components in competitive advantage of industrial parks. Journal of System Management, 10(1), 99-115.

Aiginger, K. (2006). Competitiveness: from a dangerous obsession to a welfare creating ability with positive externalities. Journal of industry, competition, and trade, 6, 161-177.

Anh, V. T. K., Ha, H. T. V., Ha, D. T., & Chi, N. T. D. (2019). The Impacts Of Industrial Parks To Socio-Economic Development Experimental Research In Thai Binh Province, Vietnam. Academy Of Accounting And Financial Studies Journal, 23(4), 1-19.

Azmach, E. W. (2019). Regulating industrial parks development in Ethiopia: a critical analysis. Beijing L. Rev., 10, 23.

Bailey, A. (2022). An investigation of the effects of potential electrical load-shedding on facility manager's strategic and operational decisions in industrial buildings: A case study of Perseverance Industrial Township, Nelson Mandela Bay.

Barrera, G. A. F., i Durany, X. G., Pons, J. R., & Erazo, J. G. G. (2021). Trends in global research on industrial parks: A bibliometric analysis from 1996–2019. Heliyon, 7(8).

Borodavkina, N., & Mukovnina, E. (2021). The role of industrial parks in ensuring sustainable development of the region. In E3S Web of Conferences (Vol. 291, p. 01004). EDP Sciences.

Bulfone, F. (2023). Industrial policy and comparative political economy: a literature review and research agenda. Competition & change, 27(1), 22-43.

Chang, H. J., & Zach, K. (2019). Industrialization and Development. Asian Transformations, 186.

Chang, H. J., & Zach, K. (2019). Industrialization and Development. Asian Transformations, 186.

Chen, X., Dong, M., Zhang, L., Luan, X., Cui, X., & Cui, Z. (2022). Comprehensive evaluation of environmental and economic benefits of industrial symbiosis in industrial parks. Journal of Cleaner Production, 354, 131635.

Copas, J. B., and Corbett, P. (2002). Overestimation of the receiver operating characteristic curve for logistic regression. Biometrika, 89(2), 315-331.

Davies, R. B., & Mazhikeyev, A. (2019). The impact of special economic zones on exporting behavior. Review of Economic Analysis, 11, 145-174.

Farole, T. and G. Akinci, eds. 2011. Special Economic Zones Progress, Emerging Challenges, and Future Directions. Washington, DC: The World Bank.

Farole, T., & Moberg, L. (2014). It worked in China, so why not in Africa? The political economy

challenge of Special Economic Zones (No. 2014/152). WIDER Working Paper. industrial parks in Thailand. Journal of Cleaner Production, 156, 614-623.

Grimpe, C., Sofka, W., & Kaiser, U. (2023). Competing for digital human capital: The retention effect of digital expertise in MNC subsidiaries. Journal of International Business Studies, 54(4), 657-685.

Gujarati, D., & Porter, D. C. (2010). Functional forms of regression models. Essentials of econometrics, 6, 132-177.

Guteta, G., & Worku, H. (2023). Sustainable industrial parks development in Ethiopia: Analysis of policy framework gaps. Sustainable Production and Consumption, 38, 210-224.

Hazakis, K. J. (2014). The rationale of special economic zones (SEZs): Institutional approach. Regional Science Policy & Practice, 6(1), 85-102.

IPDC.(2022).Annual Report.

Kihiko, M. K. (2018). Industrial Parks As a Solution to Expanding Urbanization: A Case of Sub-Saharan Africa. In Urbanization and Its Impact on Socio-Economic Growth in Developing Regions (pp. 327-345). IGI Global.

Kong, S., Jia, Y., & Ding, W. (2020). The "PSIMT" model for emergency supplies process management: A case study of Shanghai Chemical Industry Park. Process Safety Progress, 39(4), e12143.

Lee, M. J. (2019). Transforming post-industrial landscapes into urban parks: Design strategies and theory in Seoul, 1998–present. Habitat International, 91, 102023.

Lin, J. (2012). New Structural Economics: work for Rethinking Development and Policy. © Washington, DC: World Bank.

Maddala, G.S., (1999). Limited-Dependent and Qualitative Variables in Econometrics Cambridge University Press, United Kingdom.

Marshall, L. S. (1937). The English and American industrial city of the nineteenth century. Western Pennsylvania History: 1918-2022, 169-180.

Ngwu, R. O., Onodugo, V. A., Monyei, F. E., Ukpere, W. I., Onyekwelu, P. N., & Mmamel, U. G. (2023). The Nexus between industrial parks and the sustainability of small and medium-scaled ventures. Sustainability, 15(12), 9529.

Novyidarskova, E. (2020). The Effectiveness of Industrial Parks in the Regional Economy. Problems of

Economic Transition, 62(7-9), 617-621.

Ntasiou, M., & Andreou, E. (2017). The standard of industrial symbiosis. Environmental criteria and methodology on the establishment and operation of industrial and business parks. Procedia environmental sciences, 38, 744-751.

Opoku, E. E. O., & Yan, I. K. M. (2019). Industrialization as driver of sustainable economic growth in Africa. The Journal of International Trade & Economic Development, 28(1), 30-56.

Oqubay A. (2018). Industrial Policy and Late Industrialization in Ethiopia, Working Paper Series N° 303, African Development Bank, Abidjan, Côte d‟Ivoire.

Palei, T. (2015). Assessing the impact of infrastructure on economic growth and global competitiveness. Procedia Economics and Finance, 23, 168-175.

Porter, M. E. (2011). Competitive advantage of nations: creating and sustaining superior performance. simon and schuster.

Pakdeenurit, P., Suthikarnnarunai, N., & Rattanawong, W. (2014, January). Special Economic Zone: Facts, roles, and opportunities of investment. In Proceedings of the International Multiconference of Engineers and Computer Scientists (Vol. 2, pp. 1-5).

Pakdeenurit, P., Suthikarnnarunai, N., & Rattanawong, W. (2014, March). Key Success Factor of Special Economic Zone for Thailand. In Proceedings of the International MultiConference of Engineers and Computer Scientists (Vol. 2).

Qaiser, S. (2020). Relationship between Industrialization and Economic Growth: Empirical Study of Pakistan. International Journal of Management, Accounting & Economics,7(12).

Schminke, A., & Van Biesebroeck, J. (2013). Using export market performance to evaluate regional preferential policies in China. Review of World Economics, 149, 343-367.

Staritz, C., Plank, L., & Morris, M. (2016). Global value chains, industrial policy, and sustainable development–Ethiopia's apparel export sector. Country Case Study, Geneva:International Centre for Trade and Sustainable Development (ICTSD).

Sterns, J. A. (2019). Is the emerging US hemp industry yet another boom–bust market for US farmers?. Choices, 34(3), 1-8.

Sosnovskikh, S. (2017). Industrial clusters in Russia: The development of special economic zones and

industrial parks. Russian Journal of Economics, 3(2), 174-199.

Tesfaw, D. (2023). The Effects of Industrial Park Development on Manufacturing Firms' Performance in Ethiopia. Chinese Business Review, 22(3), 95-115.

UNIDO.(2019).International Guidelines For Industrial Parks. Inclusive and Sustainable Industrial Development.

Weldesilassie, A. B., Gebreeyesus, M., Abebe, G., & Aseffa, B. (2017). Study on industrial park development: Issues, practices, and lessons for Ethiopia. Ethiopian Development Research Institute, Addis Ababa, Ethiopia, 1.

Wenwen, C. (2023). The Impact of Trade Liberalization on Emerging Market Countries Competitiveness (master's thesis, Igor Sikorsky Kyiv Polytechnic Institute).

Wu, Y. (2017). Structural Adjustment Approaches and Policy Design of the Chinese Economy: A Comparison Between New and Old Structural Economics. Fudan Journal of the Humanities and Social Sciences, 10, 431-454.

Wu, Y., & Gao, X. (2022). Can the establishment of eco-industrial parks promote urban green innovation? Evidence from China. Journal of Cleaner Production, 341, 130855.

Yang, J., Liu, C., & Liu, K. (2023). Land marketization and industrial restructuring in China. Land Use Policy, 131, 106737.

Yoon, Y., Jung, S., Im, P. & Gehl, A. Datasets of a Multizone Office Building under Different HVAC System Operation Scenarios. Sci. Data 9, 775 (2022).

Zhang, L., Coulson, N. E., Liu, Y., & Zhao, Y. (2024). State-owned enterprises and industrial land reform in China. The Annals of Regional Science, 72(1), 255-286.

Zajontz, T., & Bagwandeen, M. (2023). Infrastructure. In Yearbook on the African Union Volume 3 (2022) (pp. 134-158). Brill.

Zeng, D. Z. (2015). Global experiences with special economic zones: Focus on China and Africa. World Bank Policy Research Working Paper, (7240).

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Factors Affecting Cereal Crop Productivity in KelelaWereda, South Wollo Zone, Amahara Regional State, Ethiopia.

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Abstract

Ethiopia is an agrarian country where the economy mainly depends on agriculture, which is dominated by subsistence smallholder farmers and uses traditional farming methods for cereal crop production. The objective of this study is to examine Factors Affecting cereal crop Productivity in Kelala Wereda, South Wollo Zone, Amhara Regional State, Ethiopia. It used a mixed research method to collect and analyze data. Multi-stage stratified random sampling techniques were used to collect data from 383 representative samples. Questionnaire was used as tools of data collection. The Data were analyzed by descriptive statistics and OLS Regression model. The study used the total cereal crop output per hectare and estimated value used as productivity measures. The productivity was computed by total output/ hectares. The result showed that about 10.80 quintals per hectare average cereal crop productivity in the study area. The finding revealed that Farm size, Number of Oxen, uses of fertilizer, access to credit, frequency of extension contact and compost found to be a positive determining factors of productivity in the study area. On the other hands, size of family labor, dependence ratio and distance to market are statistically significant and negatively related to productivity. Thus, policy makers should work on facilitating small scale micro irrigation access to farm households. Encouraging farm households to use modern agricultural inputs, Encouraging farm households to use more organic fertilizers or compose for their production. Creating marketing linkage in horizontal and vertical aspects and delivering strong financial service for accessing of more credit to improve cereal crop productivity.

Keywords: Agriculture, Productivity, Crop Yield, Kelela.

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1. INTRODUCTION

Productivity measures the quantity of output produced with a given quantity of inputs. Agricultural Productivity and efficiency are both measures of production performance. However, there is slight difference between them. One can improve the state of technology by inventing new ploughs, pesticides, etc. This is commonly referred to as technological change and can be represented by an upward shift in the production frontier. Alternatively, one can improve farmers` education, extension service, etc. This in turn will improve production efficiency of farmers and will be represented by farmers operating more close to the existing frontier (Ayele, et, al., 2019: Assefa et al., 2020 & Meenu & Singh., 2023). Thus, Agricultural productivity is measured as the ratio of agricultural outputs to inputs. While, individual products is usually measured by weight, which is known as crop yield. Therefore, agricultural productivity is usually measured as the market value of the final output with inputs such as labor or land (Lal Mervin, 2013; Dagar et al., 2021).

Agriculture is the dominant sector and main stay of the worlds' population especially, in developing countries. Increasing agricultural productivity has been the world's primary agenda to ensure increased food supply using the existing limited land resource by employing improved agricultural inputs to feed the rapidly growing population (Bati et, al., 2021& Adu Boahen, et,al.,2024) The economic policy of Less Developed Countries (LDCs) in general and Sub-Saharan Africa (SSA) in particular, are highly dependent on agriculture. Poverty reduction and income growth can mainly be achieved by agricultural growth. However, production and productivity of the agricultural sector in those countries are low due to low technological adoption and modern inputs use (Abraham et al., 2014; Keba, 2022& Milkessa et,al.,, 2022).

Agriculture is also considered as a fundamental instrument for spurring growth and sustainable development, poverty reduction, and enhancing food security in developing countries like Ethiopia. However, the sector has been continually blamed for its failure to meet the growing food need of the rural population (Saqib et al., 2022: Gharira, 2023& Tang et,al.,2022). It's characterized by subsistence level, use low level of technologies and inputs, vulnerable to rainfall fluctuation, suspected to recurrent drought, etc. Thus, in those countries including Ethiopia, it leads to over utilization of lands to maximizes their crops output. This overutilization and repeatedly plough of land for a long time without maintaining soil and water conservation, the environment is affected by climate changes in terms of global warming, fluctuations of rainfall and occurring of long droughts in those countries then it leads to decline agricultural production and productivity (Muraya &Ruigu, 2017: Wassihua et al. 2019 &Assefa et al., 2022).

In Ethiopia about 85% of total population is live in rural areas and agriculture is their main source of

their livelihood. Agriculture becomes the second most dominant next to service sector of the country economy. It accounts 50% of the Gross Domestic Product (GDP), 90% of the total export revenue, 85% employment of the country's labor force and 70% of raw materials supplies to the country's industries. It is also the dominant sector of Ethiopia's economy (Crop, Livestock & Fisheries, and Natural Resources) Higher than the Sub-Saharan Africa this had 24% to GDP share (CSA, 2017/18 & Bati, et, al., 2021). However, various empirical studies show the agricultural sector has been unable to produce sufficient food quantities to feed the rapidly growing population. The reasons for low productivity of the agricultural sector and the growing gap between the demand and the supply of its products are many in numbers and different in character. These include: inadequate technology; limited use of modern inputs; lack of transportation and storage facilities; inadequate extension and credit facilities; natural calamities such as drought and ecological degradation (Moges et al., 2018 : Shakira, 2018 &Aynalem et al., 2020).

In Ethiopia also, cereals are the main food crops in terms of both the area they are planted (80.71%) and volume of production obtained (87.48%). The major cereal crops produced in the country are maize, teff, sorghum and wheat, which made 27.43 per cent, 17.26 per cent, 16.89 per cent and 15.17 per cent of production, respectively (CSA, 2020/21 & Dessalegn et al., 2021). Besides, the national productivity of major crops for 2020 is 28.3Qt/ha. In Amhara region, it is around 26.67Qt/ha productivity growth record for the same year, which is by far below the national average. Moreover, the average national productivity of cereals such as wheat, teff, and sorghum in 2018 were 29.7, 18.50, and 28.80 quintal (100kgs)/hectare, respectively. Comparatively, the productivity of these same crops in the Amhara region was below the national average with the same period 27.88, 18.94, 27.28 quintal (100kgs)/ hectare, (Bati, et,al.,2021; Meja et al.,2021& Endalew et, al., 2024).Generally, Ethiopia farmers face low productivities with different challenges or problems to increase their agricultural production and productivities in general, for cereal crops in particular. It's characterized by subsistence level, use of low level of technologies and inputs, vulnerable to rainfall fluctuation, suspected to recurrent drought, etc. Thus, they need agricultural production and productivities improvement for their rural livelihoods change.

Agricultural Survey result showed that the major cereal crops Teff, wheat and sorghum are covered about 117,407.56 ha, 105,261.64Ha, and 77, 636.64 ha of cultivated land in 20 Wereda in South Wollo zone. The productions of teff, wheat and sorghums during the meher season are 2,101,389.38 Qt, 2,808,905.19Qt, and 2,281,912 Qt with average crop yields of 17.90, 26.69 and 29.39 quintal (100kgs)/ hectare respectively. The average productivity in all major crops is low as compared to Amhara region 18.94, 27.88, 28.28 quintal (100kgs)/hectare and nation average productivity. Similarly, the average yields of main cereal crop in kelalaWereda during the same years 18.12, 22.03, and 28.19 Qt/Ha (CSA, 2020/21 & Milkessa et,al.,, 2022).

Different studies have been performed by different researchers to address the factors that affecting agricultural productivities for African, Asian and Latin American counties (Zahonogo, 2019; Anyanwu, 2013; Enu, &Attah-Obeng, 2013; Shakira, 2018; Dagaret al., 2021;Ibrahim et al.,2022; Saqib et al.,2022; Tang et al., 2022& Adu Boahen, et,al.,2024). The results showed from those studies that age, sex, , Number of Oxen, uses of fertilizer, Access to credit, frequency of extension contact, uses of organic fertilizer or compost, use of family labor, TLU and distance to market are the main significant factors to determine agricultural productivities positively. On the other hand, farm size, size of farm land and dependence ratio, found to be negatively affects crop productivity.

Besides, In Ethiopia, many studies have been conducted on the main determinants of cereal crop productivities in different areas' and regions. For example (Tessema, 2015; Moges et al., 2018; Ayana & Ermias, 2019;Ayele et al.,2019; Dessale, ,2019, Gela et.al, 2019; Wassihua et al. 2019; Aynalem et al.,2020; Getaye , 2020; Sura,2020; Meja et al.,2021: Bati, et,al.,2021 and Assefa et al., 2022). The studies found that agricultural productivity is influenced by factors of demographic, socioeconomic, environmental factor sand institutional and physical characteristics in general. Thus, many of the aforementioned studies identified the main determinants of agricultural productivities in general aspects. None of them showed that different challenges for affecting agricultural productivities: many of studies considered very few explanatory variables for their works, few of them studied for few agricultural products without considering environmental issues like different soil types for the same fertilizer uses and did not considered different agro ecological type for their production. Besides, none of study conducted in Kelala Wereda for productivity of cereal crop in contexts of its status, major factors and challenges for cereal crop production and productivity.

Thus,. the study tried to identify the other study gaps and study area problems, considered many more empirical studies to be performed by using a large number of sample sizes with big study area coverage, used many more explanatory variables in the model, and incorporated the descriptive study with the inferential statistics model to see the issue in detail and derives better policy implications. Therefore, this study tried to fill those above mentioned gaps by using existing literatures from different studies and conducting study of factors affecting cereal crop productivity in KelalaWereda, South Wollo Zone, Amhara Regional State, Ethiopia. Finally, to address those issues, the study tried to answer the following two questions for issues of cereal crop productivity in the study area. The two questioners are: what are the major challenges encountered farmers to increase their cereal crop productivity and what are the main factors affecting cereal crop productivity in Kelela wereda. Moreover, the rest of the paper is organized as follows: Section 2 provides methodology section that describes data type, sample size determination and model specification and estimation used in the study. Section 3 presents result and discussion of the study and finally, section 4 presents the conclusion and recommendations.

2. METHODOLOGY

This section presents the methodology parts of the research. Among these, in the first step, we discussed the Research Design and approach; second, Description of the study Area, Sample Size Determination and Sampling Procedure; then, Data source and Collection Procedure, Model Specification and Estimation and finally, the Diagnostic Tests for a given model.

2.1. Research Design and approach

A research design is the master plan of a research that shows the exact ways a researcher should use to precisely answer the research questions and attain the objectives (Saunders et al., 2009; Shewit & Getamesay, 2022). Regarding this, the main objective of the study is to examine the factors affecting Cereal crop productivity in Kelala Wereda, South Wollo Zone, Amhara Regional State, Ethiopia. Therefore, our study considered the pragmatic approaches for its application of using mixed methods. Based on the time horizon dimension, the study used the cross-sectional data type for its works.

2.2. Description of the study Area

Figure 1.Shows the map of KelelaWereda, South Wollo Zone, Amhara region, Ethiopia. The KelelaWereda is situated in Amhara national regional state of south wollo zone that located 10º,20º and10º47ºN latitude and 38 °42 °and 39 °16 °E longitude. The Wereda is bordered by Legamboin the north, MidaWereda and Dera (Oromiya) in south, Legehida and JamaWereda in the east and WogediWereda in the west. The Weredacapital town of kelela is about 165 KMs away from Dessie, the capital city of South Wollo, 565 km from Addis Ababa and .altitude ranges from 1200 to 2800masl. Average annual temperature ranges between 16ºc -17 ºc. Based on kelelaWereda administration office data (2017/2018), the total population of the Wereda is 150, 874 of whom 75, 048 are male and 75, 826 are female which 87..3% live in rural areas living on agriculture, while the livelihood in towns earning a living on different kinds of trade, small scale-business related activities and government civil servant. The Wereda has 5 urban kebeles and 33 rural kebeles administration.

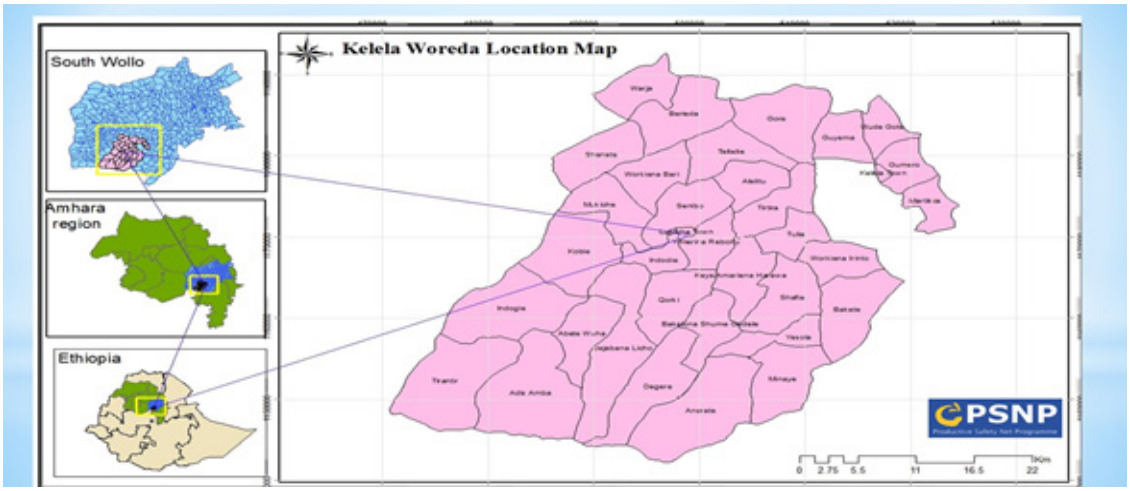

Figure 1:- Map of the Kelela Wereda

Source: Geographical Area Map of the Study Area (GIS), 2018.

2.3. Sampling Design

A sample design refers to the technique or the procedure the researcher would adopt in selecting items for the sample. To get households, actually unit of analysis, the study used both Probability and Non-probability sampling technique for sample selection. Among the Probability sampling designs simple random sampling was applied to select different kebeles where final sample respondents were withdrawn proportionally. Besides, It was conducted in kelalaWereda with a total of 33 kebeles, the researchers have selected purposively 10 kebeles from 30% of each two agro ecology with a total population of 8, 063. Specifically, selected 4 kebelese from kola (Deger, Abanigus,Korkie and Abetwuha) and 6 kebele from Woynadega (Endode,Tulya, Tirtira, Shafi,Guyema and Wodegutu) under 33 Weredakebeles.

The Unit Of analysis for the study is farm Household Head from selected kebele. This is due to the homogenous nature of the society where there are similar farming activities and economic bases; as a result one kebele can represent the other. The study focused on selected 10 kebeles by considering accessibility, main cereal crop production potential and farmer's settlement. Therefore, it could not be liable for selection bias and bring no difference among agro-ecology. The selection of the study site is most important, with this in mind; Different kebeles from this rural Wereda were selected taking into account the relative population density, concentration of household settlement and also main crop production potential.

2.4. Sampling Technique and Procedure for estimation

Multistage sampling technique was performed to select sample households. In the first stage kelela

Wereda selected purposively because:-No detailed research has been undertaken in this topic in the study area,; The area is known by main cereal crop producer and the researchers have good knowledge on the area. It has also chosen for easy accessibility. In the second stage, the probability sampling technique especially proportional stratified random sampling technique was used to selects different kebeles. This was preferred to assist minimize sampling bias and creates good sampling frame to relatively homogeneous groups (strata) before selecting sample. It was applied to select 383 smallholder's farmer head from selected kebeles. Therefore, to determine the minimum sample size, the study applied a sample size determination formula of Watson (2001) as below:

$$n = \frac{\frac{P(1-P)}{\frac{x2}{E2} + \frac{P(1-P)}{N}}}{R} = \frac{\frac{0.51-0.5)}{\frac{0.052}{1.962} + \frac{0.5(1-0.5)}{8063}}}{0.95} = 348 + 10\% = \underline{383hhs}$$

Where, n = Number of sample size

• N = Total Population of the selected kebeles

• P= Estimated variance in a population as a decimal 0.5 for (50% -50%) variability among small holder farmers in relation to dependent variables;

• A= Error margin, fixed as 5 % (0.05); Z= Confidence level of 1.96 for 95%; and

• R = Estimated response rate, as decimal of 0.95 for 95% response to be returned.

• A household: a group of rural persons who live together under the responsibilities of the head and eat from the same pot.

• Kebele: the lowest administrative body in Ethiopia, which comprises a population of at least 5000 people

Table 1: Distribution of sample Size across Kebeles

No	Agro Ecology	Name of sample kebele	Total Population in HHs	No of sample HHs taken
1	WoynaDega(High land)	Guyema(030 kebele)	844	40
2		Tirtira /05 kebele	867	41
3		Tulya/06	770	36
4		Shafi/09	1199	57
5		Endode/02	511	24
6		Wodegutu/031	819	39
7	Kolla(Lowlands)	Deger/014 kebele	643	31
8		Abetwuha/018 kebele	885	42
9		korkie/016/	683	32
10		Aba nigus /015	842	40
Total			8063hhs	383hhs

Source: kelalaWereda Office of Agriculture and Own Computation, 2024.

Based on this, we have estimated of study sample sizes was an equal 383 farm household. Next to this, sample size for each kebele was calculated by using proportion number of sample from the total population (383) Then, All household were given equal chance to be selected. Therefore Sample size for each kebele calculated by = $\frac{k}{N} * n$: Where k, total No. of farmers head, N=total population, and n= sample size from each. Finally or In the third stage, Simple random sampling techniques was used to identify specific individuals from each kebele based on the proportion to the population,

2.5. Data source and collection procedure

Primary data were collected through the administration of a semi structured questioners by a team of 5 trained enumerators to 383 farmers considered. Furthermore, secondary data were collected from published and unpublished reports, books, articles from different website and already available documents of secondary sources such as Office of Agriculture and Rural Development from KelelaWereda and South Wollo zone. The data collection procedures were as follows: first, the questionnaire was prepared in English, translated to Amharic and back to English to ensure language use consistency. Second, all the data collection tools were pilot tested to check reliability and validity before the actual data collection. Therefore, taking the information of the pilot study, reliability was tested by Cronbach's alpha, with a value of 0.8564 that indicating strong reliability. As shown from a result which is based on the minimum acceptable level of 0.7 of Cronbach's alpha test bench marks result was acceptable.

Finally, the quantitative data collection was carried out by the face-to-face interview of smallholder farmers by trained data collectors. The data collectors were agriculture extension workers (development

agents), selected from a different rural kebeles, and were assigned for each sampled kebele to avoid interviewer and interviewee bias. For ensuring data quality, all the interviews were performed in the local language (Amharic). As well, on spot checks, re-interviewing and see of completed questionnaires and quality of the recordings were performed through daily supervisions with the close attendant of the researchers.

2.6. Model Specification and Estimation

For this study model specification, we considered the Theoretical models and essential tools and logically frame work for developing relationships between variables in a formal way. Thus, The Cobb-Douglas production function was used for our model specification and it considers all the factors of production such as labor, capital and technology (Varian, 1992).It is considered as

$$Y_{it} = \alpha (L_{it}^{\beta 1} K_{it}^{\beta 2}) \varepsilon^{\mu it} \quad (1)$$

Where: Yit= is the value of the ith household's all farm output in Qt during Period t

• Lit = is the ith labor inputs used during period t , Kit=is the ith capital inputs at a time t

• μit = the disturbance or an error term and β1 and β2 = output elasticity of L and Kl

Next, we transform equation (1) in its log-transformation form to gets the minimum amounts of output or production for our study purposes as

$$ln\ Y_{it} = \beta_1 + \beta_1 lnL_{it} + \beta_2 lnK_{it} + \mu_{it} \quad (2)$$

Where, lnYit = the log of total farm output produced per hectar by ith household during period t,

• lnLit = the ith household agricultural labor inputs during period t; lnKit= the ith household agricultural capital inputs during period t; and μit = is the residual term

Then, we divide the total output by land size from equation (2) to gets the general models of Agricultural productivities as

$$ln\ (Y_{it}/h) = \beta_0 + \beta_i X_{it} + \mu_{it} \quad (3)$$

• Where: ln (Yit/h) = is the dependent variable natural log of Cereal crop output/Ha

• X_{it} = is the independent variable with ith observation

• βi = is the parameter to be estimated , μit = is the residual term

Based on above equation transformation and passes different steps, we arrive to equation (4) model for our study. This agricultural crop productivity model can be estimated as Total crop production per hectare. The reason behind that uses Total crop production per hectare that the researchers assumes there is inverse relationship between land size and agricultural productivity which has generally found that small farms are more productive than larger farms. Therefore, this study employed both descriptive and econometric methods for data analysis. Accordingly, descriptive statistics were used to provide an overview of the overall data. The ordinary least square (OLS) estimation technique was applied to identify factors affecting cereal crop productivity (Bati, et, al., 2021). The most common cereal crops in the study area are teff, wheat and Sorghum and considered for cereal crop productivities. To estimates , the study considered the following explanatory variables in the given model in equation and table forms as

$$ln\ (Y_{it}/h) = {}^{\beta}{}_{i} + {}^{\beta}{}_{1}Age_{it} + {}^{\beta}{}_{2}Sex_{it} + {}^{\beta}{}_{3}Fmlab_{it} + {}^{\beta}{}_{4}Dpr_{it} + {}^{\beta}{}_{5}Education\ level_{it} + {}^{\beta}{}_{6}FALS_{it} + {}^{\beta}{}_{7}Irriu_{it} + {}^{\beta}{}_{8}FER_{it} + {}^{\beta}{}_{9}TLU_{it} + \beta_{10}Oxen_{it} + {}^{\beta}{}_{11}Mkt_{it} + {}^{\beta}{}_{12}Credit_{it} + {}^{\beta}{}_{13}Ext_{it} + {}^{\beta}{}_{14}Compost_{it} + \mu_{it} \text{----------(4)}$$

Where: ln (Yit/h) =Annual production of Cereal crop output/Ha. And, the study considered fourteen explanatory variables for study purposes.

Table 2: Variables name, type, description and expected sign

No	Variable	Type	Description of variables	Expected sign
1	Age	Continuous	Age of the HH Head	-
2	Sex	Dummy	Gender of HH Head: 1 if gender of the HH head is male and 0 otherwise.	+
3	Size of Family Labor	Continuous	This refers to the total number of family members of the household who have directly involved on the farm activity.	+
4	Dependency ratio	Continuous	Age of labor force (less than 14 and above 65 years old) to the active labor force (between 15 and 65 years old) within a household.	-
5	Education level	Continuous	It is the level of education completed by household head measured in years	+

6	Farm Land size	Continuous	Total farm landholding size measured in hectare	+
7	Irrigation: use	Dummy	1 if the HH has irrigable cultivated land and 0 otherwise.	+
8	Uses of Fertilizer	Dummy	1 if the farmer fully uses fertilizer and 0 otherwise	+
9	TLU	Continuous	Tropical livestock unit for livestock amount	-
10	Number of Oxen	Continuous	Number of oxen owned by the farm households	+
11	Distance to market	Continuous	This measures the distance of the residence of the household in kilo meter to nearest market	-
12	Access to Credit	Dummy	1 represents if the HH has had credit access and 0 otherwise.	+
13	Ext Workers' Contact:	Continuous	The frequency of Extension Workers' Contact or visited by DAs.	+
14	Compost	Dummy	1 if uses organic fertilizer and 0 otherwise	+

Source: Own Computation From Field Survey Data, 2024.

2.7. Diagnostic tests

Before testing important variables into the multiple regression models, it is necessary to check multicollinearity problems among continuous variables and check associations among discrete variables, which seriously affect the parameter estimates. According to Gujarati (2009), multicollinearity refers to a situation where it becomes difficult to identify the separate effect of independent variables on the dependent variable because of the existing strong relationship among them. These are Variance Inflation Factor (VIF) for association among the continuous explanatory variables and Contingency Coefficients (CC) for dummy or discrete variables. Another diagnostic test for heteroskedasticity: it has diverse variances between residual terms. To detect the heteroscedasticity problem, the study used the Breusch-Pagan/Cook-Weisberg test.

2.8. Ethical Consideration

In research, the researchers should adhere to ethical norms in research because norms promote the aims of research, such as knowledge, truth, and avoidance of error. The ethical consideration framework is essential focused on observing, voluntary informed consent of the participants. Respondents' consent is granted before conducting the study. Primarily, permission is secure from Kelela wereda and other offices. Then, Participants' informed consent will be obtained through better introduction of the researcher to respondents/superiors who clearly specified what the research involves, including clearly laid down procedures and explained the ways in which their confidentiality was assured. The respondent's names

were withheld to ensure anonymity and confidentiality in terms of any future prospects and also informed that data will be shared, results, ideas, tools, resources. Respect for intellectual property will be adhered to and not used of unpublished data, methods, or results without permission. Proper acknowledgement or credit for all contributions to research was prioritized to avoid plagiarism.

3. RESULTS and DISCUSSION

3.1. Descriptive analysis

The study used descriptive statistics and econometric models. The study used continuous and dummy variables for its descriptive analysis. For the continuous variable, considered the mean value of the variables and standard deviation this is a measure of dispersion or spread of variable(s), whereas for dummy variables, we used the frequency table for their number and percentages. According to survey results, the age of household heads participated in the study ranged from 22 to 85 years with an average of 46.10years old. The average number of family labor in the study area is 2.02. The family labor size of a household varies from one to six. From 383 households, the average education level of farm households was 2.61 years of schooling and it ranges from zero grades to maximum 12 years of Education level.

Dependency ratio is defined as household members older than 65 and younger than 15 divided by the complement of this set in sampled households and its result is 1.88 with range of 0.3 to 9 individual who are living in sampled family households. In the case of farm land size, the average size of the cultivated land owned by the sample respondents were about 1.2017 ha, the minimum and the maximum being 0.13 ha and 5.25 ha, respectively. According to the survey data, the total livestock size can be estimated by Tropical Livestock Unit and its value was 3.59 units with 3, 175 standard deviation values. In the case of distance to the markets, every farmer travels 9.3kms per trip to the nearest markets and it ranges from 0.2km to 42kms.

Table 3: Descriptive analysis for continues variables

No	Variable Name	Observation	Mean	Std. Dev.	Min	Max
1	Age	383	46.10966	10.29708	22	85
2	Size of Family labor	383	2.028721	.7804618	1	6
3	Dependency ratio	383	1.851175	1.17107	.3	9
4	Education level	383	2.616188	3.481657	0	12
5	Farm size	383	1.201736	.97494	.125	5.25
6	Tropical Livestock Unit (TLU)	383	3.592068	3.195878	0	14.06
7	Number of Oxen	383	.6788512	.8584332	0	4
8	Distance to markets	383	9.342689	8.295727	.2	42
9	Extensions Con	383	8.650131	9.565032	0	48

Source: Own Computation From Field Survey Data, 2024.

Table 4 indicates, from 383 respondents, 292(76.29%) are men and 91(23.767%) are women. It shows that most numbers of the sample respondents are men. It indicates that, there is more men headed farm household in the study area. Besides, 24.8% of the samples HHs were irrigation users with an average irrigated land size of 0.154ha. Having this land size, irrigation users have produced, on average, 10.07 quintal and hence were found to be better producers unlike their counter parts. 23% of sample respondents are used compost/ organic fertilizer; however 77% of the respondents not used compost/ organic fertilizer. Finally, access to credit, 71% of farm household have access to credit in the study area.

Table 4: Descriptive analysis for categorical variables

Variable name	Category	Frequency	Percent
Sex of Farm Hhs	Men	292	76.24%
	Women	91	23.76%
	Total	383	100.0%
Irrigation	User	95	24.8%
	Non User	288	75.2%
	Total	383	100.0%
Fertilizer	User	196	51.17%
	Non User	187	48.83%
	Total	383	100.0%
Access to Credit	User	272	71.02%
	Non User	111	28.98%
	Total	383	100.0%
Compost	User	88	22.98
	Non User	295	77.02%
	Total	383	100.0%

Source: Own Computation From Field Survey Data, 2024.

3.2. Factors affecting Cereal crop Productivities

Before running the OLS regression model different post estimation diagnostic tests techniques were performed to check if the selected model is performed well by using STATA 14.0 software package. The variance inflation factor (VIF) was computed to detect multi-collinearity among continuous variables. The test result shows for all continuous variables used in the model have less than 10 VIF values which means that VIF 2.43. Therefore, there is no multi-collinearity problem in the model. And regarding to check the existence of multi-collinearity problem among discrete explanatory variables the pair wise

correlation or CC tests were computed. Its result was less than 0.75 indicated there is no multi-collinarity problem. In case of Heteroscedasticity, it was tested by the Breusch-Pagan test. The test detects the presence of heteroscedasticity (has no constant variance in εi) with results of Breusch-Pagan test (Chi2(1) = 5.63 with prob Chi2= 0.0177. Thus, we fail to accept the null hypothesis of homoscedasticity since the p-value is greater than 0.05. Therefore, the model must be Robusted to be valid for regression which determines variables that significantly affect the cereal crops productivity in the study area.

After checking the diagnostic test and identified the main factors that affect cereal crops productivity by the OLS model, Table 5 revealed that, size of family labor, farm land size, dependence ratio, irrigation use, uses of fertilizer, TLU, Number of oxen, access to credit and distance to market, Contacts of Extension services and compost used are main factors that significantly determine the cereal crops productivity in the study area. On other hands, Sex of household head, age and education level are statistically insignificant or have impacts for cereal crops Productivity. Thus,

Size of Family labor: it is negatively correlated to cereal crop productivity at 1% significance level. The finding shows when the numbers of family labor increase by 1 more labor the cereal crop output decreased by 37%, keeping all other explanatory variables constant. The result implies that the large numbers of labor involved for production of cereal crops leads to decline cereal crop productivity and it leads to over utilizations of labor for limited land in the study area. This result is consistent with the finding of Ayana&Ermias, 2019; Aynalem et al., 2020 & Tang et al., 2022.

Dependence ratio: this variable is negatively affects cereal crop productivity at 5% of significance level. The result reveals that if the dependency ratio in the family increase by 1%, the amount of cereal crop output in that family decreased by 24.6%, keeping all other explanatory variables constant.. it suggests that large numbers of dependent family in farm households leads to decrease productivity and production on that limited farm land since farm household heads especially women could serve or expends their more time for child bearing, carrying and other home activities than crop production. The result is similar with the works of Sura, 2020; Dagar et al., 2021; Meja et al., 2021& Assefa et al., 2022.

Farm land size: As we know, the farm size of cultivated land has strong effect on cereal crop productivity. Its coefficient is positively correlated and statistically significant with cereal crop productivity at 1% significant level. Thus, if the farm land size increases by one more hectare, cereal crop productivity increases by 51.7 %, keeping all other explanatory variables constant. This indicates that possession of more farm land leads to produce more production of cereal crops than less land holders. This result the same as the finding of Moges et al., 2018; Saqib et al., 2022& Meenu & Singh., 2023.

Irrigation use: the result shows that it is positive correlation and statistically significant at 5% significant

level. If households who have used irrigation for production, cereal crop productivity increases by 16.9 percent than those who do not use irrigation, keeping all other explanatory variables constant. It implies the farm households who participate in irrigation they will have more probability of getting more cereal crop output than non-users. Therefore, this results is consistence with the findings of Shakira, 2018; Getaye , 2020 & Bati et,al.,2021.

Use of Fertilizer: it is positively related with cereal crop productivity at 1% significance level. If farm household uses fertilizer by one kilogram more, cereal crop productivity also increased by 0.48 quntal, keeping all other explanatory variables constant. The reason is that those who access to uses more fertilizer is more likely to increase cereal crop productivity as compared to those who do not have more use of fertilizer. This finding has similar research output with works of Dessale, 2019, Wassihun et al. 2019; Assefa et al., 2022 & Adu Boahen, et, al., 2024.

Tropical livestock unit (TLU): livestock ownership, measured in tropical livestock unit (TLU), is also strongly affects cereal crop productivity in the study area. Its coefficient is negatively correlated with cereal crop productivity at 1% significance level. If households livestock ownership increases by one more units, cereal crop productivity decrease by 6.9 percent, Keeping all other explanatory variables constant. The result implies that when livestock's number increase, the farm households may shits or uses their land for grazing purposes. Livestock It is similar to the findings of Anyanwu, 2013; Tessema, 2015: Gela et.al, 2019& Endalew et, al., 2024.

Number of oxen: it is positively correlated with cereal crop productivity at 1% significance level.. Hence, the result indicates that if an additional ox to farm land leads to increase cereal crop productivity by 32.8 percent, keeping all other explanatory variables constant. The reason that that If farmers have at least a pair of oxen, they will be able to cultivate and sow their land at the appropriate time than those who do not have a pair of oxen. Thus, the possession of oxen is the main element for cultivation of land; a farm household needs a pair of oxen for their farming. This finding is coincides with the works of Wassihun et al. 2019; Getaye, 2020 &Saqib et al., 2022.

Table 5: OLS Regression Estimation of Crop productivity

Liner regression			No of obs	383
			F(14, 368) =	181.14
			Prob> F =	0.0000
			R-squared =	0.8733
			Adj R-squared	0.8685
			Root MSE =	0.5201
Lnoutput/ht	| Coef.	Robust Std. Err.	T	P>|t|

Sex	0.0877759	0.0662406	1.33	0.167
Age	-0.0017506	0.0026616	-0.66	0.512
Size of Family labor	-0.3704355	0.0723158	-5.12	0.000***
Dependency ratio	-0.2465615	0.0435094	-5.67	0.000***
Education level	0.0031438	0.007217	0.44	0.709
Fam land size	0.5176976	0.0731546	7.08	0.000***
Irrigation use	0.1699707	0.0510171	3.33	0.013**
Use of Fertilizer	0.4854176	0.0736106	6.59	0.000***
Tropical Livestock Unit(TLU)	-0.0699591	0.016455	-4.25	0.000***
Number of Oxen	0.3283555	0.065355	5.02	0.000***
Market access	-0.0188689	0.0041519	-4.54	0.000***
Access to Credit	0.3309035	0.0731541	4.52	0.000***
Extension Freq Contact	0.0206514	0.0046999	4.39	0.000***
Compost use	0.2797628	0.1101884	2.54	0.020**
_cons	1.577353	0.2909478	5.42	0.000

Note; ***, **and * significant at 1%,5% and 10* significant level

Source: Own Computation From Field Survey Data, 2024.

Distance to nearest market: Regard to distance from the farm site to the nearest market, the study result reveals that there is a negative relationship with cereal crop productivity at 1% significant level. The result shows that as a distance to the nearest market increases by one kilometer, cereal crop productivity decrease by 1.8 percent, keeping all other explanatory variables constant. This implies that households are far from nearest market they can lose much more time and cost for transports for their agricultural commodity. Therefore, it is consistent with the finding of Gela et.al, 2019; Sura, 2020 &Assefa et al., 2022.

Access to Credit: The regression result shows credit access has positive relationship with cereal crop productivity at 1% significance level. If farm households who have more access to credit , their cereal crop productivity increases by 33.1 percent from not accessed farm households, keeping all other explanatory variables constant.. This implies that households that have more access to credit, they can purchase more agricultural inputs and technology for their production activities then, it leads to increase their production and productivities. The result is similar with the finding of; Ayana&Ermias, 2019& Tang et al., 2022.

Contacts of Extension services: It is positively related with cereal crop productivity at 5% significant level. The result reveals if the frequency of extension contact increased by one more time, the cereal crop productivity also increased by 2.0%, keeping all other explanatory variables constant. It implies farm households need tailored technical support and capacity building activities their farm activities and it enable to adopted new improved technology for improve cereal crop productivity. Thus, this result is consistent with the findings of Bati et, al., 2021: Dagar et al., 2021 & Gharira, A. 2023.

Lastly, the study discussed the variables of *Compost*: it is an important variable and positively affects the cereal crop productivity at 5% significance level. This shows that, If the farm household's uses more compost for their farm production, the cereal crop productivity increases by 27.9 percent, keeping all other explanatory variables constant. This implies that, animal dung/manure is very important inputs for preparing of compost and it enables to substitute the chemical fertilizer in production activities and even its cost can be less expensive than chemical fertilizers. It results, the farm households should prepare compost as an organic fertilizer for their farming activities and keeping their environment green. Therefore, this finding is consistent with the works of: Dessalegn et al., 2021& Milkessa et,al.,, 2022.

4. CONCLUSION and RECOMMENDATION

The study contributes to the literature with its unique findings which represent factors affecting cereal crop production and productivities in general, farm household level productivity in particular for study area. So, The main objective of this study was to examine the factors affecting cereal crop productivity in KelalaWereda , South Wollo Zone, Amhara Regional State, Ethiopia. Multistage sampling technique was used to determine the required sample size. Procedurally, first, the researchers selected kelelaWereda purposively. Secondly, stratified the study area in to two strata, and then 10 kebeles from both stratum zone were selected to collect required data from sample of383 farm households. The results of descriptive statistics and OLS model indicated that most of the hypothesized variables that significantly affects cereal crop productivity in the study area.

Result from econometric model revealed that from the 14 explanatory variables which considered in OLS regression model, eleven variables have shown key factors of cereal crop productivity in the study area. Accordingly, farm size, irrigation use, Use of fertilizer, number of oxen, compost use, Access to credit and Contacts of Extension services were found to be positive and significant factors for cereal crop productivity. On the other hand, Size of family labor, dependence ratio, TLU, distance to market were found to be negative and significant variable to affect the cereal crop productivity at 1 % significance level. Based on those findings, Size of family labour, farm land size, Number of Oxen, Contacts of Extension services and distance to market, are the main factors for affecting cereal crop Productivity in the Study area. Moreover, less access to credit, few numbers of irrigation users, less availability of

fertilizers and shortages of organic fertilizers or compost are the main challenges of farm households to improve their production and productivity.

Therefore, based up on the major findings of the study, the following specific areas of interventions should be needed for farm household as.

- Accessing more Basic Farmer Education at farm household level.
- Facilitating small scale micro irrigation services to farm households.
- Encouraging farm households to use modern agricultural inputs for cereal crop productivity improvements.
- Encouraging farm households to use more organic fertilizers or compose for their production.
- Creating the Market linkage with industry sectors and customers either horizontal or vertically integration.
- Delivering good financial service for accessing of more credit at farm household level.

Finally, in the areas of future research, it is a cross-sectional study, which is a one-time snapshot and could not enable us to see the dynamics of cereal crop production and productivity in the study areas as well as in the region and even in the country . Besides, all above mentioned factors are not only the variables that affect cereal crop productivities in the study area or elsewhere in the country. Hence, similar other studies or future researchers should be done by considering of large areas coverage, uses more variables with different time horizon especially time series data if possible and multi-disciplinary research at zone, region as well as the country level.

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References

Adu Boahen, E., Boateng Dankwah, J., & Berko, D. (2024). Understanding the gender gap in productivity in agricultural production among smallholder cereal growers in rural Ghana. Cogent Economics & Finance, 12(1). https://doi.org/10.1080/23322039.2024.2318979.

Abraham, B., Araya, H., Berhe, T., Edwards, S., Gujja, B., Khadka, R, Sen, D., Koma, Y., Sharif, A., &Styger E. (2014). The system of crop intensification: Reports from the field on Improving agricultural production, food security, and resilience to climate change for multiple crops. Addis

Ababa, Ethiopia.http://dx.doi.org/10.1186/2048-7010-3-4

Anyanwu, S. (2013). Determinants of Aggregate Agricultural productivity among high external inputs technology farms in a harsh macroeconomic environment of IMO state, Nigeria. African Journal of Food, Agriculture, Nutrition and Development, Vol. 13, No. 5, 2013, pp. 8238-8248.http://www.ajfand.net/.

Assefa, A., Meded ,A., Alemayehu ,O., Mulubrihan ,B., Ibrahim ,A., &Abduselam ,F.(2020). Determinants of productivity and Efficiency of teff production in southwest Ethiopia: Parametric approach.by research square. https://doi.org/10.21203/rs.3.rs-95125/v1

Assefa, A., Meded,A., Alemayehu,O.,Mulubrihan,B., Ibrahim ,A., &Abduselam ,F.(2022). Determinants of Productivity and Efficiency of Teff Production in Southwestern Ethiopia.East African Journal of Sciences (2022) Volume 16(1): 1–14. https://www.researchgate.net/publication/359815519.

Ayana, A and Ermias, G.(2019). The Impact of Off-farm Activities on Rural Household Income in Wolaita Zone, Southern Ethiopia.Journal of World Economic Research.8(1), pp. 8-16.DOI:10.21203/rs.3.rs-95125/v1

Ayele, A., Haji, J., &Tegegne, B (2019). Technical Efficiency of Wheat Production By Smallholder Farmers In SoroDistrict Of HadiyaZone, Southern Ethiopia. East African Journal of Sciences, 13(2):113-120. https://haramayajournals.org/index.php/ej

Aynalem,S,.Nand,K.,&Seema, S. (2020). Determinants of Agricultural Productivity in Ethiopia: ARDL Approach. The Indian Economic Journal 66(3–4) 365–374, 2018, DOI: 10.1177/0019466220941418.

Bati, D., & Mohammed, M.(2021). The Determinants of Agricultural Crop Productivity among Smallholder Households in Haramaya Distinct, Eastern Ethiopia Grassroots Journal of Natural Resources, Vol.4, No.4 (p.146-153 | ISSN2581-6853 | CODENGJNRA9 Doi: https://doi.org/10.33002/nr2581.6853.040410

CSA (Central Statistics Agency) (2017/18). Report on Area and Crop Production of Major Crops (Private Peasant Holdings, Maher Season). Statistical Bulletin 586. Issue I. Addis Ababa, Ethiopia.

CSA (Central Statistics Agency) (2020/21). Agricultural Sample Survey 2020/21(2013 E.C.) (September – December, 2020). Report on Farm Management Practices (Private Peasant Holdings, Meher Season), Volume III. Statistical Bulletin, Addis Ababa, Ethiopia.

Dagar , V., Khan, M.,Alvardo, R., Usman,M., et al.(2021).Variations in technical efficiency of farmers

with distinct land size across agro-climatic zones: Evidence from India. Journal of cleaner Production: Volume 315. https://doi.org/10.1016/j.jclepro.2021.128109.

Dessale, M.(2019). Analysis Of Technical Efficiency Of Small Holder Wheat-Growing Farmers Of JammaDistrict, Ethiopia. Agriculture and FoodSecurity8(1).https://doi.org/10.1186/s40066-018-0250-9.

Dessalegn A, S., Li, G., Kidane A, A., Bekele G, E., Ahiakpa, J. K., Ouattara, N., Olounlade, A., & Frimpong, S. (2021). Smallholder farmers' climate change adaptation practices contribute to crop production efficiency in southern Ethiopia. Agronomy Journal, 113(6), 4627–4638. https://doi.org/10.1002/agj2.20900

Endalew, B., Elias, A. & Yasunobu, K.(2024). Impact Of Cluster Farming On Smallholder Farmer's Teff Commercialization In Ethiopia.. CABI Agric Biosci 5, 18 https://doi.org/10.1186/s43170-024-00220-7

Enu, P., and Attah-Obeng, P. (2013).Which Macro Factors Influence Agricultural Production in Ghana. Academic Research International, 4(5), 333-346.http://www.savap.org.pk/

Gela,A., Jema, H., Megistu, K &Hebtemariam,A. (2019). Technical, Allocative And Economic Efficiencies Of Small-Scale Sesame Farmers: The Case Of West Gondar Zone, Ethiopia.. Review of Agricultural and Applied Economics (RAAE),Vol. 22(2).DOI: 10.22004/ag.econ.293655

Getaye,G.(2020). Factors Affecting Agricultural Productivity in DobaWoreda, Oromia National Regional State, Ethiopia.Archives of Business Review – Vol. 8, No.10. DOI: 10.14738/abr.810.9180

Gharira ,A.,(2023). Agricultural Productivity In The Country Will Have A Good Future. African Journal of Economics and Sustainable Development Volume 6, Issue 3, 2023 (pp. 1-17). DOI: 10.52589/AJESD-7IRENOIQ.

Gujarati, D.N. and Porter, D.C. (2009) Basic Econometrics. 5th Edition, McGraw Hill Inc., New York.

Ibrahim, R., Ajide, K., Usman, M., &Kousar, R. (2022). Heterogeneous effects of renewable energy and structural change on environmental pollution in Africa: Do natural resources and environmental technologies reduce pressure on the environment? Renewable Energy: Volume 200: https://doi.org/10.1016/j.renene.2022.09.134.

Keba, A.(2022).Qualitative analysis of Factors Affecting Agricultural Production in Africa.GSJ: Volume 10, Issue 2, Online: ISSN 2320-9186. www.globalscientificjournal.com

Kelelawereda(2021). KelalaWoreda Office of Agriculture and Rural Development, Yearly agricultural production reports, February 2021.

LalMervin,D(2013). Measuring Agricultural Productivity Using the Average Productivity Index (API). Sri Lanka Journal of Advanced Social Studies Vol. 1 - No.2.retrived on date of March, 25, 2022.

Meja, M.F., Alemu, B.A.,&Shete, M.(2021). Total Factor Productivity of Major Crops in Southern Ethiopia: A Dis-Aggregated Analysis of the Growth Components. Sustainability: 13, 3388. https://doi.org/ 10.3390/su13063388.

Meenu ,R. & Singh, S. .(2023). Trend and Performance of Agriculture Production In Haryana: An Empirical Analysis Educational Administration: Theory And Practice, 29(4), 571-583 Doi: 10.53555/kuey.v29i4.4664.

Milkessa, A., & Amsalu, B. (2022). Impact of Climate Change on Cereal Crops Production in Ethiopia. Advances in Agriculture, 2022, 1–8. https://doi.org/10.1155/2022/2208694.

Moges,D., Bosena ,T., &Hassen,B. (2018) .Technical Efficiency in Teff Production: The Case of Smallholder Farmers in Jamma District, South Wollo Zone, Ethiopia.Journal of Economics and Sustainable Development, per) ISSN 2222-2855 (Online) Vol.9, No.21.https://www.researchgate.net/publication/329707142.

Muraya,R., &Ruigu,G.(2017). Determinants Of Agricultural Productivity In Kenya. International journal of Economics, Commerce and Management, Vol. V, Issue 4, http://ijecm.co.uk/

Saqib, N., Sharif, A., Razzaq, A., &Usman,M. (2022). Integration of renewable energy and technological innovation in realizing environmental sustainability: the role of human capital in EKC framework. Environmental Science and Pollution Research (2023) 30:16372–16385: https://doi.org/10.1007/s11356-022-23345-6.

Saunders, M., Lewis, P.,&Thornhill, A. (2009) Research Methods for Business Students. Pearson, New York.

Shakira, P. (2018). Determinants of Agricultural Productivity in Malawi. Thesis published in Research in Agriculture and Applied Economics.DOI and Other Identifiers10.22004/ag.econ.302084.

Shewit, K., and Getamesay, B. (2022) Factors affecting farmers' access to formal financial credit in BasonaWorana District, North Showa Zone, Amhara Regional State, Ethiopia, Cogent Economics & Finance, 10:1, 2035043. DOI: 10.1080/23322039.2022.2035043

Sura,D. (2020). Review on the Determinants of Agricultural Productivity and Rural Household Income in Ethiopia, Journal of Economics and Sustainable Development, Vol.11, No.18. DOI: 10.7176/JESD/11-18-01.

Tang, C., Muhammed, I., Asif, R.,& Vishal, D.(2022). Natural resources and financial development: Role of business regulations in testing the resource-curse hypothesis in ASEAN countries. https://doi.org/10.1016/j.resourpol.2022.102612.

Tessema, U .(2015).The Determinants of Agricultural Productivity and Rural Household Income in Ethiopia. Ethiopian Journal of Economics Vol. XXIV No 2.

Wassihua,A., Koye, T.&Koye,A. (2019) Analysis of technical efciency of potato (Solanumtuberosum L.)Production in Chilga District, Amhara National Regional State, Ethiopia. Journal of Economic Structures, 8: 34. https://doi.org/10.1186/s40008-019-0166-y.

Varian. H.R (1992). Microeconomic Analysis, WW Norton and Company, 3rd edition.

Watson, J. (2001) How to Determine a Sample Size.Tip sheet #60. Penn State Cooperative Extension, University Park.

Zahonogo, P. (2019). Determinants of non-farm activities participation decisions of farm households in Burkina Faso. International Journal of Agricultural Economics and Extension, Vol. 7 (10), pp. 001-009. www.internationalscholarsjournals.org

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The Effect of Green Marketing on Brand Image and Purchase Decision: Evidence from Systematic Review of Literature

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Abstract

This systematic review aims to investigate the relationship between green marketing, brand image, and purchase decisions. With increasing awareness of environmental issues, consumers are becoming more concerned about the environmental impact of the products and services they choose. The review follows a systematic approach, including a comprehensive search of electronic databases, relevant journals, and reference lists of selected articles. Studies published between 2014 and 2023 are included, using specific inclusion and exclusion criteria. The final selection comprises 45 studies that meet the predetermined criteria. The findings of this systematic review highlight the significant impact of green marketing on brand image and purchase decisions. Positive perceptions of environmentally conscious brands influence consumers' purchase decisions, despite inconsistencies and limitations in reviewed studies, suggesting areas for further research. Future research should explore the long-term impact of green marketing on brand image and purchase decisions, considering cultural contexts and the effectiveness of different green marketing strategies. Utilizing qualitative research methods can provide a comprehensive understanding of consumers' attitudes, values, and emotions towards green marketing, its influence on brand image, and purchase decisions.

Keywords: Brand image, green marketing, purchase decision, sustainability, systematic review.

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1. Introduction

Green Marketing is the latest issue related to how companies participate in maintaining environmental sustainability, which will also have an impact on the company's brand image (Fuiyeng & Yazdanifard, 2015). A company that consistently produces, packages, and markets its goods to consumers without harming the environment is engaging in green marketing (Szabo, S., & Webster, 2021).

Green products are made to minimize negative environmental effects and reduce excessive use of natural resources during production (Albino, 2011). According to Rath, (2013), Research on consumer factors influencing green product purchases is crucial for developing effective green marketing strategies, which should be supported by policymakers (Nagaraju & Thejaswini, 2014).

The corporate community has consistently focused on green technology innovation in recent years (Xie, K., Wu, Y., Xiao, J., & Hu, 2019). To present the product as meeting the requirements and desires of the customers, the business must comprehend how they behave when they purchase it (Sumarwan, 2011). Customers won't purchase goods that are detrimental to the environment, the health of people, plants, animals, or any other natural resources (Lee, 2008). Engaging in green marketing initiatives will improve the company's reputation and ultimately impact consumer choices (Nguyen et al., 2015). Responding to customers who are concerned about environmental issues and enhancing the reputation of the green brand to set their products apart are two important uses of green marketing (Chain, 2021). Companies now understand that using green marketing can give them a competitive edge over rivals (Arseculeratne, 2014).

Earlier studies clarified how green marketing influences consumer decisions in a favorable way (Boztepe, 2012, 2012;Soepeno, 2018; Septifani et al.,2014; Sugi and Ellen Sugi, 2017 ; Tsai et al., 2020). According to his research, green marketing can be a useful tool for establishing a positive reputation if it is done correctly. A positive image can influence how consumers view a product's brand (Keller., 2009). Through effective product marketing, a positive brand image can be developed (Mahaputra & Saputra, 2022). The brand's image is shaped by a person's perceptions and attitudes, with green marketing's impact on purchasing decisions significantly influencing this brand image (Helmi et al., 2022). The branding process in marketing and advertising entails creating a robust brand image to ensure customers comprehend the brand's message (Soehardi, 2022). A positive brand image of a company or its products can significantly influence consumer purchases, as a positive reputation encourages customers to make purchases (Sutisna, 2001).

According to Kotler, P. and Armstrong (2008) Consumers make decisions about purchasing a brand based on two factors: others' attitudes and the situational context.

The step of the purchasing decision process where buyers decide which product to buy is called the purchase decision (Kotler, P. and Armstrong, 2012). According to Peter, J. Paul, & Olson, (2013), A buying decision involves combining consumer information, identifying requirements and preferences, and gathering desired product information to make a purchase (Sugi A & Khuzaini, 2017). Green marketing boosts customer purchasing, influencing business performance through purchase intention, a decision based on knowledge and expertise (Adhimusandi et al., 2020). It is also explained by Lin, (2019) The buying interest refers to a consumer's decision to purchase a product or service after viewing an advertisement. Numerous elements that impact decisions to buy have been demonstrated by earlier academics Septifani et al., (2017). The study found that green marketing significantly enhanced brand image Agung et al., (2018) Green marketing significantly enhances brand image and boosts consumer purchasing decisions, as demonstrated by Azimi & Shabani's (2016) study Rayon, Y. E. S., & Widagda, (2012) assert that more green marketing can boost consumer choice by enhancing brand perception. Fatmawati & Alikhwan, (2021) Green marketing boosts purchasing decisions by promoting eco-friendly products, enhancing brand image, and accommodating customer behavior, ultimately influencing a product's purchase decision (Jing, Z., Pitsaphol, C. and Shabbir, 2020).

The objective of the study is to identify the effect of green marketing on brand image and purchase decision

2. Literature Review

2.1 Green Marketing

Green marketing promotes environmentally friendly products through product adjustments, production process modifications, packaging, labeling, advertising strategies, and raising industry awareness of compliance marketing (Yazdanifard & Mercy, 2014). Generally speaking, a green consumer is someone who favors eco-friendly beliefs and/or chooses to buy green goods instead of conventional ones (Boztepe, 2012).

Consumers are increasingly recognizing the significance of environmental care and cultural responsibility, necessitating businesses to cater to their preferences for eco-friendly products. (Saini N, 2013). "Green marketing" is a broader commercial strategy aimed at meeting consumer needs and mitigating environmental harm through the development of environmentally friendly products and services (Tiwari et al., 2011). Promoting environmentally sustainable products and services can help businesses address environmental issues, offering a multiplier impact strategy that benefits both users and businesses (Putripeni, 2014).

According to Grundey, D., & Zaharia, 2008; McDaniel & Rylander 1993) Green marketing is crucial

for future business success, as companies must respond to environmental consciousness and lead in developing environmental initiatives.

2.2 The impact of green marketing on consumers' perception of brand image

A consumer's perception of a brand that comes to mind while recalling a specific product is known as its brand image. Brand image has multiple definitions. According to the AMA in (Kotler, 2008) A brand is a name, word, sign, symbol, or design used to differentiate one seller's goods or services from another seller or group of sellers Kotler, P., & Keller (2014). A brand's image is shaped by customer association, favorability, distinctiveness, profitability, and competitive edge, with loyalty and brand image measurement closely linked, with customer conversion being a crucial factor (Schiffman & Wisenblit, 2010).

Brand image is what people initially think of a company when they hear a slogan that sticks in their heads (Kotler, P., Keller, K. L., Manceau, D., 2016). It is the most efficient way to talk to consumers by translating a brand's different benefits (X. G. Li, X. Wang, 2011). It is also a crucial component that shows how customers feel about a brand and whether they have a good relationship with it (A. Plumeyer et al., 2019). A consumer's ingrained perception of a brand is called its brand image. Through effective product marketing, a positive brand image can be developed (Mahaputra & Saputra, 2022).

The practice of businesses leveraging green marketing to enhance their brand image has gained traction among businesses (Yeng & Yazdanifard, 2016).The company's struggle to draw in customers is now tied to a brand that can offer a unique image for customers rather than only the functional aspects of its products; in other words, the brand's function has changed (Aaker, 2014).

2.3 The influence of green marketing strategies on consumers' purchase decisions

Wang & Chen (2016) The purchasing decision process involves a consumer evaluating multiple products and ultimately selecting one. Schiffman & Wisenblit, (2014), The connection between purchasing decisions and green marketing stems from the buyer weighing various options and selecting the one that best suits their needs Azimi, G., & Shabani (2016), they argued that appliance store customers influence purchase decisions.

the research conducted by Izzani (2021), It is obvious that the green marketing mix significantly and favorably influences consumers' decisions to buy. In addition, research according to Mawardi, (2020) demonstrates how purchasing decisions are positively and significantly impacted by the green marketing mix variable. Furthermore, research that has been conducted by Setiawan, C. K., & Yosepha (2020) claims that the green marketing mix simultaneously and partially affects consumer choice. According

to Peter, J. Paul, & Olson (2013), Purchasing decisions involve combining information with value considerations. Green marketing, involving eco-friendly products, attract customers by influencing their choices, as research shows these environmentally friendly items positively influence consumer decisions (Eidi, F; and Shahbazi, 2017). In reply to the increasing number of consumers and organizations that are worried about the atmosphere, many businesses are currently using green marketing tactics (Purnama, PA, & Adi, 2019). A green marketing plan can sway consumer interest and influence future purchases by fostering a belief in environmentally friendly features, thereby identifying as a "green consumer" (Hamzah, M. I., & Tanwir, 2021). The concept of "the probability and willingness to prefer to buy products with environmentally friendly features" refers to the intention to purchase green environmental products (Aulina, L., & Yuliati, 2017).

2.4 The theoretical foundation of the study

By employing Theory of the Natural Resource-Based View (NRBV) and Diffusion of Innovations theoretical frameworks, the systematic review should provide a deeper understanding of the phenomena under investigation, identify relevant factors and mechanisms, and offer insights into the implications and applications of the reviewed studies.

Theory of the Natural Resource-Based View (NRBV): The significance of natural resources as a source of competitive advantage is emphasized by this idea. It implies that businesses can obtain a competitive advantage through the effective use and preservation of natural resources. Finding and analyzing resources that lead to both financial and environmental success is the main goal of the NRBV (Hart, 1995).

Diffusion of Innovations Theory: This theory clarifies how novel concepts and customs proliferate among members of a community. One way to conceptualize green marketing is as a market innovation that arises from customers' growing environmental consciousness (E.M. Rogers, 2003).

3. Methodology and Review Process

3.1 Methodology

This structured review examines the influence of green marketing on brand image and purchase decisions, identifying recurring ideas and conceptual frameworks, contributing to existing knowledge, and preparing for future research.

3.2 Review Process

PRISMA is a widely used framework for systematic reviews and meta-analyses, guiding the article

selection procedure openly and consistently, ensuring a consistent and comprehensive analysis:

Identification of relevant studies: A comprehensive search strategy is crucial for identifying relevant papers, involving electronic databases, reference lists, and other sources to identify research that meets inclusion criteria.

Screening of titles and abstracts: The article is screened using predefined criteria, consisting of title and abstract screening and full-text screening, with multiple reviewers involved to minimize bias.

Eligibility: The selected articles undergo a screening process, where they are evaluated for eligibility based on predefined criteria such as study design, sample size, methodology, and relevance to the research question.

Inclusion: The final review includes articles that meet eligibility criteria, with reasons for inclusion or exclusion documented for transparency and replicability.

Data Extraction: The articles' data, including study characteristics, demographics, intervention details, outcome measures, and statistical data, is systematically extracted by multiple reviewers for accuracy.

Quality Assessment: The quality and potential bias of studies are evaluated using appropriate tools or checklists to determine the strength of evidence and the reliability of the findings.

Data Synthesis: The quality and potential bias of studies are evaluated using appropriate tools or checklists to determine the strength of evidence and the reliability of the findings.

Reporting: The systematic review adheres to PRISMA guidelines, detailing the article selection process, study characteristics, findings, and review limitations and implications.

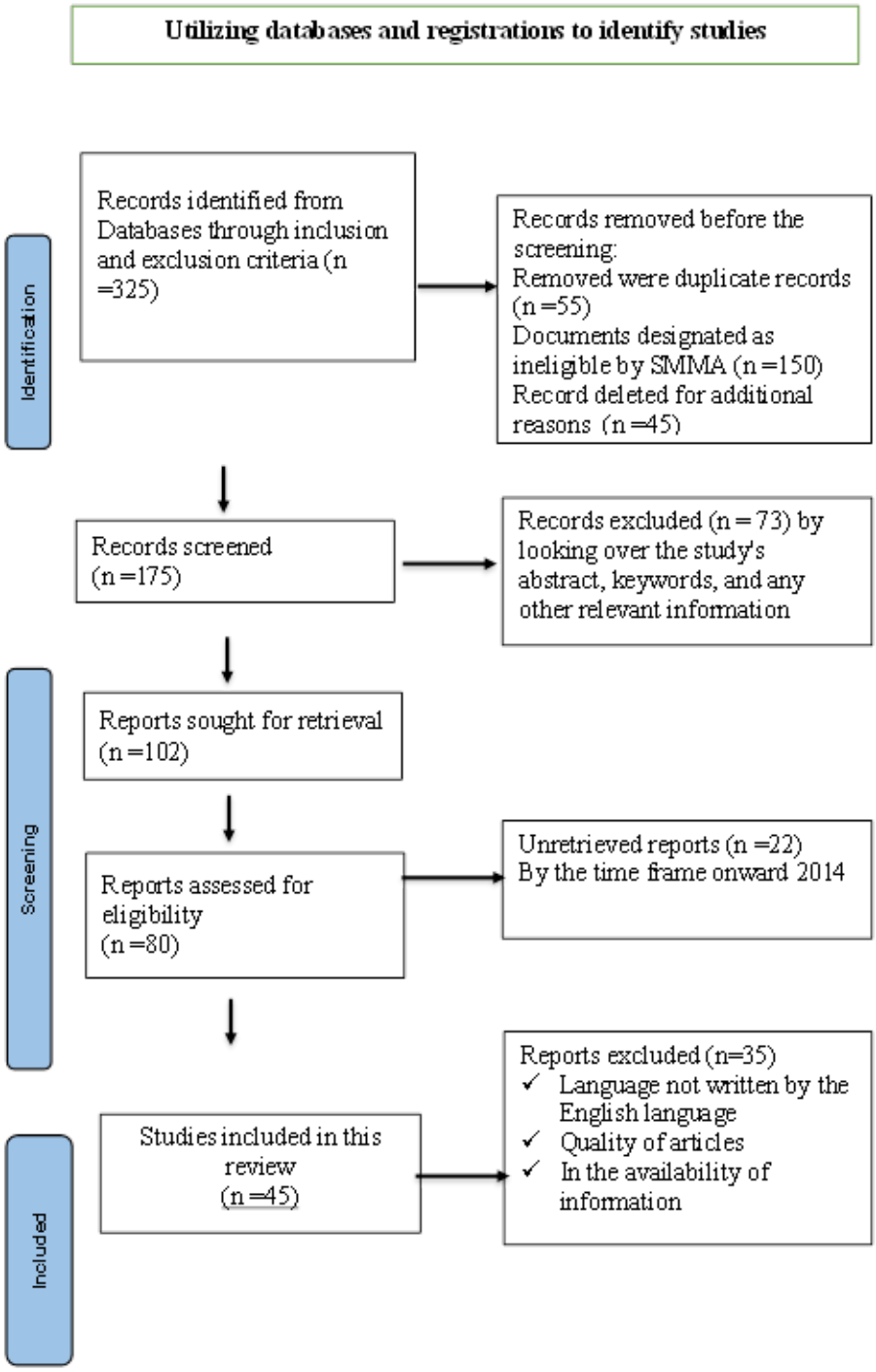

Figure 1: PRISMA

Source: Moher et al (2009)

The systematic evaluation of green marketing's impact on brand image and purchasing decisions used criteria like language, publication year, content, and relevance. Only English articles published between

2014 and 2023 were selected, covering a broad range of studies over 9 years. The review excluded studies not meeting these criteria, ensuring the review's objectives were met.

3.3 Selection of Databases

This review analyzed green marketing, brand image, and purchasing decisions using various online resources like PubMed, Google Scholar, Wiley, Springer, Taylor & Francis, Emerald Insight, and Science Direct, focusing on the latest research on these topics.

3.4 Data Analysis

The study utilized a structured review approach for a systematic and methodical analysis of data, providing a comprehensive understanding and modern, quantifiable presentation of the subject matter.

The approach used in the reviewed articles

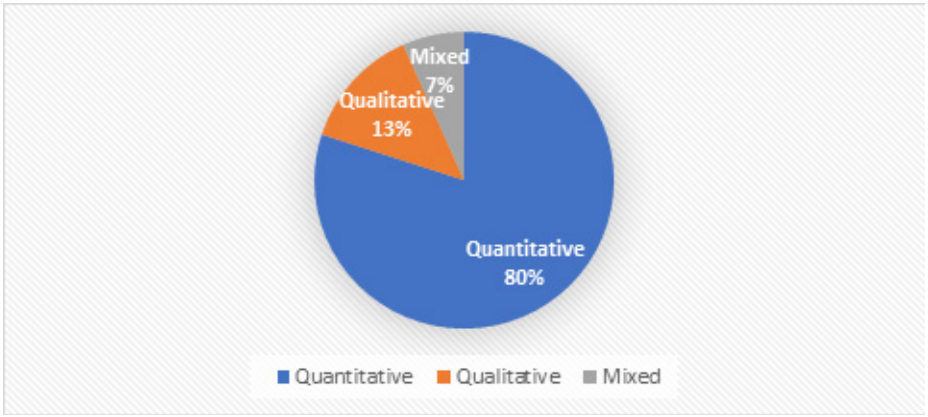

Figure 2: Research approach used

The study found that 80% of publications used a quantitative research approach, which involves gathering and examining numerical data through surveys, experiments, and secondary data analysis, to draw meaningful inferences and conclusions. The study's sample used 13% qualitative research methodology, focusing on understanding complex events and subjective experiences through non-numerical data from observations, interviews, and textual analysis. 7% used a mixed research strategy, combining quantitative and qualitative approaches to provide a comprehensive understanding of the research topic. The majority of studies used quantitative research, followed by qualitative and mixed methods. A small percentage used a hybrid approach, combining quantitative and qualitative methods to provide a comprehensive understanding of the subject matter. The reviewed publications show mixed methods and qualitative research as the most common research approaches, with quantitative research accounting for the majority of studies.+

Data Analysis Techniques

Figure 4: data analysis techniques

Out of the overall sample, 12 papers (or around 26.7%) used the regression technique. Approximately 58% of the whole sample, or 26 articles, employed the Structural Equation Modelling (SEM) technique. Approximately 0.4% of the overall sample, or 2 articles, used the partial least squares (PLS) approach. Interview: Four articles, or roughly 0.8% of the sample as a whole, used this methodology. One publication, or roughly 0.2% of the sample as a whole, used the case analysis technique.

Year of publication of reviewed articles

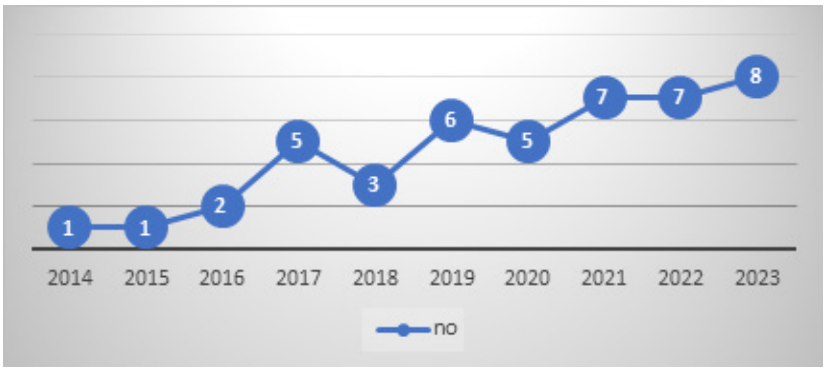

Figure 4: Year of publication

The number of publications in a research area has steadily increased over the years, with the highest number recorded in 2019 and a relatively stable range from 5 to 8. Variations in publications may be influenced by trends, funding, or specific events.

3. Result and Discussion

Green marketing is gaining popularity as businesses cater to consumer demands while protecting

the environment, enhancing their competitive edge amid growing environmental concerns (Fuiyeng & Yazdanifard, 2015). The study suggests a more extensive use of marketing and brands for selling environmentally friendly and functional products (Rahman et al., 2017). Green marketing offers numerous benefits to enhance a company's brand image, making it a promising marketing strategy for improving brand image (Ellitan, 2021). Green marketing has a very favorable impact on consumers' decisions to buy (Adhimusandi et al., 2020). Product attributes influence but don't significantly impact green product purchases, while green marketing strategy significantly influences this (Soegoto et al., 2018). Green marketing positively influences buying decisions by considering factors like products, production methods, packaging, and environmentally responsible advertising (Mukaromah et al., 2019). The purchasing decisions of customers might be influenced by the green marketing mix and brand perception (B et al., 2023).

The study reveals that green marketing positively influences brand perception and suggests that the relationship between green marketing and purchase intention can be influenced by brand image (Salshabila et al., 2023). The study found that eco-packaging and environmental advertisements significantly influence customers' purchase behavior, with green marketing through brand image having a favorable but not statistically significant effect (Ahmad et al., 2020). The study reveals that corporate social responsibility and green marketing significantly and positively influence consumers' purchasing decisions (Ayu et al., 2023). Businesses must have a comprehensive understanding of the potential benefits of green marketing initiatives to gain a competitive edge in the marketplace (Sen, 2014). One study indicates that environmentally friendly products positively impact consumer decisions, while another study explores the correlation between green marketing strategies and purchase intention (Hanif, 2021). Additional research indicates that green brand loyalty and green marketing significantly moderate the positive influence of consumer value on brand equity (Ho et al., 2019). The study reveals that green marketing significantly influences brand image and purchase decisions, highlighting the significant influence of brand image on purchasing decisions. (Agung et al., 2018). To create a favorable perception of their product among customers, marketers must use green branding techniques. Businesses have used a range of marketing techniques to build their brand equity (Khandelwal, 2019). The study offers managers valuable insights into strategic green marketing techniques to boost brand resonance, client base, competitiveness, and profitability (Gupta, 2018). Comparable findings indicate that brand image, green products, and green marketing all significantly impact consumers' decisions to buy (Suryani & Syafarudin, 2021).

Brand image can mediate the relationship between green product innovation and repurchase, as creative eco-friendly production increases an organization's reputation and influences consumer choices. (Influence et al., 2020). Brand image significantly influences consumers' purchasing intentions, with a

stronger brand image resulting in an increased likelihood of purchasing environmentally friendly items (Made et al., 2019). Another study reveals that green marketing significantly impacts brand image and environmentally conscious consumer behavior (Rosa et al., 2022). Purchase intention significantly influences the decision to buy, with brand image having a more significant positive impact (Adhimusandi et al., 2020). Similar study results show that Ades Mineral Water's brand image is significantly impacted by green marketing (Genoveva, 2020). Brand image plays a crucial role in influencing green marketing and brand trust, highlighting the significant regulatory role that greenwashing plays in the industry (Wu & Liu, 2022). Various findings indicate that brand image, perceived value, and purchasing decisions are all highly impacted by green marketing (Fatmawati & Alikhwan, 2021). Green brand positioning is a crucial aspect of green marketing strategies, as it can significantly influence consumer attitudes and purchase intentions toward green brands (Tsai et al., 2020). The path analysis reveals that green marketing significantly influences brand image and purchase decisions (Ulfiah et al., 2023). Brand image plays a crucial role in influencing green marketing and brand trust, highlighting the significant regulatory role that greenwashing plays in the industry (Wu & Liu, 2022 and Agung et al., 2018).

The company plans to monitor consumer purchasing patterns to promote eco-friendly products through various eco-friendly marketing strategies to increase consumer awareness (Shameem, 2020). The study's findings support the use of green marketing techniques to influence consumers' choices (Influence et al., 2020). Brand image indirectly influences consumers' decisions to purchase Ades mineral water due to green marketing, acting as a mediating variable (Genoveva, 2020). The study reveals that price perceptions, brand recognition, and green marketing significantly influence consumer purchasing decisions (Mukaromah et al., 2019). The study indicates that green marketing and corporate social responsibility significantly enhance the brand image of cosmetic companies (Sudirman, 2022; Vety & Purwono, 2021). The study reveals that brand image and green marketing significantly impact repeat business, both together and independently (Hasanah & Aziz, 2021). The study reveals that brand image and green marketing significantly impact repeat business, both together and independently (Aqsony et al., 2020). The study's findings indicated that consumers who value the environment will purchase green items when they are available (Suhaily, 2020).

4. Conclusion

Green marketing positively impacts consumer choices and brand perception by promoting environmental initiatives, transparency, and aligning with consumer values, but firms must avoid greenwashing and consider price and value.

Research on green marketing emphasizes sustainability, consumer attitudes, and environmental factors. However, issues like greenwashing and consumer disbelief need to be addressed. More research is

needed to standardize measurements, investigate contextual and cultural influences, and evaluate long-term effects.

Green marketing can significantly influence consumer perceptions of brands, enhancing trust, loyalty, and differentiation. However, brands must avoid greenwashing and ensure environmental statements align with business activities. Further research and case studies can provide more precise insights.

Green marketing techniques can influence consumer buying decisions by promoting environmental ideals, raising awareness, and influencing brand perception. However, it's crucial to consider trade-offs, price sensitivity, and customer disbelief, requiring further research.

5. Recommendations and Policy Implication

Green marketing can enhance brand image and influence consumer decisions by increasing consumer awareness of environmental concerns and sustainable decision-making. Governments and regulatory organizations should enforce stronger laws to prevent greenwashing and promote fair competition.

To align green marketing with real sustainability initiatives, organizations should have strong sustainability efforts, and governments, industry associations, and consumer advocacy groups should invest in consumer education programs.

Research on consumer factors influencing green product purchases is crucial for developing effective green marketing strategies, which should be supported by policymakers.

6. Limitations of the Study and Areas for Further Research

Researchers must use rigorous methodologies, transparent reporting, and replication efforts to advance knowledge of green marketing's impact on brand image and purchase decisions.

The systematic review may be influenced by publication bias, with studies with significant findings more likely to be published, requiring future researchers to report this bias.

The included studies may employ different research designs, methodologies, measurement tools, and sample characteristics, leading to heterogeneity in the data. Future researchers should develop standardized measurement tools and scales for assessing variables related to the topic.

The review may be limited by language bias, as only studies published in English are included. future researchers should expand the scope of the systematic review to include studies published in languages other than English.

References

A. Plumeyer, P. Kottemann, D. Böger, and R. D. (2019). "Measuring brand image: a 13 E3S Web of Conferences 316, 01020 (2021) https:// IConARD 2021 systematic review, practical guidance, and future research directions," Rev. Manag. Sci., 13, n, 227–265,. https://doi.org/doi.org/10.1051/e3sconf/202131601020A, E. S. (2017). No Title. 6.

Aaker, D. A. (2014). "Measuring brand equity across products and markets", California Management Review, Vol. 38 No, 102-120.

Adhimusandi, D., Sudirman, H. A., & Militina, T. (2020). the impact of green marketing and corporate social responsibility on brand image, purchase intention, and purchase decision (study on the body shop in Samarinda).

Agung, I. G., Dwipamurti, N., & Mawardi, M. K. (2018). The effect of green marketing on brand image and purchase (study on consumers of Starbucks café Ubud, Gianyar Bali). 61(3), 57–64.

Ahmad, N., Ghazali, N., Abdullah, M. F., & Nordin, R. (2020). Green Marketing and its Effect on Consumers ' Purchase Behaviour : An Empirical Analysis. 5(2), 46–55.

Albino, et al. (n.d.). . Green product between brand image and purchase intent. Journal Business Marketing, 1(2).

Aqsony, Y. B., Soebandhi, S., & Wulandari, A. (2020). The Effect of Green Marketing, Brand Image, and Atmosphere Store On Purchasing Decisions In Arei Adventure Store Surabaya

Arseculeratne, D. (2014). How Green Marketing Can Create a Sustainable Competitive Advantage for How Green Marketing Can Create a Sustainable Competitive Advantage for a Business. January. https://doi.org/10.5539/ibr.v7n1p130

Aulina, L., & Yuliati, E. (2017). The Effects of Green Brand Positioning, Green Brand Knowledge, and Attitude towards Green Brand on Green Products Purchase Intention. 36(Icbmr), https://. 548–557. https://doi.org/doi.org/10.2991/icbmr-17.2017.50.

Ayu, I., Kinasih, D., Ngurah, I. G., Agung, J., Rahyuda, I. K., & Suparna, G. (2023). The Effect of Green Marketing and Corporate Social Responsibility on Purchase Decisions Mediated by Brand Image (Study on Consumers of Avoskin Skincare Products in Denpasar City). 8(4), 249–260.

Azimi, G., & Shabani, M. (2016). The Effect of Green Marketing Mix on Purchase Decision-Making Styles of Customers. International Journal of Advanced Biotechnology and Research (IJBR),

7(1986), 7.

B. Kotler, P., Keller, K. L., Manceau, D., & D. (2016). Marketing Management (15e éditio). New Jersy: Pearson Education,

B, A. S. H., Sari, N. P., & Khairi, A. (2023). The Relationship Between Green Marketing Mix and Purchasing Decisions : The Role of Brand Image as Mediator. Atlantis Press International BV. https://doi.org/10.2991/978-94-6463-160-9

Boztepe, A. (2012). Green Marketing and Its Impact on Consumer Buying Behavior. 5(1), 5–21.

Eidi, F; and Shahbazi, A. S. (2017). 'Effective Factors on Consumers'' Decision to Buy Green Products',.' International Journal of Economic Perspectives; 807.11(1).

Ellitan, L. (2021). The Role of Green Marketing and Green Brand Image in Enhancing Purchase Intention. 5(6), 1277–1282.

Fatmawati, I., & Alikhwan, M. A. (2021). How Does Green Marketing Claim Affect Brand Image, Perceived Value, and Purchase Decision ? 01020, 1–14.

Fuiyeng, W., & Yazdanifard, R. (2015). Green Marketing: A Study of Consumers' Buying Behavior concerning Green Products. 15(5).

Genoveva, G. (2020). Green marketing : strengthen the brand image and increase the consumers ' purchase decision. November. https://doi.org/10.22441/mix.2020.v10i3.004

Grundey, D., & Zaharia, M. (2008). .Sustainable Incentives in Marketing and Strategic Greening: The Cases of Lithuania and Romania. Technology And Economic Development, 14(2), 130–143. https://. https://doi.org/doi.org/10.3846/1392-8619.2008.14.130-143

Gupta, R. (2018). Exploring the impact of green marketing practices on green brand resonance and repurchase behavior. 5(1), 1374–1386.

Hamzah, M. I., & Tanwir, N. S. (2021). Do pro-environmental factors lead to the purchase intention of hybrid vehicles? The moderating effects of environmental knowledge. Journal of Cleaner Production, 279, 12364.

Hanif, N. (2021). Investigating the Impact of Green Marketing Components on Purchase Intention : The Mediating Role of Brand Image. 20(4), 1467–1490.

Hart, S.L. 1995. 'A Natural-Resourced-Based View of The Firm'. Academy of Management Review, 20

(4). Pp986-1014.

Hasanah, Y. N., & Aziz, F. (2021). the analysis of green marketing and brand image on repeat purchases on consumers of coffee shops in. 13(1). https://doi.org/10.21002/amj.v13i1.13215

Helmi, S., Suyanto, M., Effendi, M. I., Hidayat, A., & Mustafa, Z. (n.d.). The influence of internal marketing on internal service quality mediated by job satisfaction and employee loyalty. Journal of Economics and Sustainable Development, 13(6), 63–. https://doi.org/doi.org/10.7176/jesd/13-6-09.

Ho, T. N., Wu, W. Y., Nguyen, P. T., & Chen, H. C. (2019). the moderating effects for the relationships between green customer value, green brand equity, and behavior. 18(4), 1–21.

Influence, T. H. E., Green, O. F., On, S., Decision, P., Role, M., & Brand, O. F. (2020). the influence of green marketing strategy on purchasing decision with mediation role of brand image. 200, 535–546.

Izzani, T. (2021). Pengaruh Green Marketing dan Gaya Hidup Terhadap Keputusan Pembelian Pada Produk Love Beauty Planet (Studi Kasus di Giant Pasar Minggu). Jurnal Inovatif Mahasiswa Manajemen, 1(2).

Jing, Z., Pitsaphol, C. and Shabbir, R. (2020). "The influence of brand awareness, brand image and perceived quality on brand loyalty: a case study of oppo brand in Thailand",. Interdisciplinary Journal of Contemporary Research in Business, Vol. 5 No., 16 – 26.

Keller., P. K. and K. L. (2009). Marketing Management, New Jersey: Pearson Education Inc, Upper Saddle River, (13th Ed. (ed.)).

Khandelwal, U. (2019). Importance of Consumer-based Green Brand Equity : Empirical Evidence. https://doi.org/10.1177/0971890719844428

Kotler, P., & Keller, K. L. (2008). Manajemen Pemasaran. Jilid I. (Edisi ke 1). Erlangga. Jakarta.

Kotler, P. and Armstrong, G. (2014). Principles of Marketing. Jakarta: Penerbit Erlangga.

KOTLER, P. a. (2018). Marketing management (). . (12th ed). NY: Prentice–Hall.

Kotler, P. and G. A. (n.d.). Prinsip-prinsip Pemasaran. . Translated by Damos Sihombing. Jakarta: Penerbit Erlangga, Vol. 1.(12th Edition).

L., and Soepeno, D. (2018). Desanto, T. M., Mandey, S. Analysis of The Effect of Green Marketing and

Corporate Social Responsibility on Purchasing Decisions With Brand Image As An Intervening Variable For Consumers of Bottled Drinking Water Products. Jurnal EMBA: Bisnis dan Akuntans. Jurnal Riset Ekonomi, Manajemen, 6(4), 1898.

MTY. Lin, (2015). A study of the effects of cause-related marketing on brand image and purchase intention in ecotourism," Ekoloji,. 2887-2892,.

Made, L., Juliantari, P., Ngurah, P., Yasa, S., Luh, N., & Indiani, P. (2019). The Effect of Green Marketing and Consumers ' Attitudes on Brand Image and Consumers ' Purchase Intention of Green Products in Denpasar. 6, 8–14.

Mahaputra, M. R., & Saputra, F. (2022). Determination of Public Purchasing Power and Brand Image of Cooking Oil Scarcity and Price Increases of Essential Commodities. International Journal of Advanced Multidisciplinary, 1(1), 36–4.

Mahaputra, M. R., & Saputra, F. (2022). Determination of Public Purchasing Power and Brand Image of Cooking Oil Scarcity and Price Increases of Essential Commodities. 1(1), 36–46.

Mawardi, A. (2018). PengaruhGreen Marketing Dan Kualitas Produk Terhadap Keputusan Pembelian Produk Oriflame Purwakarta. Eqien: 63–67. Jurnal Ekonomi Dan Bisnis, 7(1),. https://doi.org/ https://doi.org/10.34308/eqien.v7i1.12

McDaniel, S., & Rylander, D . (2008). Strategic Green Marketing. The Journal of Consumer Marketing, 10(3), 4–11.

Moher, D., Liberati, A., Tetzlaff, J., Altman, D.G., & T. P. G. (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Medicine, 6(7), e1000097. doi:10.1371/.1000097. Journal.Pmed.

Mukaromah, A. L., Ngurah, I. G., Eka, A., & Kusuma, T. (2019). The Effect of Green Marketing, Brand Awareness and Price Perception on Purchase Decision. 4(3).

Nagaraju, B., & Thejaswini, H. D. (2014). Consumers \' perception analysis awareness towards eco-friendly FMCG products case study of Mysore district. 16(4), 64–71.

Nguyen, T. N., Phan, T. T. H., & Vu, P. A. (2015). The Impact of Marketing Mix Elements on Food Buying Behavior: A Study of Supermarket Consumers in Vietnam. International Journal of Business and Management, 10(10), 206–215. https://doi.org/10.5539/ijbm.v10n10p206

Peter, J. Paul, & Olson, J. C. (2018). Perilaku Konsumen dan Strategi Pemasaran. Jakarta: Salemba

Empat.

Purnama, PA, & Adi, N. (2018). Green Marketing and Brand Quality as Predictors of Consumer Behavior and Its Impact on Product Purchasing Decisions. Journal of Management and Business.

Putripeni, M. P. (2014). The Effect of Green Marketing on Brand Image and Purchase Decisions (Studies on Consumers of The Body Shop Mall Olympic Garden Malang). Jurnal Administrasi Bisnis, 10(1).

Rahman, A. S. M. S., Barua, A., Hoque, R., & Zahir, R. (2017). Realistic Study on Bangladesh Influence of Green Marketing on Consumer. 17(1).

Rayon, Y. E. S., & Widagda, I. G. N. J. A. (n.d.). The influence of green marketing on purchase decision mediated by brand image (Study on AMDK Ades in Denpasar City). ,. Management E-Journal, 10(5), 479.

Rogers, E.M. (2003). Diffusion of innovations (5th ed.). New York: Free Press.

Rosa, A., Devi, P., Margaretha, M., Syamsu, N., & Husnul, S. (2022). The Impact of Green Marketing Implementation on Brand Image and Green Consumer Behavior on The Body Shop Products in Jakarta 2022. 8(2), 34–42.

Saini N, et al. (n.d.). Migrating bubbles during break-induced replication drives conservative DNA synthesis. Nature. 502(7471).

Salshabila, K., Susilo, P., & B, I. P. W. (2023). How Can Brand Image Mediate the Effect of Green Marketing on Purchase Intention in the Fast-Food Industry ? Atlantis Press International BV. https://doi.org/10.2991/978-94-6463-178-4.

Schiffman, L., Kanuk, L. L., & Wisenblit, J. (n.d.). Consumer Behavior (10th ed.). New Jersey: Prentice Hall.

Sen, R. A. (2014). A Study of the Impact of Green Marketing Practices on Consumer Buying Behaviour in Kolkata. 2(1), 61–70.

Septifani, R., Achmadi, F., & Santoso, I. (n.d.). Pengaruh Green Marketing , Pengetahuan dan Minat Membeli terhadap Keputusan Pembelian. 13(2), 201–218.

Setiawan, C. K., & Yosepha, S. (2020). Pengaruh Green Marketing Dan Brand Image Terhadap Keputusan Pembelian The Body Shop Indonesia (Studi Kasus Pada Followers Account Twitter @

TheBodyShopIndo).

Shameem, S. (2020). A study on the impact of green marketing and green purchasing. 11(11), 4311–4316.

Soegoto, A. S., Worang, F. G., & Saerang, R. (2018). The Analysis of Green Marketing Strategy and Product Attributes on Purchase Decision of Green Products. 1999, 141–145.

Soehardi. (2022). Effect of Advertising, DM, WOM, and Personal Selling on Consumer Purchasing Decisions. Manajemen, XXVI(01), 82–98.

Sudirman, H. A. (2022). Effect of Green Marketing and Corporate Social Responsibility on Brand Image of the Cosmetic Brands. 3, 3–6. https://doi.org/10.4108/eai.10-8-2022.2320832

Suhaily, L. (2020). Effect of Green Product, Green Price, Green Promotion, and Green Place to Purchase Decision Mediated by Consumer Attitude on Green Coffee Shop. 3(8), 107–115.

Sumarwan, U. (2011). Consumer Behavior: Theory and Its Application in Marketing, Second Edition. Bogor: Ghalia Indonesia.

Suryani, I., & Syafarudin, A. (2021). The Effect of Sales Promotion on Purchasing Decisions. Ilomata International Journal of Tax and Accounting, 2(2), 122–133. https://doi.org/10.52728/ijtc.v2i2.216

Sutisna, T. pawitra. (2001). , Perilaku Konsuen Dan Komunikasi Pemasaran, PT. Remaja Reosdakarya, Bandung.

Szabo, S., & Webster, J. (2021). Perceived greenwashing: the effects of green marketing on environmental and product perceptions. Journal of Business Ethics, 171(4), 71.

Tiwari, S., Tripathi, D. M., Srivastava, U., & Yadav, P. K. (2011). Green marketing – emerging dimensions. 2(1), 18–23.

Tsai, P., Lin, G., Zheng, Y., Chen, Y., Chen, P., & Su, Z. (2020). Journal of Retailing and Consumer Services Exploring the effect of Starbucks ' green marketing on consumers ' purchase decisions from consumers ' perspective. Journal of Retailing and Consumer Services, 56(May), 102162. https://doi.org/10.1016/j.jretconser.2020.102162

Ulfiah, U., Zainal, V. R., & Hakim, A. (2023). The Effect of Green Marketing on Brand Image and Impact on Purchasing Decision (Case Study on Student of The Faculty of Administrative Sciences, Universitas Brawijaya WHO Purchase Tupperware Products). 4(5), 933–944.

Vety, A., & Purwono, P. (2021). The Effect of Green Marketing, Corporate Social Responsibility, and Brand Image on Purchase Decisions. 2(2), 1–4.

Wang, Y.-H., Chen, S.-T., & Chen, N.-N. (2011). An empirical study of the effect of green marketing on purchase intention - evidence from green restaurant. Advances in Management & Applied Economics, 6(4), 1–14.

Wijaya, B. (n.d.). Dimensions of brand image: A conceptual review from the perspective of brand communication. European Journal of Business and Management, 5(31), 55-.

Wu, L., & Liu, Z. (2022). The Influence of Green Marketing on Brand Trust : The Mediation Role of Brand Image and the Moderation Effect of Greenwash. 2022.

X. G. Li, X. Wang, and Y. J. C. (2011). "Corporate-, product-, and user-image dimensions and purchase intentions: The mediating role of cognitive and affective attitudes," J. Comput.6, no, 1875–1879,.

Xie, K., Wu, Y., Xiao, J., & Hu, Q. (2016). Value co-creation between firms and customers: The role of big data-based cooperative assets. Information & Management, 53(8), 1034–1048.

Yazdanifard, R., & Mercy, I. E. (2014). The impact of Green Marketing on Customer Satisfaction and Environmental The impact of Green Marketing on Customer satisfaction and Environmental safety. November.

Yeng, W.F & Yazdanifard, R. (2015). Green Marketing: A Study of Consumers' Buying Behavior with Green Products. Global Marketing. Journal of Management and Business Research: E-, 15 (5), 16.

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Status of Internal Revenue Generation as Alternative Strategy for Financing Primary Education of Awi Zone, Amhara Region

By

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Abstract

Financial resource and its effective utilization is a critical subject in improving access and quality of primary schooling. Investing in primary education is critical in the process of a nation's development and innovation which seeks for supplying quality school facilities and furniture in order to pave the way for narrowing the gap in quality education. Thus, this study investigates the financing schemes being practiced in primary schools so as to diversify educational funding options. It mainly assesses the status of internal revenue generation, its role as alternative financing strategy and challenges facing the effectiveness of the strategy. The data were obtained from 20 sample primary schools using questionnaires and document analysis. Both qualitative and quantitative statistical tools were employed in analyzing data. The findings revealed that primary education is suffered the most from a lack of financial resources to invest for the required educational facilities. Consequently, the sector has remained underfinanced. Despite underfinancing, the attention given to alternative income sources was stumpy. Besides, internal revenue generation activity was critically challenged with reporting and communication problems, auditing and controlling shortcomings, and lack of commitment from technical experts. In conclusion, internal revenue generation as a source of school financing lacked official intensions and remained unexploited alternative financing scheme. Thus, attention has to be given to prioritizing diversification of school financing. Considering the alternative funding strategies is equally important in sustaining and strengthening school financing. It is also very essential to consider in-depth and explorative research in the area in future studies.

Keywords: Alternative Strategy, Diversification, Income Generation, Internal Revenue, Primary Education, School Financing

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1. Introduction

1.1 Background of the study

A central reason for public funding to education is its social benefits and linkage of the educational attainment with numerous social outcomes like health and civic participation (Riddell, 2004). The broad objectives of education are designed to reflect the needs of beneficiaries at all levels. If we trace back and analyze the factors which accelerate the development process in the countries which all now leading economic powers of the world, we will find education as the major catalyst. As stated by Psacharopoulos (1985) education is widely regarded as key to scientific technological advancement, and the means to combat unemployment. Financing education has a vital role to play the objectives on the ground without which manipulation of all other resources including human resources finds difficult to handle and utilize efficiently.

Since primary education is the foundation of the formal education system, allocation of finance and resources is crucial to meet the designed objectives from the beginning. However, the resources in developing countries are scarce and inadequate funding in primary education is uniquely problematic. As a result, schools in developing countries are left less productive, and education systems remained poorly funded (Chuta, 1998; Masaiti, 2013).

Ensuring the provision of free primary education to all children irrespective of their gender, race, ethnicity, religion, or socioeconomic status of the parents is the responsibility of the state and society as a whole (Jeilu, 2009). To this end, the central government provides the bulk of financing for public education. Given tightening budgetary restraints on the central government's purse, alternative sources of financing have to be considered.

However, the fund and resources only from the government could not solve the budgetary problems of schools. To this end, improving the capability of institutions, to generate their own income and proper utilization for educational purposes is very crucial. Internal revenue can be generated from either the internal activities carried out by an entity and as a form of support from other external bodies or internally derived within (Nnanseh & Akpan, 2013). At the earlier time, many schools used to generate revenue by engaging in activities like agriculture and handcraft to further educational objectives (Sergiovanni, 1991). Generating income is also possible through selling bought-in products such as stationery and T-shirts; hiring their buildings for public meetings and staging various sports and theatrical events (Knight, 1993). Other forms of direct school income-generating activities include sales of certificates to repeaters, as well as sales of plants and trees in the school compounds (Tietjen, 1998).

As indicated by Steer and Smith (2015) looking for alternative financing options, especially, in developing nations is unquestionable to enhance the efficiency of schools by raising additional education resources. This calls for the prioritization of financial allocation for education policy implementation so as to supply quality inputs. The education and training policy of Ethiopia gives priority to the provision of financial support and fee-free education up to the completion of secondary (grade 10) education (MoE, 2018). It highly encourages the use of diversified financial sources to establish sustainable alternatives for financing primary education. As emphasized in the nation's education road map, the necessary conditions are found to be created for educational and training institutions to generate their own income (ibid). The policy inspires a decentralized and data-based financing system in the primary education. This indicates

that schools revenue generation is one of the policy and strategy issues that require harmonious efforts of the school community. Furthermore, its utilization requires systematic plan and genuine control to increase its effectiveness and efficiency towards development.

Practically, internal revenue generation is with a great dilemma of utilization, particularly who has authority over the raised income at different levels of the government. As stated by Jeilu (2009) in many cases, direct school income is often credited to the central treasury account through the budget process. Such factors made income generation practice one of the least exploited areas of financing education sector. Regardless of related challenges, the status of the internal revenue generation and its utilization in primary schools is less studied and the challenges that face the process are not clearly identified yet. In this regard, the study in general focused on the status of internal income creation, the types of income-generating activities practiced and the extent of community's involvement in the internal income generation activities and challenges hindering the utilization of the generated revenues.

1.2 Objectives

The general objective of this study was to investigate the practices of internal revenue generation as alternative strategy to financing primary education in Awi Zone, Amhara Region. It specifically scrutinizes the following specific objectives:

- To investigate the current practices of diversifying financial sources in primary schools
- To assess the extent to which internal revenue generation contributes for school financing
- To explore the extent of community's involvement in internal revenue generation activities in primary education
- To examine challenges hindering the effectiveness of internal revenue generation and utilization practices

2. Methodology

The study employed a descriptive survey design which mainly enables the researcher to identify the prevailing constraints to promote generation and utilization of income. Thus, in describing the existing determining challenges in relation to internal income generation and utilization of primary education of the zone, the descriptive research method is found to be convenient.

Different techniques were used in selecting samples, for instance weredas and sample schools, were selected using a simple random sampling technique. While to select the respondents, stratified random sampling method was employed considering the diversified positions and occupations of the participants. In selecting Keble Education and Training Board and Parent Teacher Association members, the purposive sampling technique was employed, bearing in mind their responsibility in school administration. Moreover, all principals of the sample schools, and educational officials at different levels, were included in the study due to their administrative role in school financing.

The sample of the study covered 20 public schools from two administrative towns and two weredas in the zone. In this regard, 20 principals, 20 PTA members and 20 KETB members were involved in the study. Additionally, accountants and finance case team coordinators provided information through documents. The sample size of the population both in terms of sample schools and sample population of

the respondents was assumed to be reasonable, to represent the whole population and to be manageable for this specific study.

Data were collected using questionnaires, and document analysis. The questionnaire was consisted of close ended and open-ended items. The reliability of the questionnaire items was undertaken using data collected from two primary schools which deliberately excluded from the study. The overall reliability index was 0.78 cronbach alpha coefficient.

Document analysis was employed in data collection that concerned with the classification, quantification, and comparison of the content of documents and their communication including trends of financing schools and annual abstracts in educational statistics.

Quantitative data analysis techniques were employed to analyze the obtained data. Percentage was used to explain the personal characteristics of the respondents and questions related to the views of the respondents on internal revenue generation practices. Additionally, the mean and ratios were employed to compute data from various documents.

3. Results and Discussion

3.1 Results

Demographic characteristics of respondents

Table 1: The characteristics of the respondents

Items	Respondents					
	PTAs		Principals		KETBs	
	No	%	No	%	No	%
Sex 1. Male	14	70	20	100	17	85
2. Female	6	30			3	15
Qualification						
1. Certificate	2	10			2	10
2. Diploma	18	90	16	80	13	65
3. First Degree			4	20	5	25

Table 1 looks at the characteristics of the respondents categorizing by their position, gender and educational level. As indicated in item one of the table, all of the school principals, 70 percent of the PTAs and 85 percent of KETB members were males and only 30 percent of the PTA members and 15 percent of KETB members were females. The table also showed that 90 percent of the PTAs, 80 percent of the principals and 65 percent of KTEBs were diploma holders and 20 percent of the principals and 25 percent of KTEBs were first degree holders. However, 10 percent of both the KETBs and PTAs educational level was limited at certificate level.

Table 2: The non-salary school financial sources

Financial Sources	Rank								Estimated contribution in percentage
	1st		2nd		3rd		4th		
	No	%	No	%	No	%	No	%	
From school activities	16	26.7	25	41.7	11	18.3	8	13.3	30.1
Community's contribution	7	11.7	12	20	30	50	11	18.3	24.5
Government's budget	34	56.7	14	23.3	10	16.7	2	3.3	40.1
NGO's support	7	11.7	4	6.7	9	15	40	66.7	5.0

Table 2 looks at some of the non-salary alternative school financing sources. Accordingly, the respondents were asked to rank these alternative sources of non-salary school finance based on their school situation. As can be seen in the data, more than 56 percent of the respondents ranked the fund from the government to be a primary source of non-salary school finance contributing 41 percent of educational budget. Similarly, internal revenue generation and community's contribution were stood second and third contributing 30 and 24.5 percent of education budget respectively. However, the data derived from the review of the zone's financial report in 2018/19 showed that more than 94% of the funds from the government were allotted for salary costs (Table 3).

Table 3: Budget utilization in the Zone 2018/19-2019/20

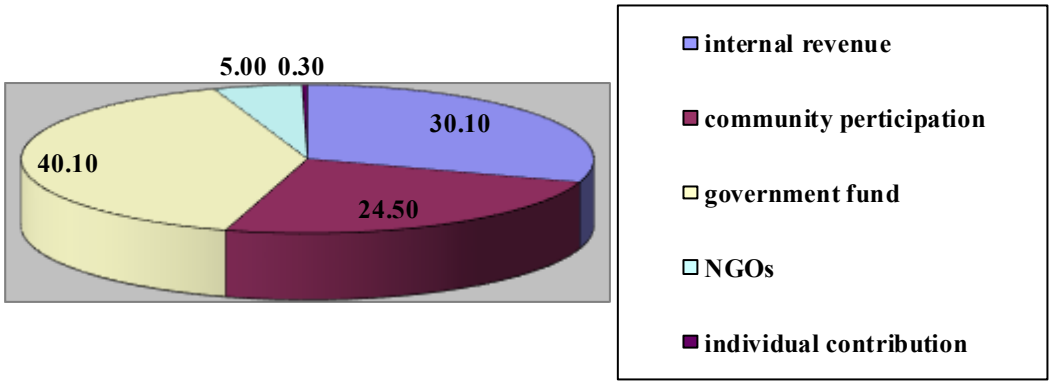
Wereda	Budget type	2018/19			2019/20		
		Planned budget	Used budget	Utilization in %	Planned budget	Used budget	Utilization in %
Dengila	Salary and per diem	7906150	4150599	52.5	8160798	8160798	100
	Non salary	738041	110429	14.9	632870	609392	96.3
	Total	8644191	4261029				
	Share of non-salary	8.54	2.60		7.20	6.95	
Guangua	Salary & per diem	13589268	4958596	36.48	10680709	10680709	100
	Non salary	691265	186332	26.95	333144	333144	100
	Total	14280533	5144928	36.2	11013853	11013853	100
	Share of non salary	4.84	3.62		3.02	3.02	
Banja	Salary & per diem	8148823	3815459	46.82	6840546	6565950	95.8
	Non salary	504077	240103	47.63	487763	331460	67.9
	Total	8652900	4055562	46.87	7328309	6897410	94.1
	Share of non salary	5.83	5.92		6.66	4.81	

Chagni	Salary & per diem	4908087	2089373	42.57	4590406	4189014	91.3
	Non salary	426475	90158	21.14	318559	305112	95.8
	Total	5334562	2179531	40.86	4908965	4494126	91.6
	Share of non salary	1.12	4.13		6.49	6.79	

Source: Compiled from educational annual report of ZED, 2021

As shown in Table 3, there was a tendency to increase education budget from year to year. At the same time its efficient utilization has been progressively improving in sample weredas. However, the non-salary budget in the sample weredas was ranged from 1.12 percent to 8.54 in 2018/19 and from 3.02 to 7.20 percent in 2019/20 fiscal year. Thus, more than 94 percent of the budget has been used to cover the salary costs. In addition to ranking the possible financial sources, respondents were asked to estimate the contribution of these expected sources in the total educational budget. In relation to this, figure 1 depicts the percentages of reported contributions.

Figure 1: Percentage contributions of non-salary financial sources

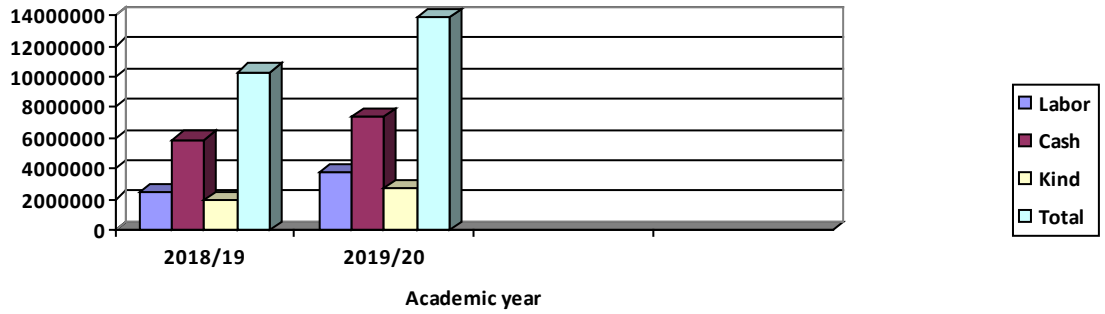


As shown in the Figure a great share of the non-salary fund was assumed to be covered by the government. Accordingly, about 40 percent of the non-salary fund was expected to be obtained from government's budget. In addition, internal revenue generation and community were contributing 30.1 percent and 24.5 percent respectively. Whereas NGOs and individuals contributed very less, (only 5 and 0.3 percent) correspondingly.

Table 4: Community contribution in financing primary education from 2018/19 to 2019/20

Weredas	2018/19				2019/20			
	Labor	Cash	Kind	Total	Labor	Cash	Kind	Total
Dangla T					130238	453524	237879	821,641
Banja	241494	74430	132037	447961	290274	87716	293012	671003
Chagni T	49989	36747	36360	123096	18402	413472	9104	440978
Guangua	186984	264305	39312	490602	835637	858125	961008	2654771
Zone	2503343	589003	1913606	10312952	3721577	7416959	2703466	13841802

Figure 2: Trends in community contribution categories



Source: Compiled from Annual Education Report of ZED, 2021

The table 4 and figure 2 showed the trend of community's contribution in the zone. As evidenced from the document, the community's involvement in primary education of the zone was playing a crucial role in financial contribution. There was a progressively increasing trend of contribution in terms of cash, labor and in kind. The community's participation in labor contribution was more visible than its counterparts.

Table 5: The extent of community's support in school affairs

Supposed Activities	Always		Sometimes		Occasionally		Never	
	No	%	No	%	No	%	No	%
Construction of school	16	26.7	36	60	8	13.3		
Repairing and maintenance	4	6.7	37	61.7	9	15	10	16.7
Cleaning school environment			15	25	19	31.7	26	43.3
Farming and harvesting			20	33.3	9	15	25	41.7
School security and guarding	21	35	29	48.3	10	16.7		
School plantation	4	6.7	22	36.7	8	13.3	26	43.3
Consultancy	18	30	39	65	3	5		

The participation of community in supporting schools has a significant effect in provision of primary education. The education and training policy of Ethiopia also gave the great priority for the participation of the community in education (MoE, 2018). In relation to this, the respondents were asked to report the extent of community's contribution on the assumed school activities. To this end, as indicated in table 5 the majority of the respondents viewed that all of the school activities were touched by the communities' involvement in average. They reported that the communities were involved mainly in consultancy (65 per cent), in maintenance and repairing of schools (61.7 per cent) school construction (60 per cent) sometimes. Additionally, about 48 percent of the respondents agreed that school guarding and security was the community's responsibility. This is to mean that the salary for school guards was contributed by the community in cash. However, the community's participation in cleaning school environment, farming and harvesting and school plantation found to be scanty.

Table 6: The purposes of revenue generation in schools

Assumed purposes	Frequently		Sometimes		Occasionally		Never	
	No	%	No	%	No	%	No	%
School maintenance	37	61.7	23	38.3				
School expansion	11	18.3	28	46.7	16	26.7	5	8.3
Enhancing pedagogical material	43	71.7	11	18.3	6	10		
Purchase laboratory equipment			10	16.7	8	13.3	42	70
Pedagogical center construction			12	20	4	6.7	44	73.3
Water well construction	15	25	19	31.7	5	8.3	21	35
Purchase School furniture	22	36.7	38	63.3				
Purchasing text Books	13	21.7	47	78.3				
Purchasing Stationery	53	88.3	7	11.7				
Supporting students in need	2	3.3	27	45	14	23.3	17	28.3
Day-to-day operations	38	63.3	10	16.7	12	20		

Table 6 considered some of the assumed purposes to be achieved by creation of finance within the schools. Accordingly, about 61.7 percent of the respondents replied that, internal revenue was being used frequently to maintaining schools. Similarly more than 70 percent of the respondents viewed that the schools were enhancing the pedagogical materials using the internally generated incomes. About 88 percent of the respondents agreed that internal income was used in purchasing stationery materials frequently. Furthermore, 63 percent of the respondents agreed that schools were using internal revenue for day to day operations. Similarly, 45 percent of the respondents replied that internal revenue has been used to support children from economically low families. In addition, as reported by about 78 percent of the respondents, schools were using their own revenue to purchase reference materials. However, according to 70 and 73 percent of the respondents, schools were not using internal revenue to purchase laboratory equipment and to construct pedagogical centers respectively.

Table 7 below shows the possible lists of alternative sources of income in schools. The respondents were asked to show the degree of contribution of the supposed sources. In this regard, more than 60 percent of the respondents agreed that in most cases internal revenues were created through sales of trees, grass and different crops and fruits. In addition, 61.67 percent of the respondents replied that renting classes and halls was contributing a medium role in financing schools. But the remaining schemes were likely to have scanty contribution.

Table 7: Categories of sources for internal revenue generating activities in schools

Revenue generating activities	Very low		Low		Medium		High		Very high	
Cultural events	No	%	No	%	No	%	No	%	No	%
Renting classes or halls	15	25	8	13.3	37	61.7				
School farm land rent	35	58.3	13	21.7	12	20				
Renting school farm space	31	51.7	7	11.7	6	10	16	26.7		
Sale of trees, grasses of the compound	10	16.7			8	13.3	24	40	18	30
Handcrafts, wood work product sale	29	48.3	31	51.7						
Sale of printed materials	56	93.3	4	6.7						
Sale of second hand books, handouts	13	21.7	23	38.3	16	26.7	8	13.3		

Table 8: Contributions of stakeholders in schools' internal revenue generation activities

Stakeholders	Very low		Low		Medium		High		Very high	
	No	%	No	%	No	%	No	%	No	%
Government			24	40	6	10	30	50		
NGOs	8	13.33	23	38.33	17	28.34			12	20
School principals	6	10	3	5	11	18.33	17	28.34	23	38.33
Teachers	10	16.67			18	30	11	18.33	21	35
PTAs			17	28.33	7	11.67	36	60		
Students	5	8.33	8	13.33	15	25	32	53.34		
Supportive staff	11	18.33	12	20	9	15	28	46.67		
Community	6	10	3	5	14	23.33	20	33.33	17	28.34

In Table 8 the respondents were asked to rate the contributions of various stakeholders in internal revenue generation. As depicted in the data, about 67 percent of the respondents agreed that school principals were contributing a lot. Similarly about 61 percent of the respondents decided that the contribution of community in raising school income was high. However, as reported by 30 percent of the respondents the community's contribution in internal revenue generation was found to be low. On the other hand, about 50 percent of the respondents reported that government was contributing to boost internal revenue generation in schools. But this was protested by 40 percent of the respondents. Similarly, about 51 percent of the respondents decided that NGOs were contributing less in internal revenue generation.

Table 9: Challenges in internal revenue generation and utilization

Expected Challenges	SD		D		UD		AG		SA	
	No	%	No	%	No	%	No	%	No	%
Existing educational policy encourages revenue generation	2	3.3					34	56.7	24	40
There are rules that hinder schools revenue generation and utilization	34	56.7	13	21.7	2	3.3	11	18.3		
Wereda education bureau is not interfering in internal revenue utilization	14	23.3			7	11.7	22	36.7	17	28.3
Wereda is following schools activities continuously					8	13.3	30	50	22	36.7
Government's budget is sufficient to provide quality education	33	55	14	23.3			7	11.7	6	20
School resources are distributed timely from wereda to the school	12	20	34	56.7			2	3.3	12	20

Table 9 elaborates some of the challenges that assumed hinder the practice of internal revenue generation activities. As the data revealed, more than 95 percent of the respondents agreed or strongly agreed that the existing education policy is encouraging schools to have their own income. As set in education development roadmap the government has promised to create necessary conditions for education and training institutions to generate their own revenue (MoE, 2018). Similarly, more than 75 percent of the respondents believed that the existing rules and regulations are not obstructing the utilization of internally generated incomes. Thus, about 65 percent of the respondents approved that the WEOs were not intervening in internal revenue generation activities.

Correspondingly, more than 85 percent of the respondents replied that there were continuous inspection activities from WEOs. However, about 78 percent of the respondents decided that the current financial resource funded by the government to schools is insufficient. In relation to the timeliness of resource distribution to the schools more than 75 percent of the respondents reported that there was a problem in the distribution of resources. Lack of commitment, improper information management system, transportation, topography of schools, and school remoteness were pointed out as hindering factors in resource distribution.

3.2 Discussion

Alternative Sources of Financing Primary Education and its Challenges

Findings in school financing revealed that schools are increasingly becoming dependent on governmental funds which in turn obliges schools to look for alternative sources of revenue (Zimmer, Krop, & Brewer, 2003). A review of the education sector budget allocation showed that primary education tier receives the larger share of the education budget in most of the countries. This was also a practical case in Ethiopia, where about 46 percent of total educational budget was allocated for primary education (MoE, 2018). Although the larger share of public expenditure goes to the primary education, as indicated in the findings, about 94 percent of the recurrent budget was salary costs. Consistent to this finding, in many of the developing countries, the larger share of the allocated budget in education spent on the teacher salaries (Burnett & Bermingham, 2010). Thus, in practice primary schools were running out

of operational budgets due to narrowed scope of financial sources which in turn resulted in growing financial constraints. As result, improving access and quality demands additional expenditure which is a vital challenge of the system.

The current study also finds that the concern given for the alternative sources of school financing remained very little or nil in the majority of sample weredas. There were difficulties to find official financial reports in all levels of educational management to indicate the status and the contribution of internally generated revenues in financing education. While the internal revenue generation was strictly facing various challenges. Mainly lack of attention from the concerned bodies both from weredas and schools was affecting the internal revenue generation and utilization. Intentional and official plans and estimation about internally generated revenues are never observable in the sample weredas. Additionally, no guideline was prepared for schools on how to enhance and utilize the internally generated revenues. In some schools it was difficult to distinguish the revenue obtained through schools own generation and community's contribution. This in turn leads to mismanagement of school finance in general and the internal revenues in particular (UNESCO, 2000). This was consistent with another finding indicating the poor utilization of school finance which in turn affects the effectiveness and efficiency of financial management in schools (Eyerusalem & Melkamsew, 2021).

Moreover, internal revenue generation was highly challenged by lack of concerned expert and instability of school leadership. This may result in unnecessary confusions and ill-treated financial resource allocation and utilization practices. While, financial information management system is missing and greatly leading to confusion and hidden actions in utilization of internal revenues. This may end with unnecessarily abused effects on resource allocation and utilization including corruption. In general, though strengthening schools with own income has a positive effect on financing primary education, it is poorly practiced.

Community's Contribution in Financing Education

Notwithstanding major investments in improving the numbers and qualification of teachers and the availability of equipment, students' achievement has not sufficiently improved (MoE, 2010). There is a significant growth in the coverage of primary education. However, the gains in access are of little meaning if they are not accompanied by improved student learning.

As the findings revealed the primary education was facing budgetary shortage. Although schools obtained funds from different sources, the government's budget to schools including the fund allocated through block grants remained insufficient. Thus, the shortage of budget is aggravating the deficiency of school facilities and inefficiency of educational provision.

Principally, there is a need for strong link between schools and the local community as well as other stakeholders due to the significance of community support for schools with a partnership in school management, thinking that schools are social institutions. As the data shown, the involvement of community in PTA and school management committees has a positive effect in improving internal efficiency and maintenance of schools. Practically, communities have contributed significantly to the development and expansion of education. As revealed by MoE (2010) the massive increment in student enrollment and expansion of primary schools can partly be attributed to the community efforts.

The community's contribution played a crucial role in financing education. As shown in the findings, the

involvement of community has indicated audacious effects especially in such activities as maintenance and guarding and security of school. The findings indicated that the financial, material and labor contributions made by the community look progressive and encouraging. Another study revealed that community are most actively participating in school improvement programs mainly to enhance child health and safety (Ternieden, 2009).

On the other hand, the strong reliance on community involvement would likely have possible drawbacks. There are risks of increasing disparities, as the poor communities may be asked to contribute more than they can afford. Additionally, the surrounding socio-economic and community context influence the fund raising dynamics while the success of the donors varies by the community type. As stated by Zimmer, Krop, & Brewer (2003) the parental support is strongest in the communities on the highest end of socio-economic scale. Schools with well to do communities may persist wealthier whereas, poorer schools which did not have strong parent association remained with shortage of quality school facilities. This inconsistence of fund raising across a community types created the equity concerns. In addition, most of the communities are overburdened and stressed by the contributions. In light of this, MoE (2010) described its distress about a risk of 'community fatigue' for the redundancies.

4. Conclusion and Recommendations

4.1 Conclusion

Financing education through internal revenue generation is crucial to strengthen school financing capacity. However, the findings showed that internal revenue generation as a source of non-salary finance was given a less attention. It was bounded critically with various challenges and obstacles such as reporting and communication problems, auditing and controlling shortcomings, lack of commitment from technical experts. Thus, internal revenue generation as a source of school financing was unplanned, unconsidered, unexploited and ignored. Since the government's budget to schools was not only insufficient but also salary costs oriented, primary education in study areas remained underfinanced.

Though school management is a crucial factor in effective resource allocation and utilization, most of the schools were facing problems in relation with the commitment, stability and experience of school managers. In nutshell, a regardless of the finance challenge in primary education of the study areas, the internal revenue generation practices are officially missing alternative financing strategies of the education system. While the primary school financing throughout the study area continued underfinanced, less diversified and government budget dependent.

4.2 Recommendations

There should be a mechanism of strengthening schools by their own finances and encouraging NGOs both locally and nationally to create supply-based links to support schools.

It is better to have a sort of guideline to make school management relatively stable by limiting the life span of school principal-ship up to the minimum of three to five years. And there should be a formal guideline to be used in the zone as a format to report and have relevant information on internal revenue generation practices within a certain timeframe, may be monthly, quarterly, or annually. It can be in the form of abstract or annual reportage which may lead to customization of a transparent resource utilization throughout the sector. Which also plays a role in establishment of a strong controlling, monitoring and

auditing mechanism to ensuring the effective utilization of school resources.

Great emphasis is required to be committed to search for additional, diversified ways of fund raising sources including handcraft products, shops for rent around schools, wood work micro enterprises etc.

Technically skilled experts or accountants need to be hired so as to assist, modernize and manage all the necessary data concerning internal revenue generation. This makes financial and business information management system and record keeping user-friendly.

Additionally, necessary arrangements have to be made to make the contributions long lasting and bore-free activities. Specifying tasks to be performed by the communities may also help to minimize the redundancy of contributions. The certification and rewarding system have to be established for enhanced community participations and customize a populist approach for community contributions.

Ethical considerations

Initially, a cooperation letter was sought from Jimma University to collect data from the research sites. The collected data were confidential and anonymous in order to keep the rights of the research participants. Moreover, respondents were informed that their involvement in the study was totally voluntary and that they would withdraw from the research at any time. More importantly, oral consent was secured from all participants without disclosing personal identities.

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References

Burnett N., and Bermingham D. (2010). Innovative Financing for Education. Education Support Program, Working Paper Series, Results for Development Institute, https://Innovative Financing for Education | Results for Development (r4d.org)

Chuta, E. J. (1998). New Dimensions in Educational Financing: The Nigerian Education Bank. Higher Education, Vol. 35, No. 4, pp. 423-433 Springer Stable URL: http://www.jstor.org/stable/3448268

Jeilu Oumer (2009). The challenges of free primary education in Ethiopia, International Institute for Educational Planning (IIEP), Paris, France.

Jerusalem Y., and Melkamsew A. (2021). Practices and challenges of school financial resource management implementation in Bahir Dar City administration of Ethiopia: A comparative study between government and private secondary schools. Cogent Education 8:1, https://doi.org/10.1080/2331186X.2021.1884340

Knight, B. (1993). Financial Management for Schools: The Thinking Manager's Guide. Oxford: Heinemann Education Ltd.

Masaiti, G. & Shen, H. (2013). Cost Sharing in Zambia's Public Universities: Prospects and Challenges. European Journal of Educational Research. Vol. 2(1), pp. 1-15. https://files.eric. ed.gov/fulltext/EJ1086331.pdf (ed.gov).

MoE (2010). Education Sector Development Program-IV (2010/11-2014/15). Program Action Plan (PAP). Addis Ababa.

MoE (2018). Ethiopian Education Development Roadmap (2017-30), Ministry of Education, Addis Ababa, Ethiopia.

Nnanseh, M. Akpan, S (2013). Internally Generated Revenue (IGR) and Infrastructural Development in Akwa Ibom State. European Journal of Business and Management Vol.5, No.31, 164-172

Psacharopoulos, G (1985). Returns to Education: further International implications. Journal of Human Resources, 20 (4), 556-604. http://www.jstor.org./about/terms.html

Psacharopoulos, G. (1990). Priorities in the Financing of Education. International Journal of Educational Development 10(2–3): 157–162.

Riddell, W. Craig (2004). "Taking Public Universities Seriously", Paper prepared for the Conference. University of Toronto,

Sergiovanni, J.J. (1991). Education Governance and Administration. Needham Height: Allyan and Bacon. Stable URL: http://www.jstor.org/stable/3444367

Steer, L., & Smith K. (2015). Financing Education: Opportunities for Global Action, Center for Universal Education at Brookings, https://files.eric.ed.gov/fulltext/ED568940.pdf

Ternieden, M., D. (2009). A Case Study of Community Participation in Primary Education in Three Rural Village Schools in Ethiopia, unpublished PhD dissertation, The George Washington University.

Tietjen, K. (1998). The Demand for Primary Schooling in Rural Ethiopia, Health and Human Resources Analysis for Africa, Technical Paper No. 87, https://pdf.usaid.gov/pdf_docs/Pnacp111.pdf

UNESCO (2000). Review of Education Sector Analysis in Lesotho 1978-1999, Paris: UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000124000_eng

Zimmer, R.W., Krop, C., & Brewer, D. J. (2003). Private Resources in Public Schools: Evidence from a Pilot Study. Journal of Education Finance, Vol. 28, No. 4, (485-522). University of Illinois Press. http://www.jstor.org/stable/40704182?seq=17

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Change Management through Strategic Leadership: Examining the Mediating Roles of Knowledge Management and Organizational Culture in Ethiopian Public Organizations

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Abstract

The purpose of this study is to investigate the effects of strategic leadership on change management within public organizations, mediated by organizational culture and knowledge management. The study applied an explanatory design and a quantitative approach through a structured questionnaire survey (n = 366) with randomly sampled respondents from public organizations in Central Gondar, Ethiopia. The reliability and validity of scale items were tested. The data were analyzed using SEM-PLS. The results revealed that strategic leadership, organizational culture and knowledge management had a direct effect on change management. Additionally, the study demonstrated a partial mediation of organizational culture and knowledge management, shaping the relationship between strategic leadership and change management. This study fills a gap in the literature regarding how strategic leadership determines leading and managing change in public organizations. Moreover, it reveals valuable insights into multifaceted dynamics and multiple mediating factors. The study's unique interdisciplinary approach and multiple mediation explorations within public organizations are deemed original, laying the groundwork for future research on challenges in public service contexts. Finally, it is recommended for government officials and policymakers to prioritize the local context, adaptive leadership, cultural integration, and contextualized knowledge for change in public organizations.

Keywords: Change Management, Knowledge Management, Organizational Culture, Public Organizations, Strategic Leadership.

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1. Introduction

Change is an inevitable aspect of organizational life, and is crucial for global developments, societal well-being, economic growth, and technological advancements (Cummings & Worley, 2014; Hussain et al., 2018). Recognizing its global significance, change management becomes crucial in public organizations, enabling adaptability to dynamic environments(Langton et al., 2019; Marshall, 2019). This finding is corroborated by (McMullin, 2021), who confirmed that change management is essential for improving service delivery, productivity, and innovation in public organizations. This entails the gratitude of strategic architecture, the establishment of knowledge processes, and the incorporation of cultural practices (Grossi et al., 2022).

Strategic leadership is crucial in public organizations for vision and mission alignment, resource optimization, stakeholder engagement (Faupel & Süß, 2019; Quansah et al., 2022). Strategic leadership fosters a positive culture and encourages creative thinking (Onyeneke & Abe, 2021). As evidence of this, we can claim that both strategic leadership and change management are interconnected, and are determined for organizational effectiveness.

Likewise, knowledge management proves to be crucial for successful organizational change, involving the creation, sharing, and utilization of knowledge (Al Ahbabi et al., 2019). This strategic utilization of knowledge helps organizations adapt to and implement changes, particularly in the context of public organizations (Abubakar et al., 2019; Farooq, 2019). Within public organizations, where learning the process and adaptability are paramount (Farooq Sahibzada et al., 2021).

In light of the vital evidence, organizational culture significantly impacts change management in public organizations, influencing effectiveness, performance, and efficiency (Bagga et al., 2023). A positive and adaptable culture proves instrumental in facilitating successful change initiatives(Al-Ali et al., 2017a).

In essence, leading and managing change are crucial for organizational success (Robbins, 2019). However, studies estimated the failure rate of change, particularly planned organizational changes, between 60 and 70% (Robbins & Judge, 2012; Waddell et al., 2019). In addition, developing nations, like Ethiopia, face challenges in implementing change management due to constraints in resources, strategic architecture, knowledge processes, and culture (Mishra & Hassen, 2023; Muluneh & Gedifew, 2018).

Despite ongoing debates, researchers and management consultants have explored various change management models to improve the success of change initiatives. Notably, tools such as the Balanced Scorecard, Business Process Reengineering, Kaizen, and Delivered-logy have demonstrated inconsistency in effectiveness within the context of Ethiopian public organizations (Bobe et al., 2017; Engdaw, 2022; Mengste et al., 2020; Tadesse, 2019). This encompasses political decay, corruption, unethical practices, technological inefficiencies, and legal violations. Furthermore, the overall consequences of political instability, ineffective government, and inefficient service delivery in the study area multifaceted the complexities of change management implementations. Successfully navigating these challenges requires strategic leadership, comprehensive knowledge, and a positive organizational culture.

Despite the established link between strategic leadership and change management(Hitt et al., 2019; Langton et al., 2019), there is a significant theoretical gap in various perspectives on strategic leadership, resulting in a lack of consensus and a unified framework for understanding this dynamic field (Singh

et al., 2023; Tetik, 2020; Vera et al., 2022). Some view it as a distinct leadership style, align it with transformational leadership (Al-Kwifi et al., 2020; Yas et al., 2023). While other scholars argue that strategic leadership is a crucial process that develops alongside strategic management (Hitt et al., 2016, 2019).Other scholars contended with the aforementioned argument and defined ‘strategic leadership' as 'the scopes and levels of the CEO, Board of Directors, and TMT,' considering upper echelon theory (Samimi et al., 2022).

Moreover, there is a notable absence of a comprehensive conceptual framework that integrates strategic leadership, knowledge management, organizational culture and change management for practical application within public organizations. Prior research has not adequately addressed the specific challenges and complexities associated with change management, strategic leadership, knowledge management, and organizational culture in public organizations in developing countries, such as Ethiopia (Abegaz, 2018; Tensay & Singh, 2020).

The above-identified research gaps underscore the need for a comprehensive exploration of the relationship between strategic leadership and change management through mediation analyses, which motivates this imperative. Therefore, the research investigates the complexities related to the effects of strategic leadership on change management in Central Gondar's public organizations. It specifically explores how knowledge management, and organizational culture mediate this relationship. Two key research questions guide the study: (a) How do strategic leadership, knowledge management, and organizational culture influence change management in public organizations? And (b) to what extent do knowledge management, and organizational development mediate the effect of strategic leadership on change management? To fulfill its research question, the study employs a structured questionnaire survey and SEM-PLS version 4 for data analysis. It develops integrative and multiple mediation models to enhance the theoretical understanding of strategic leadership and change management. These models guide Ethiopian public organizations in comprehending and managing change processes, promoting change readiness, and implementing real-world practices. By bridging the gap between theory and practice, the study provides actionable strategies for leaders in Ethiopian public organizations. It examines the effects of strategic leadership on organizational change, analyzing the mediating roles of organizational culture and knowledge management.

2. Theoretical framework and hypothesis development

2.1. Strategic leadership and change management

The study substantiates that strategic leadership and change management are interconnected and essential for organizations to effectively navigate complex environments (Bagga et al., 2023; Najmi et al., 2018). Strategic leadership involves setting a clear vision, aligning resources, and making informed decisions, while change management manages changes effectively. Strategic leadership and change management help organizations identify opportunities, mitigate risks, and drive innovation to achieve long-term success. Aarons et al. (2015), highlighted strategic leadership as a catalyst for effective change management, and enabled leaders to navigate complex political landscapes and articulate the rationale for change(Crosby & Bryson, 2018). The strategic vision and guidance provided by leaders become instrumental in steering organizations through the change process, aligning actions with strategic goals(Aarons et al., 2015; Abane & Phinaitrup, 2020). By integrating the above-mentioned variables, the study can present a more nuanced and comprehensive understanding of the relationship between

strategic leadership and change management, supporting the proposed hypothesis with well-rounded evidence and an insightful synthesis. In light of the above argument, the study suggests the following hypotheses:

H1: Strategic Leadership has a positive effect on Change Management

2.2. Strategic Leadership and organizational culture

Strategic leadership significantly shapes organizational culture by defining and communicating the vision, values, and goals of the organization (Maamari & Saheb, 2018; Samimi et al., 2022; Shao, 2019). This process involves setting clear expectations and standards for employees, which helps them align their actions and behaviors with the positive culture. Besides, strategic leaders play a crucial role in fostering a positive and inclusive work environment that encourages collaboration and, in turn, ultimately contributes to the success of the organization. The study provides a comprehensive understanding of the relationship between strategic leadership and organizational culture, highlighting the need for contextual insights in public organizations to better understand their dynamics. In light of the above argument, the research advances the following hypothesis:

H2: Strategic Leadership has a positive effect on Organizational Culture

2.3. Strategic Leadership and Knowledge Management

Strategic leadership and knowledge management are crucial for organizational success, providing direction, execution, and innovation (Najmi et al., 2018). Integrating these elements allows organizations to adapt to organizational conditions, drive change, and achieve improved performance.

Research shows that support positively impacts leadership on knowledge management in organizations, as evidenced by differences in peer knowledge sharing contributions during model invariance testing (Muhammed & Zaim, 2020; Shamim et al., 2019). Delving deeper, the intersection of strategic leadership and knowledge management becomes apparent, particularly in decision-making processes. Hitt (2017) and Samimi et al. (2022) assert that informed decision-making relies on efficient knowledge management techniques.

Building upon these insights, the hypothesis posits that strategic leadership is positively correlated with effective knowledge management practices. This refined relationship sets the stage for a more rigorous examination of the intricate relationship between strategic leadership and knowledge management in public organizations. Taking into account the preceding reasoning, the study proposes the following hypothesis:

H3: Strategic Leadership has a positive effect on Knowledge Management.

2.4. Organizational Culture and Change Management

The hypothesis explores the crucial roles of knowledge management, and organizational culture in enhancing change management within the public sector. Organizational culture shapes the attitudes, behaviors, and norms within an organization, influencing how change is embraced and integrated into daily operations (Al-Ali et al., 2017b). Organizational culture is identified as essential for effective change, enabling organizations to create positive culture insights, refine strategies, and foster a culture of learning (Abubakar et al., 2019; Balasubramanian et al., 2020; Lartey et al., 2021). Empirical research

consistently highlights culture's foundational role, emphasizing its transformative potential in driving change implementation (Grossi et al., 2022; Tasan-Kok et al., 2019). The nuanced relationship between organizational culture and change is explored, recognizing culture as both a barrier and enabler, with a pragmatic, innovative culture supporting change initiatives (Adin, 2021; Armoza, 2015; Lee et al., 2016). The narrative underscores intentional interventions as key tools for shaping culture during change efforts(Bayraktar & Jiménez, 2020). Understanding and managing the intricate relationship between culture and change is deemed crucial for successful organizational change(Cummings & Worley, 2014). Taking into account the previously stated argument, the study puts forth the following hypothesis.

H4: Organizational Culture has a positive effect on Change Management

2.5. Knowledge management and change management

Knowledge management (KM) and change management are intertwined with existing theories and literature integrations. Scholars such as Balasubramanian et al. (2020) and North & Kumta (2020) emphasize the pivotal role of KM in enhancing organizational adaptability and facilitating successful change implementation. Moreover, research by Abubakar et al. (2019) and Razzaq et al. (2018) highlights that KM supports the sharing of best practices and lessons learned, fostering a culture of continuous improvement and innovation within the public sector. Public organizations, by leveraging knowledge through KM, gain a better understanding of potential challenges and risks associated with change. This allows them to refine change plans and enhance change management processes, as highlighted by Lartey et al. (2021). Insights from studies by Abubakar et al. (2019) and Razzaq et al. (2018) contribute to equipping public organizations with valuable knowledge about factors influencing successful change efforts.

Furthermore, effective knowledge management, as discussed by Imran et al. (2017) and Veer Ramjeawon and Rowley (2017), fosters a culture of learning, collaboration, and continuous improvement within public organizations. This positive impact of knowledge management on organizational change provides a theoretical foundation for empirical research to validate its relationship with change management. The theoretical integration suggests that knowledge management can positively influence the success of change management efforts within public organizations.

H5: Knowledge Management has a positive effect on Change Management

2.6. Meditations Analysis of Knowledge management and Organizational culture

The nexus between organizational culture, strategic leadership, and knowledge management is crucial for an organization's success, as culture influences employees' values, strategic leadership sets a clear vision and aligns resources, and navigates knowledge in organizations (Thi Tran et al., 2022; Tran et al., 2021). Empirical studies suggest that leadership strategic thinking has a direct impact on quality culture and organizational effectiveness, with potential indirect effects through culture(Iqbal et al., 2023). Furthermore, research has shown that a strong organizational culture that aligns with strategic leadership can enhance employee engagement and motivation, leading to higher levels of productivity and performance (Hosseini et al., 2020; Najmi et al., 2018).

Mediating organizational culture in the relationship between strategic leadership and knowledge management is crucial for the successful implementation of knowledge management initiatives (Bagga et

al., 2023; Rehman et al., 2019). Organizational culture plays a significant role in shaping how employees perceive and engage with knowledge sharing and collaboration. By fostering a culture that values continuous learning, open communication, and innovation, strategic leaders can create an environment that supports effective knowledge management practices. This, in turn, enhances the organization's ability to leverage its intellectual capital and gain a competitive advantage in the market.

Knowledge management serves as a mediating factor in the relationship between organizational culture and change management, influencing how organizational culture impacts the success of change efforts (Martins et al., 2019). Organizational culture, a key influencer of employee attitudes toward change, plays a crucial role in change management(Lartey et al., 2021). Despite this, the empirical examination of the interplay between organizational culture and change management is still incomplete (North & Kumta, 2020). In public organizations, the mediating role of knowledge management in enhancing the relationship between organizational culture and the effectiveness of change management has not been extensively explored (Balasubramanian et al., 2020; Mc Evoy et al., 2019). The hypothesis relevant to this study and the public organizational context focuses on the role of knowledge management and organizational culture in mediating the relationship between strategic leadership and the effectiveness of change management. By synthesizing these thoughts, the study can offer a holistic understanding of how knowledge management, and organizational culture interact as a meditating effect. The evidence provided will help support the mediation analysis, showcasing the interconnectedness of these elements in shaping the organizational landscape. Considering the aforementioned argument, the research proposes the subsequent hypothesis:

H6: Organizational Culture and Knowledge Management the Relationship between Strategic Leadership and Change Management

H7: Knowledge Management Mediates the Relationship between Strategic Leadership and Change Management

H8: Organizational Culture Meditates the Relationship between Strategic Leadership and Change Management in Public Organizations.

Therefore, based on the above perspective, the researcher developed a conceptual framework to examine the impact of strategic leadership on change management in public organizations, mediating through accountability, knowledge management, and organizational culture. The conceptual framework offers a comprehensive analysis, enhancing our understanding of their dynamic relationship. It provides both theoretical and practical insights for the effective implementation of change in public organizations.

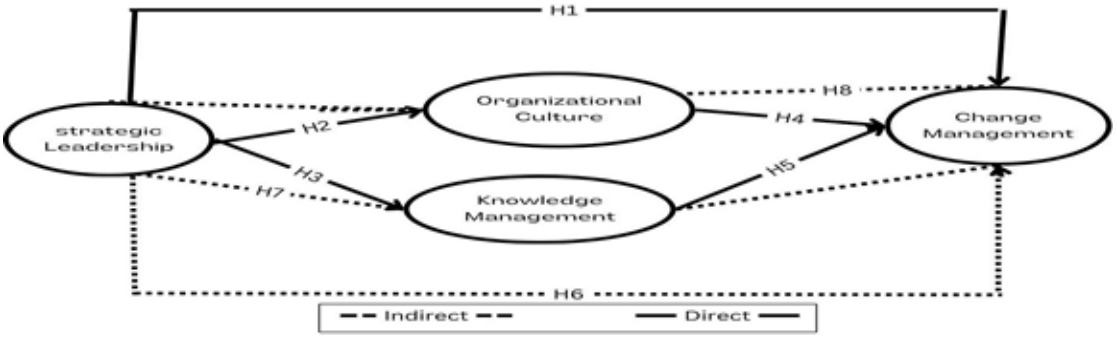

Figure 1: Conceptual Model of the Present Study.

Figure 1 depicts the relationship between strategic leadership and change management in public organizations through multiple mediation analyses.

3. Methods and Materials

3.1 Population and sampling

The study focuses on public service organizations in Central Gondar administration Zone, northwest Ethiopia encompassing 37 entities that provide essential services to the local population. In and around Gondar is selected as the study site; it is a vital tourist destination, promoting economic, social, cultural, governance, and political development in the region (Demissie et al., 2019; Wubneh, 2021, 2023). Both stratified and random sampling were used to collect data from various departments, including health, education, agriculture, and others. To determine the sample size, the study applied the Taro Yamane formula (Yamane, 1973) with a 95% confidence interval, considering the population size (N = 1374) to ensure representativeness. A margin of error (5%) was specified to account for acceptable deviation. The sampling method used had a sample size (n) of 310, representing the target population. $n = N/(1+Ne^2) = 310$. Researchers often adjust the sample size by 10% for non-participants, 10% for the non-response rate to account for unreachable individuals, and 30% for non-response (Israel, 1992). The adjusted sample size of 404 ensures reliable data. Consequently, 366 questionnaires (90.6%) were analyzed to enhance the generalizability of the findings to the broader population of professionals within public organizations in Central Gondar, Ethiopia.

Overall, there were 366 responses, with 71.9% men and 28.1% women. The majority of respondents fell within the age range of 46 to 55 (43.2%), followed by those between 31 and 45 (38.3%), 56 and older (17.2%), and those under 30 (1.4%), respectively. The majority of respondents (67.8%) were first-degree holders followed by master's degree holders (29.2%), diploma holders (2.2%), and PhD holders (0.8%), respectively. In terms of professional experience, the majority of respondents (38.8%) had 16 years or more, followed by those with 11 to 15 years (33.3%), 6 to 10 years (23.5%), and 1 to 5 years (4.4%). This indicates that the survey sample comprised a diverse group of man with varying ages, educational backgrounds, and professional experience. The findings suggest that the majority of respondents were middle-aged, well-educated individuals with a significant amount of work experience.

3.2 Measurement and instrument

The measurement of strategic leadership assesses leaders' effectiveness in shaping future effectiveness (Ellinger & Ellinger, 2021; Samimi et al., 2022). The assessment utilizes 22 adapted questionnaires from the previous studies (Cortes & Herrmann, 2021; Hitt et al., 2019; Mohd Ali & Zulkipli, 2019; Samimi et al., 2022). Relying on employee perceptions, let's consider the example item: "Our organization regularly reviews its strategic plans based on changes".

To measure the effectiveness of change management, a refined questionnaire, initially validated by Farrell (2000), and expanded upon by(Hameed et al., 2019), was employed. This study used an 11-item and 5-point Likert-type questionnaire to measure effective change management on employee engagement and efficiency within an organization. An example item that underscores this effect is, "Our organization's change plan includes clear timelines and milestones." The assessment of organizational

culture utilized a 24-item questionnaire with four dimensions: clan, adhocracy, hierarchy, and market culture. Drawing from the frameworks of Cameron et al. (2022) and Quinn (2011), the survey used a five-point scale to measure organizational culture quantitatively and allow participants to express their agreement or disagreement levels. Among all the items, the following is an example: "The cultural glue within the organization enhances teamwork and collaboration among employees. The knowledge management process was measured by a 17item questionnaire rated on a five-point Likert scale. This tool was adapted from previous studies by Ding et al. (2019), Lartey et al. (2021), Obeidat et al. (2016) and Patwary et al. (2023). An example item is "A mechanism for creating and acquiring knowledge from multiple sources is usually in place." To maintain the validity and reliability, a pilot test was conducted and the instruments were checked.

3.3 Common method bias (CMB)

The study's Harman's single-factor analysis revealed no significant bias, with a single factor explaining 47.692% of the total variance, below the 50% threshold (Podsakoff & Organ, 1986). Furthermore, Hair's (2021) study also revealed that the PPLS-SEM analysis consistently found values below the threshold of 5, suggesting that multicollinearity was not present in the Common Method Bias (CMB).

3.4 Model estimation

Partial least squares structural equation modeling (PLS-SEM) is a statistical technique that is versatile and utilized to assess intricate relationships between latent variables in structural equation models (Hair et al., 2019; Hair Jr, 2020; Hair Jr, Hult, Ringle, & Sarstedt, 2021). By maximizing explained variance and minimizing residuals, this method can be used for both reflective and formative studies, and it is especially useful in the social sciences and management domains (Cepeda-Carrión et al., 2022; Hair Jr, Hult, Ringle, & Sarstedt, 2021) . PLS-SEM is suitable for analyzing medication dynamics in this context(Turi et al., 2023). In addition, it manages reflective and formative measurement models, accommodates various scales and data types, and ensures accurate data collection.

4. Results

4.1 Descriptions of respondents' characteristics

In this section, the profiles of respondents, specifically the employees of public organizations, were presented and discussed. The primary variables examined in the study included demographic characteristics such as sex, service years, and academic qualifications. Descriptive statistics, including frequency and percentage, were employed for data presentation. Further details are provided in Table 1.

Table 1: Demographic profile of the respondents (n = 366)

Respondents Particulars		Frequency of Respondents	Percentage of Respondents
Sex	Male	263	71.9
	Female	103	28.1
Age	Below 30 years	5	1.4
	31-45 years	140	38.3
	46-55 years	158	43.2

	56 and above	63	17.2
Education	Diploma	8	2.2
	Degree	248	67.8
	Master	107	29.2
	Doctoral degree	3	0.8
Experience	1-5 years	16	4.4
	6-10 years	86	23.5
	11-15 years	122	33.3
	16 and above	142	38.8

4.2 Assessment of the reflective Measurement Model

In partial least squared structural equation modeling (PLS-SEM), reflective measurement modeling has demonstrated reliability , convergent validity, and discriminant validity across various data types (Hair Jr et al., 2020; McCrudden et al., 2019). Factor loading, composite reliability, and Cronbach's alpha are typically considered reliable at 0.7 and above. Discriminant validity, measured by the heterotrait-monotrait ratio (HTMT), is ideally below 0.85 for effective discrimination (extended to 0.90). The average variance extracted (AVE) is recommended to be above 0.5.

PLS-SEM is a widely used model due to its exceptional model handling flexibility, making it useful for analyzing unobservable constructs and adding latent variables (Ringle et al., 2020; Sabol et al., 2023). Our study leverages reflective measurement modeling to explore intricate relationships among strategic leadership, accountability, knowledge management, organizational culture, and change management.

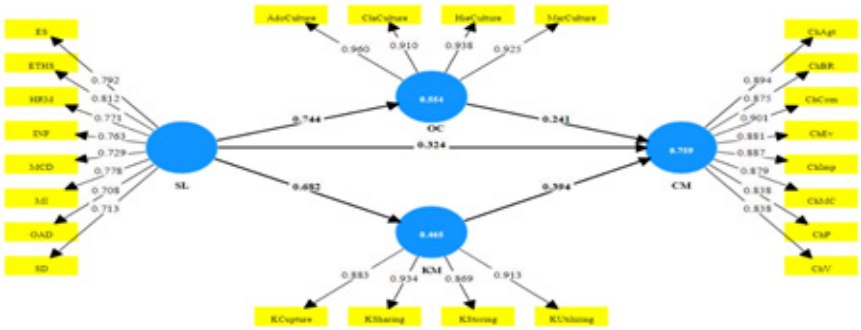

Figure 2: Partial least squares structural equation modeling.

Figure 2 explains the comprehensive analysis of partial least structural modeling. It includes a measurement model identifying connections between observed and latent variables, along with a structural model revealing relationships among them.

Table 2: Reliability and Convergent Validity

Constructs	Items	Lodging	Cronbach's	CR	AVE
Organizational culture	HieCulture <- OC	0.938	0.951	0.951	0.871
	ClaCulture <- OC	0.910			
	MarCulture <- OC	0.925			
	AdoCulture <- OC	0.960			
Change management	ChAgt <- CM	0.894	0.956	0.956	0.765
	ChBR <- CM	0.875			
	ChCom <- CM	0.901			
	ChEv <- CM	0.881			
	ChImp <- CM	0.887			
	ChMC <- CM	0.879			
	ChP <- CM	0.838			
	ChV <- CM	0.838			
Strategic leadership	SD <- SL	0.710	0.895	0.895	0.576
	ES <- SL	0.792			
	ETHS <- SL	0.813			
	HRM <- SL	0.771			
	MCD <- SL	0.731			
	MI <- SL	0.777			
	OAD <- SL	0.709			
	INF <- SL	0.764			
Knowledge management	KCupture <- KM	0.885	0.922	0.925	0.810
	KSharing <- KM	0.935			
	KStoring <- KM	0.866			
	KUtilizing <- KM	0.913			

Table 2 evaluates the survey data analysis model's reliability and validity by examining the internal consistency and convergent validity of the measures used. These findings suggest that the model effectively captures the intended constructs. The current results align with the recommendations of scholars such as Hair et al. (Hair et al., 2023) who propose a threshold of 0.708 for acceptable item reliability. Notably, composite reliability, considered a more precise measure than Cronbach's alpha, is deemed satisfactory when exceeding 0.70. The average variance extracted (AVE) metric is used to assess the convergent validity of each construct measure, with a threshold above 0.5 as recommended by Hair (2017).

Table 3: Heterotrait – Monotrait ratio (HTMT)

Construct	CM	KM	OC	SL
CM				
KM	0.858			
OC	0.834	0.846		
SL	0.833	0.748	0.806	

Table 3 illustrates correlation coefficients among the five key concepts, specifically focusing on heterotrait-monotrait (HTMT) ratios for the constructs (AC, CM, KM, OC, and SL). Confirming the divergence of variables, the HTMT ratio in Table 3 is below the 0.90 threshold, establishing discriminant validity and reinforcing confidence in the distinctiveness of measured constructs (Hair et al., 2023). The study aligns with scholars such as Hair et al. (2023), endorsing the use of HTMT for extracting unique information and preventing construct overlap.

4.3. Assessment of structural model

The structural model is a vital component of PLS-SEM, evaluating links between latent variables and observed indicators, validating theoretical assumptions, and identifying indirect effects using quality criteria and model fit indicators (Hair Jr, Hult, Ringle, Sarstedt, et al., 2021; Wang et al., 2023). Standard evaluation criteria include the coefficient of determination (R2), the blindfolding-based cross-validated redundancy measure (Q2), and the statistical significance and relevance of path coefficients(Hair et al., 2023).

Table 4: Model quality

Constructs	R^2 adjusted	Cross-validated redundancies (Q2)	SRMR	NFI
CM	0.757	0.592	0.044	0.901
KM	0.646	0.460		
OC	0.553	0.551		

Table 4 demonstrates fit-quality criteria for change management (R2 = 0.757, Q2 = 0.592), knowledge management (R2 = 0.646, Q2 = 0.460), and organizational culture (R2 = 0.553, Q2 = 0.551). Across all constructs, SRMR is 0.044 and NFI is 0.901, indicating robust fits across models with high accuracy and reliability. The evaluation of these constructs aligns with the recommendations of researchers like Hair et al. (2019) and Hair Jr. et al. (2020), who emphasize the significance of quality criteria in model fit. Measures such as R2, R2 adjusted, Q2 predict, SRMR, and NFI play a critical role in illustrating the model's predictive power, offering valuable insights into its overall fit and ability to accurately predict outcomes. Considering these quality criteria, it is essential for researchers to assess the reliability and validity of the model, ensuring an accurate representation of the underlying constructs under study.

4.4. Empirical Results

The study's empirical results focus on validating proposed hypotheses by executing both a measurement model and a structural model. Utilizing Smart PLS 4 for analysis, researchers test hypotheses within the structural or inner model. Acceptance or rejection of hypotheses is determined based on calculated beta coefficients, p-values, and t-values. The analysis encompasses nine direct effects and five indirect effects

(mediation effects). Detailed findings and statistical values are presented in Table 5

Table 5: Results of Hypotheses

Hypothesis	Path	β	M	SD	T-Value	P-values	Decision
H1	SL -> CM	0.324	0.325	0.043	7.538	0.000	Accept
H2	SL -> OC	0.744	0.745	0.024	30.635	0.000	Accept
H3	SL -> KM	0.682	0.683	0.031	22.176	0.000	Accept
H4	OC -> CM	0.241	0.240	0.052	4.611	0.000	Accept
H5	KM -> CM	0.394	0.394	0.049	8.120	0.000	Accept
H6	SL -> CM	0.448	0.448	0.037	12.229	0.000	Accept
H7	SL -> OC -> CM	0.179	0.179	0.040	4.436	0.000	Accept
H8	SL -> KM -> CM	0.269	0.269	0.036	7.541	0.000	Accept

This section examines a structural model for hypothesis testing using 5000 subsamples and Smart PLS 4 software. The model calculates the beta coefficient, p-value, and t-value, with significance indicating parameter estimation, ensuring high confidence in findings.

Moving onto Table 5, the empirical results shed light on the relationships between variables. Notably, there is a substantial and positive association between strategic leadership practice and change management ($\beta = 0.324$, $t = 7.538$, $p = 0.000$), supporting H1. These results shows that strategic leadership positively correlates with organizational culture ($\beta = 0.744$, $t = 30.635$, $p = 0.000$) in support of H2.

Continuing the exploration, a significant correlation ($\beta = 0.682$, $t = 22.176$, $p = 0.000$) is demonstrated between strategic leadership and knowledge management, validating hypothesis 3. Moreover, a significant effect between organizational culture and change management is shown ($\beta = 0.241$, $t = 4.611$, $p = 0.000$), supporting hypothesis 4. Concluding the examination, the study demonstrates a robust and positive relationship between knowledge management and change management, supported by compelling numerical evidence (H5, $\beta = 0.397$, $t = 8.102$, $p = 0.000$). Building on this, H8 ($\beta = 0.$ 0.269, $t = 7.541$, $p = 0.000$) represents the path association between SL, KM, and CM, indicating the statistical significance of the strategic leadership effect on change management. Therefore, strategic leadership and effective knowledge management are crucial for the success of change management, as they partially mediate the impact of knowledge management.

Transitioning to H7, as predicted ($\beta = 0.179$, $t = 4.436$, $p = 0$), the study finds a substantial partial mediation effect between organizational culture. This underscores the significance of an effective organizational culture in optimizing effectiveness, suggesting that organizational culture plays a crucial role in shaping organizational change, which in turn influences the success of change management initiatives. In the broader context, the study demonstrates a significant partial mediation effect among strategic leadership, organizational culture, knowledge management, and change management, aligning with the prediction in H6 ($\beta = 0.448$, $t = 12.229$, $p = 0$). This underscores the significance of multiple mediations involving an effective organizational culture and knowledge management in optimizing the effectiveness of change.

5. Discussions

The current study asserts that strategic leadership significantly influences change management, knowledge management, and organizational culture, with all results meeting statistical significance. The findings of this study align with previous research conducted by Smith and Johnson (2023), Fernandes et al. (2022), and Samimi et al. (2022). Additionally, Vera et al. (2022), Jaleha & Machuki (2018), and Kriger & Zhovtobryukh (2013) underscore the diverse impact of strategic leadership, influencing leadership capabilities, fostering innovation, and contributing to overall organizational success.

Moreover, this study reveals a strong and significant association between strategic leadership and organizational culture in public sector organizations. These results further reinforce previous research conducted by Anderson (2019), Johnson et al., Baumgartner and Rauter (2017), Cameron et al. (2022), and Malik et al. (2021), all of which underscore the positive influence of strategic leadership on shaping organizational culture in the public sector.

The study's outcomes consistently corroborate established leadership theories, emphasizing leaders' pivotal function in stimulating innovation and nurturing organizational culture. These conclusions resonate with theoretical frameworks advocated by Buchanan & Huczynski (2019), Cummings and Worley (2014), and Robbins and Judge (2012).

When taken as a whole, these theories and empirical data improve our comprehension of the ways in which strategic leadership affects knowledge management. They highlight the importance of coordinating strategic leadership and knowledge management with stakeholder interests and promoting a continuous learning culture in an organizational setting. In the literature above, we assert that strategic leaders must adeptly manage knowledge, engage with stakeholders, and cultivate a culture of ongoing learning by encouraging employee sharing and viewing mistakes as opportunities for growth.

Similarly, the study reveals a significant positive correlation between strategic leadership and accountability with all results meeting statistical significance. The study, supported by agency theory, reveals the complex relationship between principals and agents, as strategic leaders act as agents representing the interests of the organization's principal (Overman & Schillemans, 2022; Xu et al., 2022). In contrast, Najmi et al.'s 2018 study found that strategic leadership doesn't significantly impact accountability; this empirical evidence contradicts the current finding that strategic leadership positively influences accountability. However, agency theory emphasizes the importance of aligning leaders' interests with stakeholder interests, fostering a culture of accountability. The theory underscores the role of leaders in cultivating accountability by holding themselves and their teams responsible for ethical conduct. Despite the empirical evidence not supporting Najmi et al.'s findings, both theories align with our study's conclusions, highlighting the positive impact of strategic leadership on accountability.

Furthermore, one of the topics discussed is the effects of organizational culture on change management. The present result highlights a robust positive correlation between organizational culture and effective change management in the public sector, underscoring the significance of cultivating a supportive and adaptive culture. Previous empirical studies, such as those by Bagga et al. (2023), consistently affirm the impact of organizational culture on various organizational outcomes, reinforcing our findings in the public sector. Moreover, scholars like Hussain et al. (2018), Mouzelis (2017), and Muluneh & Gedifew (2018) have provided empirical support for this connection. Likewise, organizational learning theory,

supporting this current study, highlights the significant role of organizational culture in influencing change processes (Cameron et al., 2022; Quinn, 2011).

The study explores the correlation between knowledge management and change management in the public sector, finding a strong positive correlation. It suggests that improving knowledge management practices leads to improved change management processes, indicating a positive relationship. Our findings resonate with previous empirical studies emphasizing the impact of knowledge management on organizational change management outcomes. Scholars such as Kotter (2012), Malik and Al-Toubi (2018), and Rehman & Iqbal (2020) revealed that organizations with effective knowledge management practices are better equipped to adapt to change and innovate.

The second section underscores the importance of examining the mediating role of factors in relationships, offering a comprehensive understanding of the underlying mechanisms and insights for future research. This study uncovers hidden connections within public organizations. Notably, it reveals "organizational culture" as a central player, mediating the influence of "strategic leadership" on both "accountability" and "knowledge management." Firstly, strong leadership fosters a positive organizational culture, which in turn leads to better accountability practices. This aligns with previous research by Al-Ali et al. (2017) and Hosseini et al. (2020), emphasizing the importance of a supportive environment for effective accountability. Secondly, organizational culture acts as a bridge between leadership and knowledge management. This finding echoes Adeinat and Abdulfatah (2019) and Kafashpoor et al. (2013), highlighting its role in facilitating knowledge sharing and utilization.

6. Conclusions and Implications

In conclusion, strategic leadership, organizational culture, and knowledge management have been shown to directly impact change management, involving activities such as aligning vision, goals, and actions, motivating employees, fostering a supportive culture, and leveraging knowledge. The study has further illustrated the partial mediation of organizational culture and knowledge management, influencing the relationship between strategic leadership and change management. It has also uncovered mediating roles, where knowledge management facilitates informed decision-making and organizational culture integration promotes unity among employees, thereby enhancing productivity and performance during change. Additionally, the research emphasizes the importance of a holistic approach in public organizations for effective change management, integrating strategic leadership, knowledge management, and organizational culture.

Theoretical implications highlight the interconnected roles of strategic leadership, organizational culture, and knowledge management in driving organizational change forward. It explores their relationship and provides insights for managers and researchers, emphasizing the alignment of leadership strategies with organizational culture and knowledge management practices. Public organizations are encouraged to cultivate a positive culture, develop strategic-minded leaders, and leverage knowledge processes to enhance change effectiveness. Understanding these factors is crucial for achieving desired outcomes in public sector organizations.

Practical implications suggest that leaders and managers in public organizations can enhance success through strategic initiatives such as employee training, clear accountability structures, and fostering a positive organizational culture. Effective leadership and knowledge management practices are crucial

for improving service quality and fostering loyalty. Facilitating knowledge transfer and fostering continuous learning are essential for productivity. Implementing strategies like knowledge management and fostering a positive culture are crucial for navigating change effectively. The integration of these practices enhances service quality and delivery, ensuring sustainable transformation and reliable public services.

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REFERENCES

Aarons, G. A., Ehrhart, M. G., Farahnak, L. R., & Hurlburt, M. S. (2015). Leadership and organizational change for implementation (LOCI): a randomized mixed method pilot study of a leadership and organization development intervention for evidence-based practice implementation. Implementation science, 10(1), 1-12.

Abane, J. A., & Phinaitrup, B.-A. (2020). The determinants of performance management outcomes in public organizations in sub-Saharan Africa: the role of national culture and organizational subcultures. Public Organization Review, 20(3), 511-527.

Abegaz, B. (2018). The Shewan Fiscal-Territorial State. In A Tributary Model of State Formation (pp. 85-119). Springer.

Abubakar, A. M., Elrehail, H., Alatailat, M. A., & Elçi, A. (2019). Knowledge management, decision-making style and organizational performance. Journal of Innovation & Knowledge, 4(2), 104-114.

Adin, C. A. (2021). Leading and Influencing Culture Change. Vet Clin North Am Small Anim Pract, 51(5), 1071-1078. https://doi.org/10.1016/j.cvsm.2021.04.018

Al-Ali, A. A., Singh, S. K., Al-Nahyan, M., & Sohal, A. S. (2017a). Change management through leadership: the mediating role of organizational culture. International Journal of Organizational Analysis.

Al-Ali, A. A., Singh, S. K., Al-Nahyan, M., & Sohal, A. S. (2017b). Change management through leadership: the mediating role of organizational culture. International Journal of Organizational Analysis, 25(4), 723-739.

Al-Kwifi, O. S., Frankwick, G. L., & Ahmed, Z. U. (2020). Achieving rapid internationalization of sub-Saharan African firms: Ethiopian Airlines' operations under challenging conditions. Journal of Business Research, 119, 663-673.

Al Ahbabi, S. A., Singh, S. K., Balasubramanian, S., & Gaur, S. S. (2019). Employee perception of impact of knowledge management processes on public sector performance. Journal of knowledge

management, 23(2), 351-373.

Armoza, M. (2015). Changing the organizational culture: Critical or risky for an ERP conversion? Enrollment Management Report, 19(2), 1-7.

Bagga, S. K., Gera, S., & Haque, S. N. (2023). The mediating role of organizational culture: Transformational leadership and change management in virtual teams. Asia Pacific Management Review, 28(2), 120-131.

Balasubramanian, S., Al-Ahbabi, S., & Sreejith, S. (2020). Knowledge management processes and performance: The impact of ownership of public sector organizations. International Journal of Public Sector Management, 33(1), 1-21.

Bayraktar, S., & Jiménez, A. (2020). Self-efficacy as a resource: a moderated mediation model of transformational leadership, extent of change and reactions to change. Journal of Organizational Change Management.

Bobe, B. J., Mihret, D. G., & Obo, D. D. (2017). Public-sector reforms and balanced scorecard adoption: an Ethiopian case study. Accounting, Auditing & Accountability Journal.

Cameron, K. S., Quinn, R. E., DeGraff, J., & Thakor, A. V. (2022). Competing values leadership. Edward Elgar Publishing.

Cepeda-Carrión, G., Hair, J. F., Ringle, C. M., Roldán, J. L., & García-Fernández, J. (2022). Guest editorial: Sports management research using partial least squares structural equation modeling (PLS-SEM). International Journal of Sports Marketing and Sponsorship, 23(2), 229-240.

Cortes, A. F., & Herrmann, P. (2021). Strategic leadership of innovation: a framework for future research. International Journal of Management Reviews, 23(2), 224-243.

Crosby, B. C., & Bryson, J. M. (2018). Why leadership of public leadership research matters: and what to do about it. Public Management Review, 20(9), 1265-1286.

Cummings, T. G., & Worley, C. G. (2014). Organization development and change. Cengage learning.

Demissie, F., Yeshitela, K., Rouleau, M., Flaspohler, D., & Kindu, M. (2019). Socio-economic importance of forest resources and their conservation measures in Ethiopia: the case of area closure in South Gonder of Ethiopia. Environmental monitoring and assessment, 191, 1-11.

Ding, W., Choi, E., & Aoyama, A. (2019). Relational study of wise (phronetic) leadership, knowledge management capability, and innovation performance. Asia Pacific Management Review, 24(4), 310-317.

Ellinger, A. D., & Ellinger, A. E. (2021). Providing strategic leadership for learning: optimizing managerial coaching to build learning organizations. The Learning Organization, 28(4), 337-351.

Engdaw, B. (2022). The effect of administrative decentralization on quality public service delivery in Bahir Dar city administration: the case of Belay Zeleke sub-city. Cogent Social Sciences, 8(1), 2004675.

Farooq, R. (2019). Developing a conceptual framework of knowledge management. International Journal of Innovation Science, 11(1), 139-160.

Farooq Sahibzada, U., Xu, Y., Afshan, G., & Khalid, R. (2021). Knowledge-oriented leadership towards organizational performance: symmetrical and asymmetrical approach. Business Process Management Journal, 27(6), 1720-1746.

Farrell, M. A. (2000). Developing a market-oriented learning organisation. Australian journal of management, 25(2), 201-222.

Faupel, S., & Süß, S. (2019). The effect of transformational leadership on employees during organizational change–an empirical analysis. Journal of Change Management, 19(3), 145-166.

Grossi, G., Vakkuri, J., & Sargiacomo, M. (2022). Accounting, performance and accountability challenges in hybrid organisations: a value creation perspective. Accounting, Auditing & Accountability Journal, 35(3), 577-597.

Hair, J., Hair Jr, J. F., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2023). Advanced issues in partial least squares structural equation modeling. saGe publications.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. European business review, 31(1), 2-24.

Hair Jr, J. F. (2020). Next-generation prediction metrics for composite-based PLS-SEM. Industrial Management & Data Systems, 121(1), 5-11.

Hair Jr, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. Journal of Business Research, 109, 101-110.

Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). A primer on partial least squares structural equation modeling (PLS-SEM). Sage publications.

Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., Ray, S., Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). An introduction to structural equation modeling. Partial least squares structural equation modeling (PLS-SEM) using R: a workbook, 1-29.

Hameed, I., Khan, A. K., Sabharwal, M., Arain, G. A., & Hameed, I. (2019). Managing successful change efforts in the public sector: An employee's readiness for change perspective. Review of Public Personnel Administration, 39(3), 398-421.

Hitt, M. A., Ireland, R. D., & Hoskisson, R. E. (2016). Strategic management: Concepts and cases: Competitiveness and globalization. Cengage Learning.

Hitt, M. A., Ireland, R. D., & Hoskisson, R. E. (2019). Strategic management: Concepts and cases: Competitiveness and globalization. Cengage Learning.

Hosseini, S. H., Hajipour, E., Kaffashpoor, A., & Darikandeh, A. (2020). The mediating effect of organizational culture in the relationship of leadership style with organizational learning. Journal of human Behavior in the social environment, 30(3), 279-288.

Hussain, S. T., Lei, S., Akram, T., Haider, M. J., Hussain, S. H., & Ali, M. (2018). Kurt Lewin's change model: A critical review of the role of leadership and employee involvement in organizational change. Journal of Innovation & Knowledge, 3(3), 123-127.

Iqbal, S., Taib, C. A. B., & Razalli, M. R. (2023). The nexus between leadership styles and organizational performance: the mediating role of quality culture. Quality Assurance in Education, 31(4), 600-615.

Israel, G. D. (1992). Determining sample size.

Langton, N., Robbins, S. P., & Judge, T. (2019). Organizational Behavior: Concepts, Controversies, Applications, Eighth Canadian Edition. In: Pearson Canada Inc.: Don Mills, ON, Canada.

Lartey, P. Y., Kong, Y., Afriyie, S. O., Santosh, R. J., & Bah, F. B. M. (2021). Knowledge management issues in India: A public sector perspective. International Journal of Public Administration, 44(3), 215-230.

Lee, J.-C., Shiue, Y.-C., & Chen, C.-Y. (2016). Examining the impacts of organizational culture and top management support of knowledge sharing on the success of software process improvement. Computers in Human Behavior, 54, 462-474.

Maamari, B. E., & Saheb, A. (2018). How organizational culture and leadership style affect employees' performance of genders. International Journal of Organizational Analysis, 26(4), 630-651.

Marshall, S. (2019). Leading and managing strategic change. In Strategic leadership of change in higher education (pp. 22-34). Routledge.

Martins, V. W. B., Rampasso, I. S., Anholon, R., Quelhas, O. L. G., & Leal Filho, W. (2019). Knowledge management in the context of sustainability: Literature review and opportunities for future research. Journal of cleaner production, 229, 489-500.

Mc Evoy, P. J., Ragab, M. A., & Arisha, A. (2019). The effectiveness of knowledge management in the public sector. Knowledge Management Research & Practice, 17(1), 39-51.

McCrudden, M. T., Marchand, G., & Schutz, P. (2019). Mixed methods in educational psychology inquiry. In (Vol. 57, pp. 1-8): Elsevier.

McMullin, C. (2021). Challenging the necessity of New Public Governance: Co-production by third sector organizations under different models of public management. Public Administration, 99(1), 5-22.

Mengste, M., Teshome, Z., Belete, B., Gizaw, G., & Mulugeta, A. (2020). Assessment of Customers' Perception towards Service Delivery among Public Service Organizations in Dire Dawa Administration.

Mishra, S. S., & Hassen, M. H. (2023). Servant leadership and employee's job performance: the role of public service motivation in Ethiopian public sector organizations. International Journal of Public Leadership, 19(1), 64-80.

Mohd Ali, H. b., & Zulkipli, I. B. (2019). Validating a model of strategic leadership practices for Malaysian

vocational college educational leaders: A structural equation modeling approach. European Journal of Training and Development, 43(1/2), 21-38.

Muhammed, S., & Zaim, H. (2020). Peer knowledge sharing and organizational performance: the role of leadership support and knowledge management success. Journal of knowledge management, 24(10), 2455-2489.

Muluneh, G. S., & Gedifew, M. T. (2018). Leading changes through adaptive design: Change management practice in one of the universities in a developing nation. Journal of Organizational Change Management, 31(6), 1249-1270.

Najmi, K., Kadir, A. R., & Kadir, M. I. A. (2018). Mediation effect of dynamic capability in the relationship between knowledge management and strategic leadership on organizational performance accountability. International Journal of Law and Management, 60(2), 517-529.

North, K., & Kumta, G. (2020). Knowledge management: Value creation through organizational learning. Springer.

Obeidat, B. Y., Al-Suradi, M. M., & Tarhini, A. (2016). The impact of knowledge management on innovation: An empirical study on Jordanian consultancy firms. Management Research Review.

Onyeneke, G. B., & Abe, T. (2021). The effect of change leadership on employee attitudinal support for planned organizational change. Journal of Organizational Change Management, 34(2), 403-415.

Overman, S., & Schillemans, T. (2022). Toward a public administration theory of felt accountability. Public Administration Review, 82(1), 12-22.

Patwary, A. K., Azam, N. R. A. N., Ashraf, M. U., Muhamed Yusoff, A., Mehmood, W., & Rabiul, M. K. (2023). Examining employee performance through knowledge management practices, organisational commitment and capacity building in the Malaysian hotel industry. Global Knowledge, Memory and Communication.

Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. Journal of management, 12(4), 531-544.

Quansah, E., Moghaddam, K., Solansky, S., & Wang, Y. (2022). Strategic leadership in SMEs: the mediating role of dynamic capabilities. Leadership & Organization Development Journal, 43(8), 1308-1320.

Quinn, R. E. (2011). Diagnosing and changing organizational culture: Based on the competing values framework. Jossey-Bass.

Rehman, S. U., Bhatti, A., & Chaudhry, N. I. (2019). Mediating effect of innovative culture and organizational learning between leadership styles at third-order and organizational performance in Malaysian SMEs. Journal of Global Entrepreneurship Research, 9(1), 1-24.

Ringle, C. M., Sarstedt, M., Mitchell, R., & Gudergan, S. P. (2020). Partial least squares structural equation modeling in HRM research. The International Journal of Human Resource Management, 31(12), 1617-1643.

Robbins, S. P., & Judge, T. (2012). Essentials of organizational behavior.

Sabol, M., Hair, J., Cepeda, G., Roldán, J. L., & Chong, A. Y. L. (2023). PLS-SEM in information systems: seizing the opportunity and marching ahead full speed to adopt methodological updates. Industrial management & data systems, 123(12), 2997-3017.

Samimi, M., Cortes, A. F., Anderson, M. H., & Herrmann, P. (2022). What is strategic leadership? Developing a framework for future research. The Leadership Quarterly, 33(3), 101353.

Shamim, S., Cang, S., & Yu, H. (2019). Impact of knowledge oriented leadership on knowledge management behaviour through employee work attitudes. The International Journal of Human Resource Management, 30(16), 2387-2417.

Shao, Z. (2019). Interaction effect of strategic leadership behaviors and organizational culture on IS-Business strategic alignment and Enterprise Systems assimilation. International Journal of Information Management, 44, 96-108.

Singh, A., Lim, W. M., Jha, S., Kumar, S., & Ciasullo, M. V. (2023). The state of the art of strategic leadership. Journal of Business Research, 158, 113676.

Tadesse, W. M. (2019). Public service reform in Ethiopia: Challenges and gaps post-implementation. Africa's Public Service Delivery and Performance Review, 7(1), 1-9.

Tasan-Kok, T., van den Hurk, M., Özogul, S., & Bittencourt, S. (2019). Changing public accountability mechanisms in the governance of Dutch urban regeneration. European Planning Studies, 27(6), 1107-1128.

Tensay, A. T., & Singh, M. (2020). The nexus between HRM, employee engagement and organizational performance of federal public service organizations in Ethiopia. Heliyon, 6(6), e04094.

Tetik, S. (2020). Strategic leadership in perspective of Industry 4.0. In Agile Business Leadership Methods for Industry 4.0 (pp. 193-207). Emerald Publishing Limited.

Thi Tran, Y., Nguyen, N. P., & Nguyen, L. D. (2022). Results-oriented culture and organizational performance: the mediating role of financial accountability in public sector organizations in Vietnam. International Journal of Public Administration, 45(3), 257-272.

Tran, Y. T., Nguyen, N. P., & Hoang, T. C. (2021). Effects of leadership and accounting capacity on accountability through the quality of financial reporting by public organisations in Vietnam. Journal of Asia Business Studies, 15(3), 484-502.

Turi, J. A., Khwaja, M. G., Tariq, F., & Hameed, A. (2023). The role of big data analytics and organizational agility in improving organizational performance of business processing organizations. Business Process Management Journal, 29(7), 2081-2106.

Vera, D., Bonardi, J.-P., Hitt, M. A., & Withers, M. C. (2022). Extending the boundaries of strategic leadership research. In (pp. 101617): Elsevier.

Waddell, D., Creed, A., Cummings, T. G., & Worley, C. G. (2019). Organisational change: Development and transformation. Cengage AU.

Wang, S., Cheah, J.-H., Wong, C. Y., & Ramayah, T. (2023). Progress in partial least squares structural equation modeling use in logistics and supply chain management in the last decade: a structured literature review. International Journal of Physical Distribution & Logistics Management.

Wubneh, M. (2021). Urban resilience and sustainability of the city of Gondar (Ethiopia) in the face of adverse historical changes. Planning Perspectives, 36(2), 363-391.

Wubneh, M. (2023). Conclusion: Policies and Programs to Promote Good Governance and Enhance the Resilience and Sustainability of Gondar. In Planning for Cities in Crisis: Lessons from Gondar, Ethiopia (pp. 289-308). Springer.

Xu, S., Wang, Y.-C., & Ma, E. (2022). A workplace-driven model on the formation of OCB-C: perspectives of social exchange theory and agency theory. International Journal of Contemporary Hospitality Management, 34(7), 2684-2703.

Yamane, T. (1973). Statistics: An introduction analysis. Harper & Row.

Yas, H., Alkaabi, A., ALBaloushi, N. A., Al Adeedi, A., & Streimikiene, D. (2023). The impact of strategic leadership practices and knowledge sharing on employee's performance. Polish Journal of Management Studies, 27.

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Social Capital and Households per Capita Income in Ethiopia: Evidence from the Amhara Region

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Abstract

This study empirically examines the impact of social capital on the per capita income of financial cooperative members in the Amhara regional State. Adopted explanatory and employed mixed research methods using the cross-sectional study from stratified and randomly selected 348 financial cooperative members and analyzed using multiple linear regression model through reconstructed production function. Financial cooperatives were chosen because social responsibility is a core principle of this type of organization, they serve a dual mission, which includes both business and social goals, they provide financial services to solve socioeconomic problems of members, and members trust each other sufficiently, constitute joint collateral when money is borrowed. Three types of social capital dimensions: structural, relational, and cognitive social capital is operationalized and measured in terms of members' trust, cooperation, and understanding of shared mission and goal. The result shows that structural social capital is associated with a 1.127% and relational social capital a 0.883% increment whereas lack of cognitive social capital is associated with a 0.476% reduction in the household per capita income of financial cooperative members in the Amhara region. Among the dimensions of social capital, structural and relational social capital was essentially important for increasing the household per capita income of members, whereas inefficient cognitive social capital diminishes the income of members. Surprisingly, the age of members significantly reduces the per capita income of members' households, whereas when the age of members squared, significantly improved the per capita income; It allows for the possibility that the effect of age on per capita income may not be linear but may vary based on the age of the members and this could be validated by the fact that the members over time become familiar with improved production practices to expand their output and, increase their household per capita income. Overall, social capital has a significant impact on members' household per capita income along three dimensions, and, hence, it should be a critical area of focus for development practitioners, and policymakers, public policy must be directed towards improving dimensions of social capital through cooperation, trust, and shared mission to enhance members per capita income.

Keywords: Financial cooperatives, Household per capita income, Members, Social capital

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1. Introduction

Economic development requires social capital; it is impossible to achieve economic development without good social capital. According to Christoforou (2017), social capital is the foundation for much economic and social well-being, as well as a foundation for development, because of its positive effects on labor productivity, income distribution, poverty reduction, commerce, education, health, and family structure. A well-balanced social capital system fosters not just economic development but also productivity and individual income per capita (Rizwan Ali et al., 2011).

Social capital has many capital features; it requires resources to be produced and is subject to accumulation and destruction. It is linked to development because high levels of social capital aid in the transmission of knowledge and information among community members. Increasing levels of social capital decrease the tendency of community members to engage in economic exploitation. Besides, high levels of trust formed by social capital encourage collective economic action (Callois and Aubert, 2007). On the other hand, the effect of the destruction of social capital is evident in the work of Rose (1995) on Russia and former Yugoslavia. Much social capital is built during interactions, which occur for social, religious, or cultural reasons. The key assumption is that the network built through these interactions has measurable benefits for the participating individuals and leads, directly or indirectly, to a higher level of well-being.

Over the last decade, development economists have concentrated their studies on the economic impact of social capital on households. However, more empirical studies (Grootaert& Narayan, 2001; Helliwell, 2007; Rodriguez-Pose &Berlepsch, 2014; Agboola et al., 2016; Komolafe and Adeoti, 2018; Olurotimi et al., 2018; Ogunleye, 2019; Adepoju, 2019) have so far focused on the relationship between social capital and economic issues such as household consumption, subjective well-being, poverty, happiness, access to microcredit, and adoption. There is limited empirical evidence in recent literature on the relationship between social capital aspects and members' per capita income in financial cooperatives. Financial cooperatives are estimated by stakeholders to adopt a regional responsibility, using their business activities to facilitate the local economy (Jussila et al., 2007).

Afrobarometer's (2021) assessments of the economic conditions of Ethiopian residents by geographical location revealed that Amhara regional state residents (57%) are the third most likely to describe the country's current economic situation as bad, trailing only Tigray regional state (72%) and Addis Abeba City Administration (71%) residents, who are likely to be irritated by ever-increasing inflation pressure. Furthermore, according to the FDRE Poverty and Economic Growth in Ethiopia (2018) report cited in Anteneh (2020), the distribution of total poverty in Ethiopia in 2015/16 is Amhara, the third highest 26.1% in poverty incidence, followed by Tigray (27%) and BeneshangulGumuz (26.5%), and the second highest (31.3%) in food poverty, followed by Tigray (32.9%), as well as 5.3 million poor people are found in Amhara. As Stiglitz (2012) explained, widely unequal societies do not function efficiently, and their economies are neither stable nor sustainable in the long term.

Following that, this study examined the impact of social capital on the per capita income of financial cooperative member households in the Amhara Regional State. The study specifically described the socioeconomic characteristics of the member households, examined the three dimensions of social capital available to members' production, and determined the impact of social capital dimensions on the per capita income of members of financial cooperative households.

Our research contributes to two lines of research. First, it adds to the current literature on the impact of social capital on household Income by focusing on social capital and its implications on member household per capita income in the Amhara region, the second largest, most populous, and most productive area in Ethiopia. Second, it identifies the underlying channel for each household income, which contributes to a better understanding of the relationship between social capital and per capita income in households. Furthermore, our findings emphasize the relevance of social capital in boosting financial literacy, family labor engagement, physical capital accumulation, and government connection, all of which have a favorable impact on household income.

2. Social Capital and Household Income

Economic development is the deliberate process of increasing the trajectory of an economy's growth curve (Feldman et al., 2014). The economic development of a community has been related to a variety of features, such as the community's institutions, geography, economic conditions, and social traits; the degree of market integration with a community; its macroeconomic conditions; the occupational and industrial mix of a community; and access to capital, all of which influence economic trajectories (Rodriket al., 2004). Finally, social factors influence economic progress. Human capital has gotten the most attention in the literature (Machlup, 2014). However, entrepreneurial and social capital are equally crucial (Engbers et al., 2017). The social network, by delivering trustworthy information to each other through friends and relatives to develop an interoperable and shared information platform, enables family labor to receive higher-quality information (Pham and Mukhopadhaya, 2022). Personal and household income results are influenced by a variety of factors, more recent studies have made strides in using econometric analysis to demonstrate the quantifiable effects of social capital on economic outcomes (Oh et al., 2014; Engberset al., 2017).

Nguyen et al. (2004) investigated if social capital contributed more to household economic outputs than other types of capital, whether different dimensions of social capital significantly contribute to household income, and whether the function of social capital changes by household type. We developed a simplified model of the home production function in which social capital is handled as a production component in the same way as physical capital, labor, and human capital are, with household income and expenditure as dependent variables. Using the Grootaert et al. (2002) household-production function model, social capital is viewed as a private good input to the production process on par with other types of capital. The findings revealed that social capital contributes significantly and positively to household income and that the positive contribution of social capital to the income of the poor household is bigger than the positive contribution of social capital to the income of the rich household. In contrast to earlier studies, the number of organization memberships does not affect household income. Similarly, Ali et al. (2018) studied the impact of human and social capital on economic development in Pakistan using primary data analysis based on a questionnaire administered to 250 randomly chosen families in Multan District. The dependent variable is the log of per capita income, and the analysis method is Ordinary Least Squares (OLS). The data found that age, place of residence, occupational training, public health unit, and work experience all have a significant and favorable impact on economic development; however, gender and societal standards had a negative impact.

Social capital has a favorable impact on entrepreneurship, employment, and income (Knight &Yueh, 2008; Peng, 2004; Zhang & Li, 2003). More recently, persuasive data demonstrates the favorable influence of social capital on household financial statuses, such as reservation salary (Shen&Bian, 2018) and

stock market involvement and performance (Stein et al., 2004; Tan &Tas, 2020). Social capital provides access to valuable resources such as information and influence, which leads to better work (Granovetter, 1973; Lin, 2001). For example, social capital and interaction boost professional development, leading to higher salaries and occupational status (Wu et al., 2023). As a result, maintaining social capital may provide economic benefits for household income. Local social capital practices, in particular, may lead to higher wages, more investment options, and economic opportunities, eventually affecting household financial position.

3. Material and Methods

3.1 Population, Sampling, Research Design, and Method of Data Collection Strategy

This study adopted an explanatory, employed mixed research and cross-sectional field survey research design. The population of the study was 3,719 primary financial and non-financial cooperatives registered as members of 27 Cooperatives Saving and Credit Unions[1] in both rural and urban areas of Amhara regional state. The sample of 348 chairpersons of male and female members are selected from the population with the aid of Kothari's (2004) formula for determining sample size. The study used a stratified, simple random sampling technique called probability sampling to select the respondents. In this sampling technique, every element in the population has a known and equal chance of being selected as a subject (Ibid). Moreover, out of 348 questionnaires distributed and administered to respondents by self-administration of the questionnaire, all questionnaires were completed and returned to the researcher with the help of a recruited research assistant. As McLeod (2014) stated, questionnaires can be a real means of calculating the behavior, preferences, attitudes, intentions, and opinions of relatively large numbers of respondents quickly and more cheaply than other methods. The other data collection method consisted of 20 focused group discussions (FGD) and 19 personal interviews.

3.2 Measurements of household income

The major indicators of household well-being are per capita income, total expenditure, food expenditures, and savings (Kondo et al., 2007). The per capita income of members' households was measured in this study and we evaluate our respondents' revenue from farming, trade, wages, salaries, and remittances. We considered farming income to represent gross income from agricultural operations, salary income to represent after-tax salary, bonus, and income from part-time jobs, trade income to represent gross income from commercial operations, and remittance income to represent all monetary and in-kind subsidies converted to monetary value. For analysis purposes, we first compute total monthly household income by adding up all household income sources and dividing by family size. Next, we converted it to per capita income and estimated the per capita income in the natural logarithm's form.

Social capital is the accumulation of resources contained in the social relationship network of financial cooperatives. Social capital and economic welfare researchers usually measure social capital using the magnitude and frequency of social interaction (Shen and Bian, 2018). This section divides social capital in financial cooperatives into three dimensions: structural, relational, and cognitive social capital, and measured in terms of members' trust, cooperation, and understanding of shared mission and goal. The indicators are assigned and scored using a five-point Likert scale (Krueger, 2020; Ladachart, Phothong,

1 Union means a secondary-level cooperative society established by primary cooperative societies having a similar objective with a minimum number of members to produce, provide service, or engage in both activities that are beyond the capacity of primary cooperative societies (Federal Democratic Republic of Ethiopia, Cooperatives Proclamation 985/2016).

and Suaklay, 2021).

3.3 Social capital and members' Per capita Income

To analyze the impact of social capital on members' per capita income, we used the same form of the household-production function model Grootaert et al. (2004) and used primary data analysis based on a questionnaire used by Ali et al. (2018), in which social capital is treated as a private good input to the production process and is on par with physical capital and labor. The basic form of the household production function can be expressed as:

$Y = F (L, K, SC)$ ……..…… (1)

And

$Y = F (L, K, SSC1, RSC2, CSC3)$……-…….……..……..…….. (2)

In these two equations, Y is Per capita Income (hereinafter PCI), K is physical capital, L is family labor, SSC1 is Structural social capital (expressed as a composite index), RSC2 is Relational social capital as associational activity, and CSC3 is Cognitive social capital as a shared understanding of mission and goal. Each of these inputs and outputs at the household level is discussed next.

Hence, first, we estimated two production functions using the Cobb-Douglas specification and the transcendental logarithmic specification. Next, following the lead, we estimated the simplest form function given below:

$PCIi = \alpha0 + \alpha1Li + \alpha2Ki + \alpha3DSCi + Xi + ui$ ……..……..…. (3)

Where L is labor, K is Physical Capital, DSCi is Dimensions' of Social Capital which is structural, relational, and cognitive social capital and X contains a set of control variables.

$PCIi = \alpha0 + \alpha1Li + \alpha2Ki + \alpha3SSCi + \alpha4RSCi + \alpha5CSCi + Xi + ui$…..……... (4)

To make the exponential function linear, we were transforming the per capita income variable into natural logarithms.

As a result, the final functional forms of the two production functions, which were estimated, are as given in Equations 3 and 4:

$PCIi = \alpha0 + \alpha1Li + \alpha2Ki + \alpha3DSCi + Xi + ui$ ……..……..……. (5)

and

$lnPCIi = \alpha0 + \alpha1Li + \alpha2Ki + \alpha3DSCi + \alpha4Agei + \alpha5Sexi + \alpha6FSi + \alpha7educi + \alpha6HSi + ui$. ..... (6)

Where lnPCI is the natural logarithm of members' per capita income, DSCis dimension of social capital (expressed as Structural, Relational, and Cognitive social capital in financial cooperatives), educ. is education status, age is the age of the respondent, Sex, FS is family size, HS is health status, L is family labor, and K is physical capital; □and u denote the parameters.

3.4 Variables: Definition and Measurement

Per capita Income (PCIi) is a dependent and continuous variable. Per capita income measures the

purchasing capacity of the member households and tells us the economic circumstances. A high per capita income shows a strong economic condition and is visceral. Financial cooperatives' ability to improve household welfare can be influenced by income from business, investments, and employment. AS Achida et al. (2018) and Biyase and Zwane (2018) explained the relationship between household income and household welfare using real per capita income, happiness, and per capita income as welfare measures. It is measured by the amount of total income divided by the family size of members of financial cooperatives. The data for this variable were obtained from randomly selected respondents among members of financial cooperatives.

Family Labor (Li) refers to the number of economically active household members aged 15 and up, and it is expected to positively influence the per capita income growth of member households. It was measured as the number of household members who meet the inclusion criteria.

Physical Capital (Ki) is imagined as durable, productive assets owned by member households, such as motorcycle and car ownership, and land size and house ownership were used to compute the index for household physical capital. Physical capital as an accumulation factor raises employment rates, per capita income, labor productivity, and economic growth sources, and is expected to have a positive impact on member per capita income growth.

Dimensions of Social Capital (DSCi): this is an independent variable and dummy, measured by using the three dimensions of social capital that are structural, relational, and cognitive social capital. According to Neira et al. (2009), there is a strong link between economic development and social capital. The results are obtained using OLS. The finding indicates that there is a positive relationship between social capital and economic growth in the European Union. Besides, Lee (2009) explained that three dimensions of social capital are commonly used in business and management studies. It was measured as an index computed in terms of trust, cooperation, and understanding of the shared goal and mission. Specifically, it is the stock of a household’s investments in productive, intangible social assets, social networks, and relationships of reciprocity. It was measured as an index computed based on time per a certain period spent on collective actions, the connectedness of the members, and trust in members of one’s cooperative. Strong social capital has been expected to have a positive impact on members' per capita income growth.

Age (Agei) refers to the respondent’s date of birth. Age is thought to be the most influential variable in human and social capital. Individual productivity is proportional to age; young people work more efficiently than older people. On the other hand, as an individual's age and experience increase, so does their decision-making ability. Being young is expected to have a positive impact on members' per capita income growth over time.

Sex (Sexi) refers to the respondent's gender. Despite earlier research's contradictory findings on savings behaviors between men and women, data demonstrate that savings behaviors are generally diverse across genders. According to certain studies, women have a lower risk tolerance and save less than males (Obayelu (2012), cited byShilimi 2021), but Mahdzan and Tabiani (2013) found that women save more than men. It is a dummy variable that has a value of one if the subject is male and zero otherwise.

Family size (FSi) is the number of people who dwell in a household as operationally defined in this study. The size of a household is intimately tied to the growth of a certain area. According to Martey et al.,

(2014), household expenditure on food and other consumption goods rises with household size. We used household size as an independent variable in this investigation. As the size of the household expands, fewer resources become accessible to family members. When a family's household size is modest, family members have access to more resources. It was calculated using the number of individuals in the household.

Education level (educi) is the formal education level and training attained by the respondents. According to Mamuneas et al. (2006), an increase in education level is beneficial for increasing income level. It was counting the years of formal schooling as well as the years of career training.

Health status (HSi) is the frequency of visits to health centers by the respondents. It measures the frequency of visiting the health center counts, and as the frequency of visiting the health center increases, it is expected to negatively influence the per capita income growth of members.

4. Results and Discussions

The impacts of social capital on members' household per capita income were investigated using descriptive and inferential statistics. The investigation looked at home per capita income, family labor, physical capital, social capital dimensions, age, gender, family size, education, and health status of members' primary cooperatives chairman. The findings of the investigation are shown below.

4.1 Descriptive Statistics Results

Table 1: Correlation matrix among variables

Variables	Household Income	Family Labor	Physical Capital	Structural Social Capital	Relational Social Capital	Cognitive Social Capital	Age	Sex	Family Size	Education	Health Status
Household Income	1										
Family Labor	-0.0046	1									
Physical Capital	0.3688	0.1174	1								
Structural Social Capital	0.3514	0.0981	0.1205	1							
Relational Social Capital	0.3733	-0.2902	0.1125	0.0586	1						
Cognitive Social Capital	-0.1348	0.0063	-0.0014	0.1362	-0.1231	1					
Age	-0.038	0.292	0.1598	0.0573	-0.4295	0.0264	1				
Sex	-0.1458	0.138	-0.0027	0.0922	-0.1936	-0.0425	0.0744	1			
Family Size	0.0418	0.3143	-0.0106	-0.0221	0.0008	-0.0768	-0.0365	0.0668	1		
Education	0.0519	-0.014	-0.1263	0.0334	0.0966	-0.0912	0.0152	-0.0042	-0.0496	1	
Health Status	-0.3052	-0.0459	-0.0776	-0.1882	-0.0795	0.0407	-0.0727	-0.0953	-0.1101	-0.1686	1 1

Source: Own computation from survey data (2023)

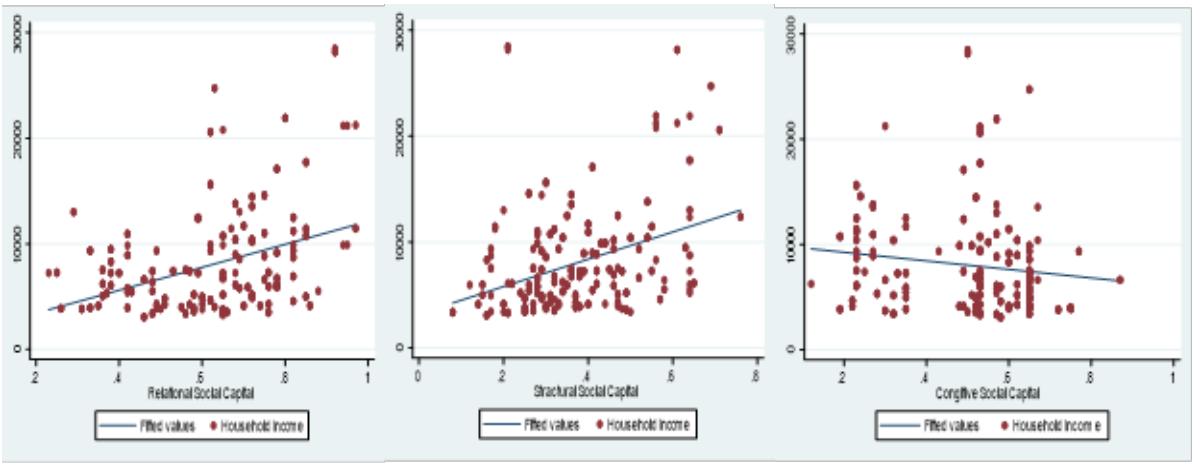
The data set includes monthly cross-section observations from 348 primary cooperative members for the 2023 or 2015 Ethiopian calendar. The average total household income is ETB 8,038.79, with the least and greatest sums of income being ETB 3,050 and 28,450, respectively. The average household

consumption is ETB 7,457.42, of which ETB 7,104.16 is spent on food. Furthermore, the respondents' average age and family size are 38.9 and 3.7, respectively.

The correlation matrix in Table 1 shows that member household per capita income is positively correlated with physical capital, structural social capital, relational social capital, family size, and member education attainment, whereas other variables, including cognitive social capital, are negatively correlated with member household per capita income. The correlation matrix reveals that there is some multicollinearity across independent variables, as total correlations are less than 0.80 (Gujarati, 2003). The correction coefficient was both positive and negative, indicating the effect of each variable.

The two-way scatter relationship between saving, accumulated reserve, and social capital dimensions' in Figure 3 revealed that the amount of saving deposit, reserve, structural social capital, and the relational network has a positive relationship, whereas the amount of saving and cognitive social capital has a negative relationship.

Figure 1: Two-way scatter among per capita income and social capital dimensions'



Source: Research results, 2023

4.2 Econometric Results and Discussions

Statistical Tests

In this model, we checked the multicollinearity test by using the variance inflation factor. According to Wooldridge (2002), the Variance Inflation Factor (VIF) and tolerance level (1/VIF) are the two important measures of a multicollinearity problem. As a rule of thumb, a VIF value of 10 or a tolerance index of 0.10 is used as a critical point to specify a serious multicollinearity problem. It exists when the tolerance level is less than or equal to 0.1 and all VIF is above 10. Our test results indicate that the tolerance indexes (1/VIF) for all variables are greater than 0.10 and the VIF is well below 10 except for age, confirming there is no multicollinearity problem among the independent variables. We also used robust regression to minimize the multicollinearity problem. After we fitted the regression model, we performed the heteroscedasticity test by using the Breusch-Pagan Test (estathettest). The Chi-Square test statistic of the test is 2.01, and the p-value that corresponds to the Chi-Square test statistic is 0.1559; this value is greater than 0.05, and we cannot be rejected the assumption of a constant variance null hypothesis even

at a 10% level of significance, and conclude that there is no heteroscedasticity in the data.

Social Capital and Members' household per capita Income

The multiple linear regression model that defined the association between the three social capital characteristics and members' household per capita income revealed that the regressors are jointly and statistically significant, with an overall F-statistic of 54.38 and a p-value of 0.000. At the same time, R2 = 0.6837 accounts for a large portion of the variation. The total model accounted for 68.37% of the variance in household per capita income.

The table below indicates the values of estimated linear regression coefficients of explanatory variables and reveals that family labor, physical capital dimensions of social capital, age, family size, and members' health status were significant factors influencing household per capita income of financial cooperative members, but coefficients of members' sex and educational level were not significant at 5 percent significant level. Overall, we discovered that social capital had a significant impact on members' household per capita income. The findings support Christoforou's (2017) explanation that social capital is the foundation for economic and social well-being, as well as a foundation for development, due to its positive effects on labor productivity, income distribution, poverty reduction, commerce, education, health, and family structure. Engbers, Rubin, and Aubuchon (2017) also stated, that entrepreneurial and social capital are equally crucial to influencing economic progress. One possible reason is that social capital can supply members with diverse revenue-generating activities or the entrepreneurial spirit to start a new business to generate commercial or agricultural income.

The regression result revealed that structural and relational social capital, family labor, and physical capital all have a positive influence, with the linear coefficient indicating that a member's endowment with these is the most important element in improving household per capita income. More specifically, the structural and relational social capital factors had a favorable and substantial effect on members' household per capita income. The output of structural social capital and relational social capital is 1.127 and 0.883 at a 1% significance level, that is to say, structural social capital and relational social capital investment through cooperation and trust increase by 1 unit, which will bring an increase of 1.127% and 0.883% of members' household monthly per capita income respectively. Also the symbol of the output of structural social capital and relational social capital is positive indicating that with the increase of structural social capital and relational social capital, the trend of per capita income is growing. This means that an increase in member trust and cooperation also contributes to members' household per capita income rises. This is due to the members' increased trustworthiness as a result of dealing with the cooperative's issues, which benefits their involvement and raises their household per capita income. Furthermore, social interaction among members can delve into economics and related financial management tactics, and the exchange of ideas on socioeconomic issues can increase one's financial literacy, hence improving members' income. This finding is consistent with the theoretical findings of Rizwan et al. (2011) that a balanced social capital system stimulates not only economic development but also productivity and improves individual income per capita, as well as the empirical findings of (Zhang and Li, 2003; Peng, 2004; Knight and Yueh, 2008) which show that social capital has a favorable impact on entrepreneurship, employment, and income. Whereas The coefficient of cognitive social capital is 0.476 at a 1% significance level, negative, that is to say, lack of cognitive social capital investment through an understanding of shared mission and goal increase by 1 unit, will bring a reduction of 0.476%

members' household monthly per capita income. This implies that the negative and significant cognitive social capital coefficient demonstrated that members' grasp of commonly shared values is low, which has an impact on household per capita income. The findings emphasized that social capital dimensions directly affect Income.

Regarding the control variables, family labor and physical capital have a positive impact on household per capita income. This finding strengthens Pham and Mukhopadhaya's (2022) study, which is the social network. By delivering trustworthy information to each other through friends and relatives to develop an interoperable and shared information platform, family labor enables them to receive higher-quality information about a job. They may also acquire access to more information resources through employers, interact with more people, broaden their social networks, and so gain access to excellent employment possibilities, and raise their income.

On the contrary, family size and member health status have a negative impact on household per capita income. It is possible to deduce that the quantity and health of household members were connected to family per capita income. Surprisingly, the age of members has a negative and significant coefficient, but when age is squared, the coefficient becomes positive and significant; it permits the possibility that the impact of age on members' households' per capita income may not be linear but may vary based on the age of the member, which may imply a nonlinear or U-shaped pattern between age and per capita income and the possible reasoning is that younger members may tend to save the realized level and type of production and may be reluctant at innovations, whereas aged members are more likely to invest in new business activities and participate in technological progress, and may thus have a higher household per capita income. Furthermore, this could be linked to the fact that members gradually become acquainted with new production practices to boost their productivity and, as a result, their income.

Table 2: Social Capital and Members per Capita income relationship

OLS Model: Household Per Capita Income (lnPCInc)				
Variable	Structural	Relational	Cognitive	Dimensions Of Social Capital
Family Labor	0.038*	0.071***	0.047**	0.058***
	(0.022)	(0.0217)	(0.022)	(0.021)
Physical Capital	0.885***	0.764***	0.941***	0.705***
	(0.131)	(0.126)	(0.134)	(0.117)
Structural Social capital	1.127***			1.127***
	(0.217)			(0.207)
Relational Social Capital		1.037***		0.883***
		(0.167)		(0.163)
Cognitive Social Capital			-0.435***	-0.476***
			(0.150)	(0.145)
Age	-0.039***	-0.028***	-0.032***	-0.028***
	(0.01)	(0.0105)	(0.011)	(0.01)
Age Square	0.0004***	0.0032***	0.0003***	0.0003**
	(0.0001)	(0.0001)	(0.0001)	(0.0001)

Sex	-0.054	0.076	0.026	0.015
	(0.101)	(0.108)	(0.113)	(0.099)
Family Size	-0.292***	-0.303***	-0.3***	-0.299***
	(0.015)	(0.015)	(0.016)	(0.015)
Education	0.027**	0.016	0.023	0.012
	(0.014)	(0.014)	(0.015)	(0.013)
Health Status	-0.293	-0.315***	-0.345***	-0.266***
	(0.052)	(0.051)	(0.052)	(0.019)
Constant	8.803	8.230	9.305	8.234
	(0.267)	(0.296)	(0.257)	(0.306)
R2	0.6409	0.6411	0.6111	0.6837
Pseudo R2				
Observation	348	348	348	348

Source: Regressions Model result

Notes: The probit model includes Coef. = Coefficient, marg.Eff.= Marginal Effect and OLS = Ordinary least square, andRobust Standard errors in parentheses. *, **, *** on the coefficient tells significant level at 10%, 5%and 1% respectively.

5. Conclusions and Policy Implications

The introduction of new economic development elements in the latter decade of the twentieth century, namely social capital, has increased the speed of economic development across countries with similar production methods and levels of development. Social capital contains several capital characteristics, such as the need for resources to be produced and the fact that it is vulnerable to accumulation and destruction. It is linked to development because high levels of social capital aid in the transmission of knowledge and information among community members, and increasing levels of social capital reduce community members' proclivity to engage in economic exploitation. This study investigated the impact of social capital on financial cooperative members at the household level in the Amhara Regional State. The study is motivated by the fact that financial cooperatives can alleviate income inequality, and the economic objective function is to increase the income of its members at a faster pace than the economy's average growth rate. Because having credit in an imperfect credit market is dependent on the accessibility of the borrower's collateral and the lender-borrower relationship. If the financial sector consists primarily of investor-owned banks, then only high-income agents will receive extra capital since they have sufficient collateral and lending ties with commercial banks, while poor and middle-income community members will face credit rationing. The inability of low- and middle-income community members to raise capital for potential investments limits their expected income from self-employment as well as wages because they cannot adopt more advanced production techniques or invest in their human capital, so their income will be limited to their initial production technology, and we can expect diminishing marginal returns to strictly hold. High-income community members, on the other hand, can recruit new workers at wage rates that benefit capital owners, preserving increasing net returns if the potential return on labor of low- and middle-income self-employment remains lower than the marginal return on labor of high-income output. These facts also motivated the researcher to investigate the effect

of financial cooperatives' social capital on members' per capita income.

The study used cross-sectional data collected from 348 sample individual primary cooperative members to analyze the impact of social capital on members' households' per capita income in this study. In this regard, the findings only provide a cursory look at social capital and its impact on members' per capita income. Our finding indicates that social capital is especially important for household income improvement. A one standard deviation increase in structural social capital and relational social capital is associated with a 1.127 and 0.883, that is to say, structural social capital and relational social capital investment through cooperation and trust will bring a 1.127% and 0.883% members' household monthly per capita income increment respectively. Also, the positive symbol of the output of structural social capital and relational social capital indicates that with the increase of structural social capital and relational social capital, the trend of per capita income is growing. While, the coefficient of cognitive social capital is associated with 0.476, negative, that is to say, lack of cognitive social capital investment through understanding of shared mission and goal increase will bring a reduction of 0.476% members' household monthly per capita income. This implies that the negative cognitive social capital coefficient demonstrated that members' understanding of commonly shared values is low, which has an impact on household per capita income in the Amhara Regional State. The findings emphasized that social capital dimensions directly affect Income. Thus, it can be inferred that household incomes are highly influenced by the classical production factors, notably labor and physical capital, as indicated by neoclassical theory. Surprisingly, senior members are expected to make any investments to increase the per capita income of their household.

The study concluded that social capital is one of the key factors influencing the per capita income of financial cooperative members' households. Furthermore, members with higher levels of trust and cooperation have a higher income per capita, it has been concluded that social capital will create new dynamics for financing economic development as a result of its position in capital and the benefits that it provides on both an economic and social level. The findings emphasize the need to implement policies and practices that promote social capital levels in financial cooperatives to increase per capita income levels among members. Policies that will raise the level of trust, collaboration, and mission and goal understanding should be enacted for financial cooperatives, and the radius of trust, cooperation, and mission and goal understanding should be broadened to other horizontal and vertical networks. Members should increase the social capital of financial cooperatives by fostering structural trust, collaboration between members and the outside world, and improving knowledge of shared values such as mission, vision, and goals as well as actively participating in the cooperatives' decision-making process. On the other hand, financial cooperatives should increase service delivery and product diversity in response to demand, as well as establish social capital with members, communities, and other stakeholders, including government agencies.

The government should create a favorable socioeconomic, legal, regulatory, and fiscal environment for the development of the financial cooperatives sector, strengthen financial cooperatives' capacity, and promote financial innovation. develop and diversify financial cooperatives' financial services product line so that the greatest number of people in the beneficiary population have access; strengthen the institutional framework to foster increased professionalization and better monitoring and supervision of the sector; and improve information on the sector to foster its integration into the national financial system. Moreover, the study suggests that community members should be encouraged to join financial

cooperatives in the Amhara regional state.

As far as I am aware, we are still at the beginning of analyzing and measuring the social capital of financial cooperatives. As a result, more in-depth research and more complicated research methodologies will be required to explain the idea of social capital, its measurement, and its impact on the per capita income of members' households.

Limitations of the Study and Future Research

There are certain limitations to our research. this study made an effort to maximize the benefits of mixing multiple approaches. However, because there was no baseline data in the study area, the only option was to study social capital and its impact on economic development in Ethiopia in the case of Amhara Regional State (ANRS) and use financial cooperatives as a social capital proxy by comparing the social capital and per capita income of members under similar socioeconomic and demographic conditions. In other words, because this was not panel or longitudinal trial, determining influence over time is challenging. As a result, there is a definite need for additional research along this path.

References

Achida, M. B., Garba, T., &Abdullahi, Y. Z. (2018). Does Social Capital Determine Household Welfare? An Investigation into the Situation in Sokoto Metropolis. American Journal of Economics, 8(2), 93–104.

Adepoju, A.A. (2019). Effect of Social capital on poverty alleviation among fish farming households in Oyo State, Nigeria.Asian Journal of Agricultural Economics and Sociology, 30(1):1-14.

Afrobarometer (2021). With High prevalence of Lived poverty, Ethiopians rate Government's economic performance as poor. Dispatch No. 426 | 11 February.

Agboola, W.L., Yusuf, S.A. &Oloniniyi, M.T.(2016). Effect of Social Capital and Access to Microcredit on Productivity of Arable Crop Farmers in Kwara State, Nigeria.Journal of Agriculture and VeterinaryScience (IOSR-JAVS), 9(2):9-16.

Ali, M, S., Chaudhary, I, S., Farooq, F. (2018). Impact of Human and Social Capital on Economic Development in Pakistan: Empirical Evidence From Primary Data Analysis. Journal of Accounting and Finance in Emerging Economies, 4(1) 57-64.

AntenehMulugetaEyasu | (2020) Determinants of poverty in rural households: Evidence from North-Western Ethiopia, Cogent Food & Agriculture, 6:1, 1823652

Biggart, N. W., and Richard P. C., (2001).Collateralized Social Relations: The Social in Economic Calculation.American Journal of Economics and Sociology 60: 471–00.

Biyase, M., &Zwane, T. (2018).An Empirical Analysis of the Determinants of Poverty and Household Welfare in South Africa.The Journal of Developing Areas, 52(1), 115–130.

Callois, J., &Aubert, F., (2007). Towards indicators of social capital for regional development issues: The case of French rural areas. Regional Studies, 41, 809-821.

Christoforou, A. (2017). Social Capital and Local Development in European Rural Areas: Theory and

Empirics. Cham, Switzerland: Springer International Publishing AG.

Engbers, T. A., Rubin, B. M., &Aubuchon, C., (2017). Social capital and metropolitan economic development. Economic Development Quarterly, 31, 37-49.

Feldman, M., Hadjimichael, T., Kemeny, T., &Lanahan, L. (2014). Economic development: A definition and model for investment. Unpublished manuscript, Department of Public Policy, University of North Carolina at Chapel Hill, Chapel Hill, NC.

FentahunAdmassuYayeh, WuhibegezerFerede&WondaferahuMulugetaDemissie (2024): Debating the Relationship Between Social Capital and Economic Development in Ethiopia, Forum for Social Economics, Vol 53, Issue 2, 1-19, Routledge, Taylor & Francis Group.

Granovetter, M. (1973).The Strength of Weak Ties.American Journal of Sociology, 78, 1360-1380.

Grootaert, C.; Oh, G. T.; &Swammy, A. (2002).Social Capital, Household Welfare and Poverty in Burkina Faso, Journal of African Economies, Vol 11, No.1, 4-38.

Grootaert, C., &Deepa N., (2001).Local Institutions, Poverty, and Household Welfare in Bolivia. World Development 32: 1179–98.

Grootaert, C., Narayan, D., Nyhan, J.V., &Woolcock, M., (2004).Measuring Social Capital: An Integrated Questionnaire.World Bank Working Paper No. 18.

Gujarati D. N., (2003).Basic Econometrics.4thedition.The McGraw-Hili Companies, Inc. 1221 Avenue of the Americas, New York, NY, 10020.

Han, L., YanfeiB., & Lei Z., (2019). Social Capital and Residents' Health: An Empirical Analysis Based on CFPS Data. Journal of Xiangtan University (Philosophy and Social Sciences) 43: 119–24

Helliwell, J. F., (2007). Well-being and Social Capital: Does Suicide Pose a Puzzle? Social Indicators Research 81: 455–96.

Jiali Z., (2017). Income, health and subjective sense of well-being, On Economic Problems (11) 118–124.

Jussila, I.; Kotonen, U.; &Tuominen, P., (2007). Customer-owned Firms and the Concept of Regional Responsibility: Qualitative Evidence from Finnish Cooperatives. Journal of Social Responsibility, 3, 35–43.

Knight, J., & Linda Y., (2008).The Role of Social Capital in the Labour Market in China.The Economics of Transition 16: 389–414.

Komolafe, J. O., &Adeoti, A. I., (2018). Influence of social capital on the use of improved maize seed among farmers in southwestern Nigeria. International Journal of Agriculture and Forestry, 8(3), 129-138.

Kothari, C., (2004). Research methodology: methods and techniques, 2nd Ed. New Delhi: New Age International (P) Ltd., Publishers.

Knight, J., & Linda Y., (2008).The Role of Social Capital in the Labour Market in China. The Economics

of Transition 16: 389–414.

Krueger G. P., (2020).Book review: questionnaire design: how to ask the right questions of the right people at the right time to get the information you need, Ergonomics in Design Quarterly of Human Factors Applications, vol. 28, no. 1, pp. 33-34.

Ladachart L. Phothong W., &Suaklay N., (2021).Validation of a design thinking mindset questionnaire with Thai elementary teachers, Journal of Physics: Conference Series, vol. 1835, no. 1, Article ID 012088.

Lee, D. S., (2009). Training, wages, and sample selection: Estimating sharp bounds on treatment effects. Review of Economic Studies 76: 1071–1102.

Lin, N., (2001): Social Capital. A Theory of Social Structure and Action. Cambridge: Cambridge University Press.

Machlup, F., (2014).Knowledge: Its creation, distribution and economic significance, Volume III: The economics of information and human capital. Princeton, NJ: Princeton University Press.

Mahdzan, N.S., &Tabiani, S., (2013). The Impact of Financial Literacy on Individual Saving: an Exploratory Study in the Malaysian Context, Transformations in Business & Economics, Vol. 12, No 1 (28), pp.41-55.

Mamuneas T.P., Savvides A., &Stengos T., (2006). Economic development and the return to human capital: A smooth coefficient semi-parametric approach, Journal of Applied Econometrics, Vol 21, No 1, pp 111–132.

Martey, E., Etwire, P.M., Wiredu, A.N. &Dogbe, W., (2014). Factors influencing willingness to participate in multi-stakeholder platform by smallholder farmers in Northern Ghana: implication for research and development. Agricultural and Food Economics, 2(11):1-15.

McLeod, S.A., (2014). Qualitative and Quantitative. Retrieved from www.simplypsychology.org / qualitative-quantitative.html

Neira, C. O., Lindman, M. T., &Ferna'ndez, M. J., (2009). Innovation and performance in SME furniture industries: An international comparative case study. Marketing Intelligence & Planning, 27(2), 216-232.

Nguyen V. H., Shashi K., & Virginia M., (2004). The Contribution of Social Capital to Household Welfare in a Paper-Recycling Craft Village in Vietnam, The Journal of Environment & Development, Vol. 13, No. 4, pp. 371-399.

Obayelu, O. A., (2012). Saving Behavior of Rural Households in Kwara State, Nigeria.African Journal of Basic & Applied Sciences, 4, 115-123.

OgunleyeA. S., (2019). Effects of Social Capital on Adoption of Improved Technology and Productivity of Cassava Among Farmers Cooperative Societies in Osun State. Science Research.Vol. 7, No. 6, pp. 93-99.

Oh Y., Lee I., &Bush C. B. (2014). The role of dynamic social capital on economic development

partnerships within and across communities.Economic Development Quarterly, 28, 230-243.

Olurotimi, P. O., Bamire, A. S. &Ogunleye, A. S., (2018).Effects of social capital on technical efficiency of cassava production in Oyo State, Nigeria.African Journal of Rural Development 3 (1): 695-704.

Peng, Y., (2004). Kinship Networks and Entrepreneurs in China's Transitional Economy.American Journal of Sociology 109: 1045–74.

Pham, A.T.Q. &Mukhopadhaya, P., (2022). Multidimensional Poverty and The Role of Social Capital in Poverty Alleviation Among Ethnic Groups in Rural Vietnam: A Multilevel Analysis. Soc. Indic. Res., 159, 281–317.

Rizwan A., Muhammad A. N. &Mian M. F., (2011). Social Capital Impact On Economic Development (A Theoretical Perspective), Int.J.Buss.Mgt.Eco.Res.,Vol 2(4),2011,270-277

RodriguezP., Andrés, &ViolavonB., (2014). Social Capital and Individual Happiness in Europe.Journal of Happiness Studies 15: 357–86.

Rodrik, D., Subramanian, A., &Trebbi, F., (2004). Institutions rule the primacy of institutions over geography and integration in economic development. Journal of Economic Growth, 9, 131-165.

Rose R., (1995). Russia as an Hour Glass Society: A Constitution without Citizens. East European Constitutional Review 4(3): 34-42.

Shen J.,&Bian Y., (2018).The causal effect of social capital on income.A new analytic strategy. Social Networks, 54(), 82–90.

Shilimi M., (2021) Examining Challenges Leading to Low Integration of Savings and Credit Co-Operative Societies (SACCOs) in National Economies: A Study of Zambia. Open Journal of Business and Management, 9, 1338-1366.

Shunyue G., (2017). An empirical study on the influencing factors of residents' sense of well-being, Stat. Decis. (5) 116–118.

Stein J., Harrison H., & Jeffrey K..(2004). Social Interaction and Stock-Market Participation.Journal of Finance 59: 137–63.

Stiglitz Joseph E., (2012). The price of inequality.New York: Norton.

Tan S., &Oktay T., (2020).Social Media Sentiment in International Stock Returns and Trading Activity. Journal of Behavioral Finance 22: 1–14.

Wu K., Yi L., YifanX., & He S., (2023). It Pays to Have Guanxi: How Social Capital Affects Household Income in China. International Studies of Economics 18, 370–392.

Zhang X., &Guo L., (2003). Does Guanxi Matter to Nonfarm Employment? Journal of Comparative Economics 31: 315–31.

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