

Multiple- Driving Paths of Saving and Investment in Regional Gross Domestic Product of Southern Ethiopia

Abstract

Despite an increase in overall economy of the country, saving and investment is still low. As the result, this study was undertaken to factor out the contribution of savings and investment on the regional economic growth of the study area. Cross-sectional data was used for analysis. The descriptive analysis, Logistic regression model and Heckman two stage selection model were used to properly examine the investigation. Thus, majority of the households saved their money in the formal sector of finance rather than in the informal sectors like Iqube and Edir. The rate of saving is much lower than the rate of non-saving in the study area. In addition to that households have higher expenditure on food items than non-food items in the study area. Therefore, despite the fact that enhancing production have a significant implication on the value of saving and investment, it has been revealed that there are major differences from people to people in the study area. Therefore, the existing rate of saving and investment has lesser contribution in the regional economic growth in the area. Moreover, sex, age, household size and expenditure were key to determine the level of saving money in the study area. Therefore, Improving the investment climate, particularly those relating to security of property, crime, political instability, and macroeconomic instability should be taken into account by the government.

Keywords: Saving, Investment, Heckman, Southern Ethiopia.

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1. Introduction

Theoretically, saving is portion of current income not spent on consumption. Investment is purchase of assets with the goal of increasing future income or wealth for a given country. However, saving and investment have conceptual link under bigger economic growth theory.

Thus, countries with higher rates of savings have had a faster economic growth than those with lower saving rates. Capital accumulation creates greater opportunities for production and productivity of a country by providing an additional income stream. Thus, saving and growth has positive relationship in practice (Hundie, 2014; Sabra *et al.*, 2016; Singh, 2019).

Globally, the role of domestic saving and domestic investment in promoting economic growth, price stability and expansion of employment has got considerable attention. Thus, savings could be examined in terms of their aggregate behavior or at a personal or household level. In addition to distinguishing the unit of analysis, it is also imperative that a distinction be made between saving behavior in developed and developing economies (Engeda *et al.*, 2011; Beshir, 2017).

In classical theory, an increase in saving leads to a reduction in the interest rates prompting investor's demand more from the available funds and therefore increase investments. Contrarily, Keynes argues that an increase in the investment leads to an increase in the output and income, which, in turn, will increase savings. Therefore, in any case, savings and investment are considered as important variables in achieving price stability and promoting employment opportunities and thereby contributing to gross domestic product (GDP). On top of that, the size of an economy is typically measured by the total production of goods and services in the economy, which is called GDP (Ayadi *et al.*, 2020; Dumo *et al.*, 2023).

Therefore, economic growth only comes from increasing the quality and quantity of the factors of production, which consist of four broad types: land, labor, capital, and entrepreneurship. In the other words, growth in the size of the workforce and growth in the productivity (output per hour worked) of that workforce can increase the overall size of the economy/GDP but above all strong productivity growth can increase per capita GDP and income (Sabra *et al.*, 2016; Balogun, 2017).

In Ethiopia, both gross domestic saving and investment exhibited increasing trends after the economic reforms were introduced in 1992. As a percentage of GDP, gross domestic savings and investments increased from 12.1 percent and 13 percent in 1991/92 to 17 percent and 24 percent respectively in 1997/98. However, the growth of domestic savings was much lower than the expansion of domestic investments; leading to widened resource gap (measured as the difference between gross domestic savings and investment) from 0.8 percent of GDP to 7.1 percent of GDP. While, the gross domestic saving as a proportion of GDP stood about 14 percent of GDP

per annum over the PASDEP period (2005/06-2009/10), gross domestic investment averaged 18.4 percent of GDP as a result, the resource gap improves to 14.4 percent of GDP compared to the SDPRP period. The growth in gross domestic saving and investment improved significantly over the GTP I period relative to the previous plan period. Gross domestic saving increased rapidly from 13.8 percent of GDP in 2009/10 to about 22.1 percent of GDP in 2014/15, averaging 19.5 percent of GDP compared to the PASDEP period (Abebe *et al.*, 2018; Dumo *et al.*, 2023)

However, saving and investment in SNNPR has critical challenges that hinders the whole economy of the region at large. Thus, ten years data of the region indicates that the actual figure of the regional saving to regional GDP is insignificant. Besides the gaps observed in formal saving institutions, the nature of private saving which is practiced at informal institutions is completely missed due to lack of measured empirical data. According to the regional planning and development bureau' report, the share of formal saving institutions in real regional gross domestic product during the year 2008 -2011 (1.76, 1.95, 1.94 and 1.83 billion ETB) respectively and its share in regional gross domestic product was only 0.89%, 1.2% 1.3% and 1.1%. Attributable to the fact that while scrutinizing the contribution of formal and informal saving in the regional GDP, inconsistency is observed between theme wherein saving in formal institutions is properly designated with its proportion but the share of informal saving institutions is disenfranchised at all (Boulanger *et al.*, 2019; Wondimu, 2022).

Fundamentally, this study analyzed the determinants of savings and investment and their contribution to the regional economic growth of Southern Ethiopia. The study has three sections as follow; the first, identifying factors affecting saving and investment; second, investigate the status of informal saving, investment in the study area; thirdly, exploring the contribution of saving and investment for regional economic growth. Finally, assessing the bottlenecks and ways of forwards for savings and investment in the study area. Therefore, this research contributes empirical evidence on the regional saving and investment status to develop applicable strategy and policies in Southern Ethiopia. Moreover, the research would look for the potential implications on theory, practice and contribute to existing knowledge on the topic.

2. Literature Review

2.1. Theory of Saving and Investment

The basis of Keynes' position on the neoclassical theory of saving and investment is that saving is not as simple as neoclassical thought, rather, it is a two-step process as opposed to a single process. Keynes tends to view saving as a process broken down into two parts; marginal propensity to consume and marginal propensity to save, thereby saving for Keynes, it is not only thrifty (neoclassical), but income is also considered. In this sense, the first part to saving is first acquiring the income before deciding how much to consume or save. Thus, to determine how much saving is ideal, one first needs income, and then the propensity to consume follows. Income is determined by the point of effective demand, effective demand determines employment, and income is determined by employment. However, employment is determined by investment, which depends on marginal efficiency of capital as an expectation in terms of money value. To sum up this perspective, saving never acts as a source of investment and never deviates from investment so $S=I$ (Terzi, 1986).

In their paper, in the absence of perfect capital mobility, the empirical data tend to support the orthodox economic view of saving and investment relationship i.e. saving causes investment. Miller's study (1988), which utilized Engle's and Granger's causality method with annual data from 1948-1987, revealed a clear positive causal relationship between savings and investment in the economy of Latin America. This positive causal relationship is clear in the pre-World War II period and with a fixed exchange rate regime. In other words, Miller's research was consistent with Feldstein's and Horioka's theory (FH).

However, DeVita and Abbott in their study (2002) found that capital mobility resulted in a weakening of the coefficient between saving and investments since 1971 which is compatible with FH theory stating that saving does not cause investment under conditions of perfect capital mobility. In context, Kim used a panel of annual data spanning from 1958 to 1992 and covering 62 countries with varying economic structures to further test the FH theory. Kim's findings showed that the positive causal

relationship between savings and investment holds true in the case of OECD member countries that have less capital mobility compared to the developed economies that have perfect capital mobility.

2.2. Investment and Economic Growth: Theoretical and Empirical Review

Even if the argument saving versus investment and economic growth has still been unsettled, the question of what determines saving is also a source of theoretical and empirical debate. The life cycle model (LCM), the permanent income hypotheses (PIH) and the relative income hypothesis (RIH) are widely used as a benchmark to organize the arguments about the consumption and saving behavior of households. The Life cycle model (LCM) assumes that economic agents make sequential decisions to achieve a coherent goal using the currently available information as best they can. Utility maximizing agents postpone part of their current consumption and save it for consumption during retirement in a dynamic and uncertain environment. The PIH argues that consumption expenditure closely follows permanent income, instead of current income of economic agents as hypothesized by Keynesian economists (Ayadi *et al.*, 2015; Abebe *et al.*, 2018).

There are different views in the literature on the relationship among domestic saving, investment and economic growth in developing countries. For instance, the classical economists such as Lewis (1955) postulated that the increase in saving is a necessary and sufficient condition for investment since it avails more funds for investment which in turn, accelerates economic growth while the early Harrod-Domar (1939) models specified investment as the key factor in promoting economic growth. In contrast, the neoclassical Solow (1956) model argues that an increase in saving rate boosts the steady-state output by more than its direct impact on investment because the induced rise in income raises saving, leading to further increase in investment. This higher investment in turn accelerates economic growth by increasing aggregate demand in the economy. The endogenous growth model also postulates that an increase in saving rates enhances economic growth through its positive impact on investment and capital accumulation (Dumo *et al.*, 2023).

The pioneer in terms of clearly establishing the link between saving and economic growth was Harrod (1939), who was later followed by Domar in (1946). The two pioneer development economists lent for the well-known Harrod and Domar Model. These two economists, Solow

(1956) and Romer (1986) underscored the importance of saving as it translates itself into investment and stimulates economic growth (Boulanger *et al.*, 2019).

Ethiopia, being a developing country with low per capita income, limited formal financial saving instruments and undeveloped financial markets to channel savings in to investments, has experienced a relatively low rate of domestic savings. On the other hand, investment has been the main pillar of the country's productivity and economic growth. Hence, increasing the rate of domestic savings in Ethiopia has been desirable to meet the substantial investment needs. Since, the inception of economic reform in 1992, the emphasis has been on enhancing domestic saving and investment as the primary instruments for fostering economic growth and increasing national income (Beshir, 2017; Wondimu, 2022).

Ethiopia's domestic savings rate is low compared to the fast pace of capital accumulation observed between 2003/04 and 2010/11. Ethiopia has been experiencing single-digit domestic saving rates while economic growth was in double digits, supported by investment rates beyond 25 percent of GDP. Consequently, Ethiopia is confronted with a persistent and wide domestic saving and investment gap, which has been financed by external sources. Given the current levels of domestic and external savings, however, it may be difficult to finance this investment plan. (Yohannes, 2014).

3. Methodology

3.1. Research Design and Approach

Mixed methods of research is an emerging area with a growing amount of interest across several disciplines and has been particularly popular in the areas of applied social research. Mixed methods approach provides opportunities to compensate the inherent methods weaknesses, strengths and offset inevitable method biases. Thus, it enables greater degree of understanding to be formulated than adopting a single approach to specific studies (Creswell, 2019).

The theory-based triangulation on how events occur and influence the aggregate regional saving and investment in the study area was investigated. Therefore, due to scientific and conceptual reasons discussed above, mixed methods and triangulation in harmony would make this research as a tool for the regional development.

3.2.Data Sources and Collection Method

In this study both primary and secondary data were used. The primary data was collected from the households, *Iqub and Idir* through open-ended and closed-ended questionnaires to allow deep investigation of households private saving and investment in study area. In addition to that key informant interviews were undertaken in informal sectors like *Iqub and Idir* in the study area.

Secondary data was also collected from different findings of published, unpublished documents and articles related to the research problem. Annual reports and quarter report documents were considered from relevant bureaus like BoFED, OMO micro-finance, Cooperative associations, Banks and Insurance companies and regional plan and development bureau, investment Bureau and other informal financial sectors like *Iqub and Idir*.

3.3. Sampling Technique and Sampling Size Determination

Multi-stage sampling method was applied. In the first stage, four representative zones (South Omo, Wolaita, Kambata-Tambaro and Gurage) in the region were selected purposively, due to the diversity of population and variation in socio-economic conditions of zones in the area. In the second stage, one Woreda/Town administration from each selected zones were chosen by random sampling technique. Thirdly, three *Kebeles* from each of the selected Woredas was selected based by stratified sampling technique. The stratification was based on the agro-ecology of the areas. Finally, members of informal and formal financial sectors households were selected by simple random sampling techniques.

To determine the required sample size, the formula developed by Yamane (1967) was applied at 95% confidence level.

$$n = \frac{N}{1+N(e)^2} \quad (1)$$

Where;

n is the required sample size for the research

N is the population size.

e is the level of precision (= 0.05).

The total number of respondents selected from both formal and informal financial institutions were 3,281,056. Therefore,

$$n = \frac{N}{1+N(e)^2}$$

$$n = \frac{3281056}{1+3281056(.05)^2} \quad \text{Therefore, } n = 400 \text{ sample households were used in the study area.}$$

3.4.Data Analysis and Model Specifications

Data analysis was done by using both descriptive and econometric models. The first specific objective was analyzed by descriptive statistics and triangulated with qualitative data. The second objective was examined by using the logistic regression and Heckman selection models. Moreover, the logistic regression and Heckman selection models are more convenient to deal with this study.

Heckman's two – stage model is an econometric model which was used in this study to analyze both the households who save and not save their money. Therefore, Heckman (1979) two – stage estimation model was employed for its advantage of selectivity bias correction using the inverse Mill's ratio which is generated in the first stage /probit regression estimate of the saving decision and used in the second stage of regression as one of the explanatory variables with other variables to estimate level of saving money. The third objective was analyzed by using descriptive statistic and Likert scale (perception and expectation analysis).

The saving money equation could be formulated and analyzed employing Heckman second stage model which could be specified as Heckman (1979):

The regression equation is

$$Y_i = X_{i\beta} + U_{1j}$$

The selection equation is $Z_{j\gamma} + U_{2j} > 0$

The two-step estimates are computed using Heckman's (1979) procedure. Probit estimates of the selection equation

$$\Pr (Y_j \text{ observed} | Z_j) = \phi_{(Z_j \gamma)}$$

are obtained. From these estimates, the non-selection hazard—what Heckman (1979) referred to as the inverse of the Mills ratio, m_j —for each observation j is computed as

$$m_j = \frac{\phi(Z_i \hat{\gamma})}{\phi(Z_i \hat{\gamma})}$$

4. RESULT AND DISCUSSION

4.1. Descriptive Statistics of Regression Analysis

Males predominated in the examined households, as indicated by the approximately 75.66% of sampled families with a male head of family. In the study region, the average age of the respondents was 41 years old. The study area's maximum number of families was 20, despite the average family size being nearly identical to the CSA's sample survey on a national level. The average landholding in the region was 0.9732 hectares, though. In the research area, the percentage of spending on food relative to all spending was 57.93%. (Table 1).

Additionally, the qualitative data revealed that the respondent had been working momentarily as the chairperson and secretary of Farmers' Cooperative Association with a monthly salary of 1000–2000 Birrs, in addition to their primary employment in the agricultural sector. As a result, the respondents who worked in the agricultural sector said that their primary sources of income were farming and other associated industries, in which they had begun working at various points in time.

According to the interviews, growing a variety of crops on their farmland, such as enset, coffee, cereal crops, khat, and other marketable vegetables, is a significant source of seasonal income for the respondents. For instance, some of the respondents who were active in coffee farming were able to make between 18,000 and 300,000 birrs from their coffee sales, and others who were cultivating cash crops like khat were able to make between 12,000 and 100,000 birr from the whole sale of their product.

According to the information gathered from the informants, family expenses, and school costs for the children, and weekly and monthly spending for food and non-food items are among the weekly and monthly expenses that must be paid for using monthly earnings or revenue received. According to this, the majority of respondents claimed that they spent their weekly and monthly expenses, which are part of their budget, on food and non-food items as well as other social

issues. The informants claimed spending up to 1000 Birr per week on miscellaneous expenses, 2000 Birr per month on food-related expenses, 1500 Birr per month on house rent, and 1000 Birr per month on children's school fees. Respondents grow eucalyptus and coffee on a small plot of land at the coffee farm. They use the proceeds from their farms to pay for their families' food expenses. In addition to this, they have been using a mixed agricultural method in the research area, which includes both crop and animal production.

On the other hand, the group discussions and interviews revealed that there are individuals in the study region who use either self-employment or employment with the government as their primary source of income to support themselves and their families. Some of the informants described themselves as retired teachers or government employees, whose primary source of income was a pension payout. The retirees responded, however, that the amount of their pension they take on temporary jobs like kindergarten director or teacher in a private school because the money they earn is not enough to cover their expenses.

A majority of the informants also mentioned that they were working as government employees and that they supported their families with the monthly wage they received. However, the qualitative information collected from a small sample of respondents revealed that a few of them were active in multiple economic sectors. In relation to this, the responses from informants indicated that they were simultaneously involved in two distinct business sectors, farming and trading, which may be described roughly as follows.

Although the informants who claimed to be involved in multiple businesses claimed to be involved in farming and trading, those who claimed that in addition to incomes from their agricultural products, they earned up to 10,000 birrs per month from retailing shops and grocery store business, while remaining informants explained that they have cereal warehouses where they sell grains either as whole sellers or retailers off of which they earned up to an additional 10,000 birrs per month.

Table 1. Descriptive statistic of Regression Analysis

Variables	Mean	Std. Dev.	Min	Max
Sex of the households' head	1.24	0.4295	1	2
Age of the households' head	41.94	11.0156	16	78
Marital status of the respondent	1.22	0.7857	1	5
Households' size	5.82	2.6613	1	20

Higher level of Education achieved by the household head	6.97	5.1435	0	16
Landholding of a households	0.97	1.0949	.001	7
Expenditure of Food item	48,298.11	4,0187.31	0	468000
Money saved	297,374.9	2,220,999	0	3.60e+07
Farm income	131,237.5	204,592.2	820	2,196,800
Non-farm income	1,041,137	4211556	200	3.75e+07
Output produced	1,865.157	1829.658	9	12450
Output sold	56,660.47	68,864.06	270	510000
Experience of owning saving account	1.073826	0.2617797	1	2
Tropical Livestock units	2.210288	3.782758	0	58
Capital invested at household level	198,445.3	1,615,076	0	2.20e+07
Remittance	185.8407	2519.278	0	50,000
Domestic market Distance from the household	2.608741	4.085299	.01	44
Total expenditure of households	83,371.65	82,819.23	3150	1,201,000
Average households who saved at least 7,184 ETB per year money	0.5209713	0.5001123	0	1

Source: Author's Illustration (2022).

Furthermore, the study area's households' agricultural income is significantly lower than their non-farm income. As a result, the amount of savings in the study area is significantly impacted by the fraction of non-farm income. In the research area, the majority of households have savings accounts in various financial institutions. Fundamentally, 52.1% of the 442 households in the research region strive to save 7,184 ETB per month. The results also revealed that the average livestock holding for the families, expressed in TLU, was 2.21; the greatest and lowest values, however, were 58 and 0 TLU, respectively. The households' average annual agricultural income is Birr 131,237.5, with a range of 820 to 2,196,800 Birr (Table 1).

The annual poverty level for the year 2015/16 in Ethiopia was estimated to be Birr 7,184, as stated in (PDC, 2018; Meja et al., 2021), the poverty line utilized for estimation of the poverty line based on the cost-of-basic necessities approach and 1995/96-2015/16 data.

Accordingly, using a similar methodology, 52.1% of the sampled respondents saved at least 7,184 ETB in any financial sector, while the remaining 47.9% of the respondents were households who were unable to save money in the study area. It revealed that during the survey year in the study area, more than half of the households were prohibited from saving money over the poverty level (Figure 1).

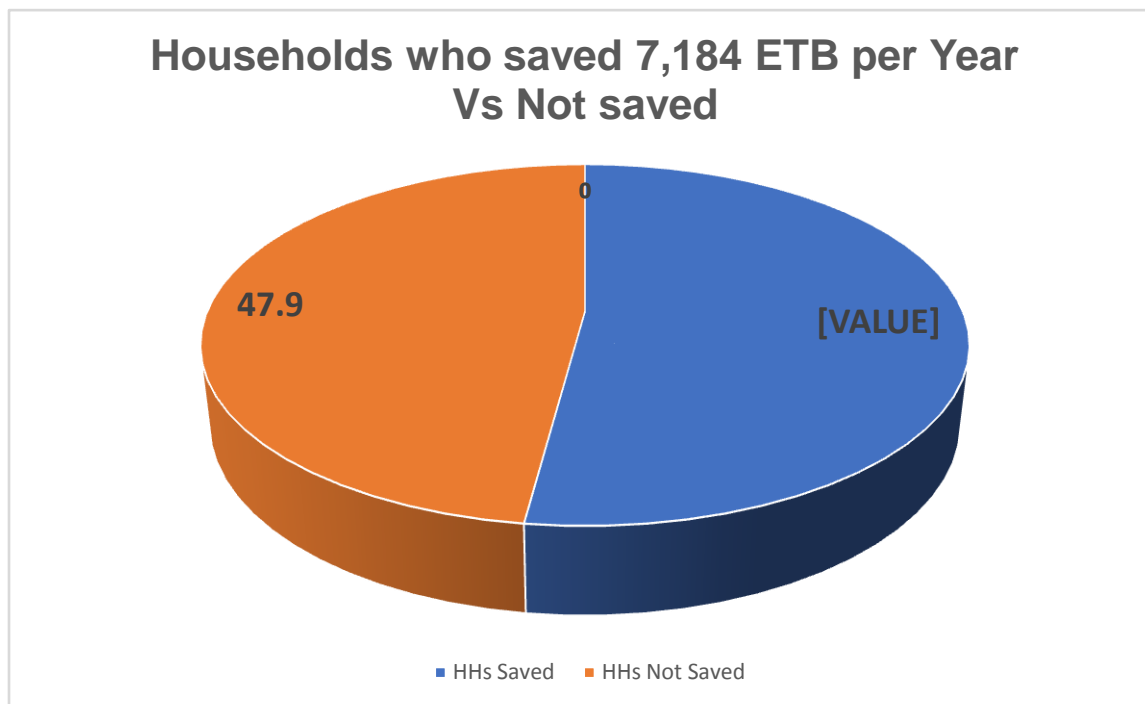


Figure 1. Households who saved 7,184 ETB per year Vs not saved

According to Figure 1, the percentage of sampled respondents who have saved is marginally higher than the percentage of respondents who have not saved. Additionally, in the research location, people spend their income on everyday consumption rather than saving.

An in-depth interview with key informants was undertaken in order to collect details of information regarding the identification of various types of expenses that were paid for using monthly salary or profit. According to the information gathered, the government employees had better experiences with identifying and managing their incomes than the other informants who took part in this in-depth survey by responding to the question of whether they identify their weekly, monthly, and yearly expenses and manage their income or profit based on plan.

Table 2. Mean Value on Sampled Crops Based Income Obtained by the Respondents

Product produced and sold	Average Annual income from the product in money value
Khat plant	12,000 - 100,000
corn crop	20,000 - 150,000

cassava plant	20,000 - 40,000
coffee	18,000 - 300,000
Cereals	10,000 - 30,000
vegetable	9,000 - 70,000
Mean Value	14,8333- 115,000

Source: Elaborated by Researchers (2022).

In accordance with Table 2, it is possible to debate the list of annual income sources from which the respondents engaged in the farming business sector to make their money during the previous one year through the sale of agricultural products that contains the minimum and maximum amount of money in the study area. According to the qualitative data, the majority of respondents in the research region use private and state banks as well as other savings institutions for their businesses and to collect their monthly salaries.

Commercial Bank, Nib Bank, South Global Bank, Union Bank, OMOF, Vision Fund, and cooperatives are a few of the common financial service providers cited by the interviewees. Because of different factors related to their utility or pleasure in the study region, the informants who mostly identified the Commercial Bank of Ethiopia and other private banks as their preferred choice. However, the majority of respondents favor OMO Microfinance and Farmers Saving and Loan Cooperatives for both money deposit and loan services, demonstrating their belief that these financial institutions offer service close by and make it simple to obtain loans with the same amount of money they have saved.

Additionally, the qualitative data showed that while banks generally provide outstanding customer service, when consumers come in for routine services, there is a very long line owing to the rise in users, and this problem is particularly acute on market days. According to the respondents, the issues were swiftly fixed and resolved. The shortage of employees that the bank cannot match with the users, which prevents the supply of speedy service, and occasionally the interruption of service when there is a problem with the network are among the concerns made by the respondents about the provision of banking services.

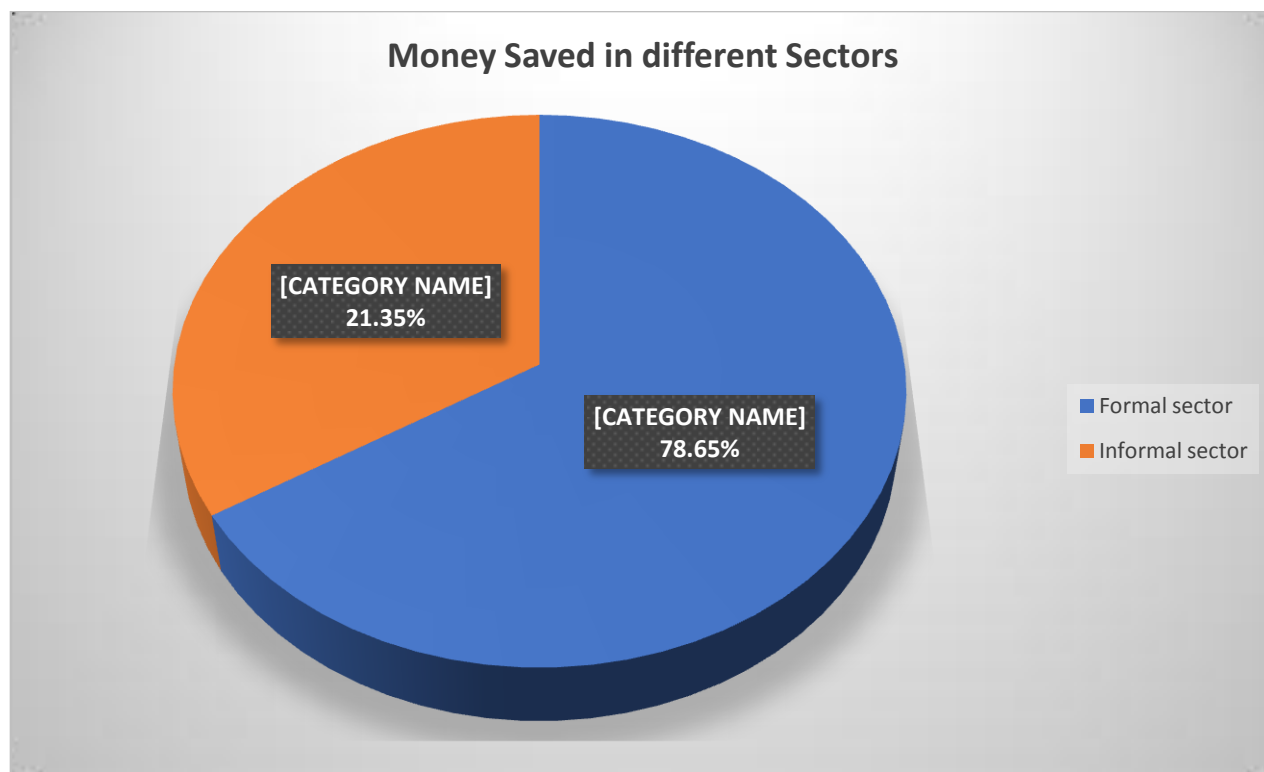


Figure 2. Money Saved in the Informal Sector and Formal Sectors.

The comparison between the money saved by male and female indicated that majority female respondents in the study area were saved their money dominantly than the male. As it is indicated in the figure below, the female saving rate is higher than male.

The interviewees disagreed on various points, showing that there is a low culture of saving. They cited a lack of opportunities for employment that could transform their lives, a shortage of agricultural land, a high cost of living, and the fact that they live hand to mouth as reasons for this. They also say that there is still much to be done in terms of modernizing farming, raising productivity, and fostering a culture of saving because the majority of the community is involved in agriculture and is managed by selling a little less than what they produce. Furthermore, despite the notion that a culture of saving may be created through increased productivity and hard labor, the respondents feel that society as a whole lacks a strong work ethic.

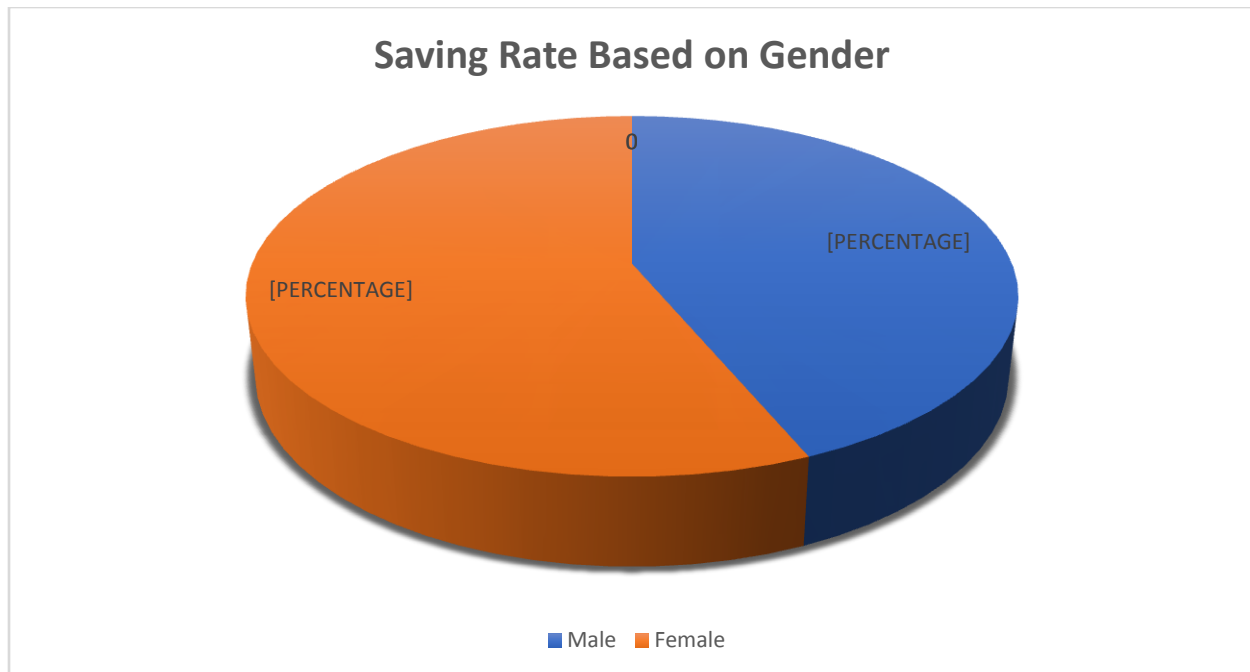


Figure 3. Saving Based on Gender Differences

Figure 4 shows that there is diversity in the amount and degree of expenditure on the issues in the study region with regard to the seventy-five percent share of total expenditure. As a result, the expenditure on food items accounts for a large portion of the total expenditure. According to the qualitative data, the majority of the responsible individuals who were managing their financial situation with a monthly wage said that they were aware that their monthly income was less than their monthly expenses.

The respondents provided this response in order to demonstrate how they would manage their weekly and monthly expenses for food and non-food bills as well as other social issues while they were receiving their monthly salaries. The informants listed their weekly and monthly expenses and noted that they spend extra money on social matters like ordering food, coffee, tea, and other beverages. When asked how much they save from their monthly salary, the government employees who took part in the interview all indicated that they do not save anything, with the exception of two informants.

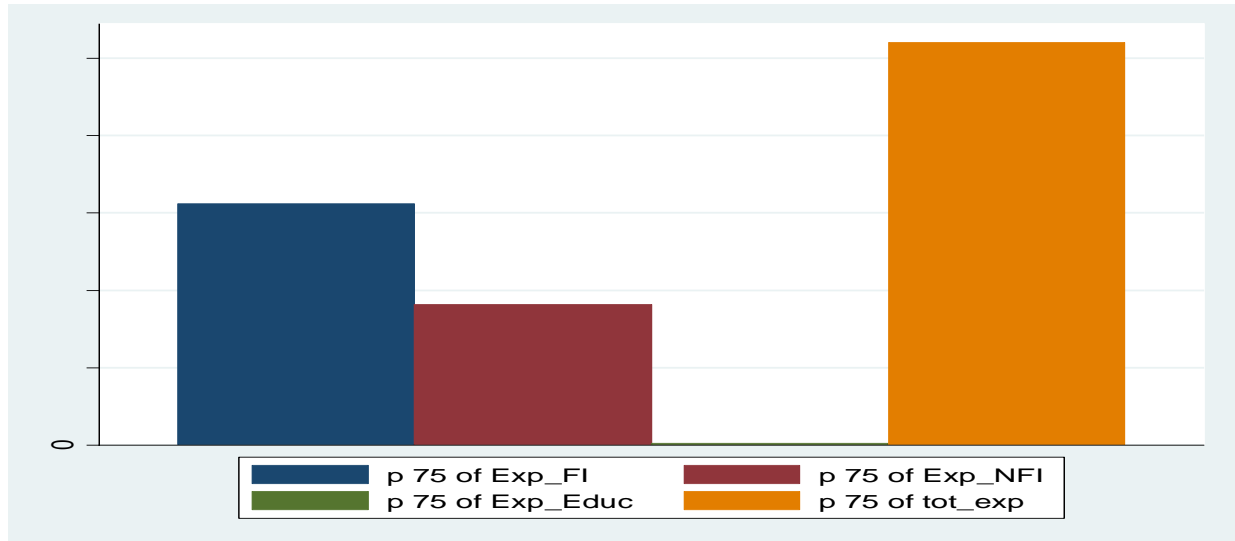


Figure 4. The relationship in 75% of food and non-food items expenditures, and total expenditure.

Source: Author's Illustration (2022).

As focus group discussants and interviewees indicated that, in the last twelve months, the above-mentioned food and non-food expenses have shown a significant increase in prices, and various reasons were suggested for its happening. Consistent with this argument, one of the factors that caused for the escalation of food and non-food expenses was the war that broke out in the northern part of our country in 2013 Ethiopian calendar.

Although it is known that the government has been giving various notices and statements in various media to enable the government to take corrective measures regarding this man-made price escalation, however, greedy traders are using this opportunity of prolonged war time crisis to hide consumer goods through supposing that they would sell it while it would reach its highest selling price levels. Under the logistic regression model result indicated that all the explanatory variables, significantly affected household's money saving and investment in the study area. The logistic regression analyzed the variable that are positively and significantly correlated with the probability of household money saving and investment practice in the study area. The variables that were significantly, but negatively correlated with the probability of household money saving and investment were age, size of the households, total expenditure of the households and marital status.

Therefore, the negative value of the coefficient in the independent variable shows that when independent variable increased by a unit, the probability of saving money and investment decreased by about the value of the coefficient, this suggests that negative relationship between household money saving and investment and the variable.

Table 3. Analysis of Logistic Regression

<i>Save</i>	<i>Coef.</i>	<i>Robust Std. Err.</i>	<i>z</i>
Sex of the households' head	0.0059***	0.7825045	0.01
Age of the households' head	-0.0598***	0.0227491	-2.63
Size of the households	-0.0328***	0.1286899	-0.25
Marital status of the households	-0.5123**	0.2413614	-2.12
Higher Education achieved HHs	0.1648**	0.0579734	2.84
Logarithm of land size	0.0836***	0.1786989	0.47
Total expenditure of the HHs	-0.9443***	0.6273014	-1.51
Distance from market_(Km)	0.3830***	0.1925484	1.99
Dummy storing Experience	-0.2908***	0.9512874	-0.31
Logarithm of output sold	0.2963***	0.3423144	0.87
Logarithm of output	0.1775**	0.3545479	3.32
Logarithm of TLUs	0.0111*	0.0454196	0.25
_cons	1.8090***	6.729113	0.27

Legend: *** Significant at* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$;

Source: Author's Computation.

Source: Author's Illustration (2022).

As seen in Table 4, households earn income for both consumption and saving in order to invest. To determine the variables affecting financial saving and investment in the research area, the Heckman two-stage selection model (regression model with sample selection) was utilized. Wald $\chi^2(17) = 492.10$, $\text{prob} > \chi^2 = 0.0000$, the model's test result, showed that the model is statistically significant at 1%. As a result, the results of this study's two-step Heckman selection model are as follows: -

Sex: The respondents' sex was a detrimental impact on the amount of money saved and invested in the study area. The study's result showed that the sex of the family had a negative and substantial impact on money-saving and investment behavior by 3.87% in the study area.

Age: The age of respondents, affect negatively the situation of saving and investment in the study area. The increase in age as a factor of the household can decrease situation of saving and investment. The P-value with a coefficient -0.0023783 means that the age of household negatively and significantly affects money saving and investment in the study area.

Household size: The family size of household affected negatively of money saving and investment means if the number of family size increases the money saving and investment in the study area. The results indicate that the family size was negatively, significantly affect money saving and investment in the study area. This finding indicated that as household family size increases by one family member in a household, the probability of money saving and investment decreases by 0.524.

Educational level of the household: the educational level of the household affected negatively and significantly the money saving and investment in the study area. This increase in a year formal schooling, increases the probability of money saving and investment by 79.18% in the study area. The same is true according to the study conducted by World Bank (2015). This implies that as the educational level of household increases by one-year formal schooling, the money saving and investment increases.

Land size: the land size of the respondents affected positively and significantly money saving and investment in the study area. The p-value with the coefficient 0.3823701 results indicates that the land size positively and significantly affects money saving and investment at 1 % significance in the study area.

Farming Income of the Household: The p -value with the coefficient of (0.2300007) which indicate that the money saving and investment positively and significantly affect household money saving and investment in the study area. However, experiences in money saving and investment go in line with owning saving account dominantly in the formal financial sector in the study area. Thus, marginal effect of these factors would probably increases money saving and investment and household investment level in the study area.

Distance to market: The coefficient 0.6983834 result indicated that the distance to market positively affect money saving and investment. However, the respondents who lives nearer to market center were likely have lesser transaction cost. Thus, the distance to market decreases by one kilometer, the probability in saving and investment increases by 69.84%.

Table 4. Heckman Selection Model Analysis at Households Level

Saving money for Investment	Coef.	Std. Err.	z	[95% Conf. Interval]	
Sex of household head	-0.0386812	0.0295447	1.31	-0.0965878	0.0192254
Age of household head	-0.0023783	0.0026234	-0.91	-0.0075201	0.0027634
Higher Education Level of HHs Head	0.79177	0.6660786	1.19	0.0972407	0.9913692
Household Size	-0.0052407	0.0119236	-0.44	-0.0286105	0.0181293
Land size by the household's	0.3823701	0.4722001	0.81	0.02779	0.5663062
Marital status of the households	0.0069838	0.0093531	0.75	-0.0113479	0.0253155
Farm income of the households	0.2300007	0.5000007	0.82	0.0076432	0.7678698
Logarithm of total expenditure	-0.6457141	0.5070982	-1.27	-0.034818	-0.1639609
Distance from the nearest market (Km)	0.6983834	0.9353181	0.75	0.2113479	0.8753155
Dummy storing Experience	-0.0402593	0.1176356	-0.34	-0.2708208	0.1903022
_cons	0.7400143	0.6018798	1.23	-0.4396484	1.919677
Saving money for Investment					
Land size by the household's	0.2344848	1.396563	0.17	-2.502729	2.971699
Household size	-0.0021467	0.217163	-0.01	-0.4277784	0.4234851
Distance from the nearest market (Km)	1.969562	3.585275	0.55	-5.057449	8.996573
Dummy of storing Experience	-6.585016	1.107111	-5.95	-8.754914	-4.415118
_cons	0.615257	0.5309814	1.16	-0.4254474	1.655961
Mills					
lambda	0.4271546	0.7451931	0.57	-1.033397	1.887706
rho	0.946523				
sigmas	0.42715462				

Source: Author's Computation (2022).

Conclusion and Recommendation

The study concluded that modernizing farming, raising productivity, and fostering a culture of saving are dominant player of saving and investment in the study area. Sex, age, household size and expenditure were key to determine the level of saving money in the study area. Majority of the households saves their money in the formal sector the finance. The rate of saving is lower than the rate of non-saving in the study area. Households have higher expenditure on Food items than non-food items in the study area. Therefore, the striking issue is that households with very

similar opportunities/work/habit/family size but with different saving and investment experience indicated that those who don't have good experiences of saving and investment should change their culture saving. Improving the investment climate, mainly reducing and mitigating risk, particularly those relating to security of property, crime, political instability, and macroeconomic instability should be taken into account by the government. Although effort of everybody is the focal point of action, government also suggest pooling efforts to develop cohesive saving and investment condition.

Data availability statement: Data subject to third party restrictions. *The data that support the findings of this study are available from Southern Ethiopia Bureau of Planning and Development and Policy Study and Research Institute (PSRI). However, restrictions apply for the availability of these data, which were used under license for the current study, and so are not publicly available. However, it could be available from the PSRI or authors upon reasonable request and with permission of PSRI.*

COMPETING INTERESTS

Authors have declared that they have no known competing financial interests OR non-financial interests OR personal relationships that could have appeared to influence the work reported in this paper.

- I. **Consent:** Informed Written consent was obtained from individual respondents prior to data collection.

REFERENCES

- Abebe, G., Tekle, B., & Mano, Y. (2018). Changing saving and investment behaviour: The impact of financial literacy training and reminders on micro-businesses. *Journal of African Economies*, 27(5), 587-611.
- Ayadi, R., Arbak, E., Naceur, S. B., & De Groen, W. P. (2015). *Financial development, bank efficiency, and economic growth across the Mediterranean* (pp. 219-233). Springer International Publishing.
- Balogun, M. S., Huang, Y., Qiu, W., Yang, H., Ji, H., & Tong, Y. (2017). Updates on the development of nanostructured transition metal nitrides for electrochemical energy storage and water splitting. *Materials Today*, 20(8), 425-451.

- Boulanger, P., Ferrari, E., Mainar, A., Sartori, M., Beshir, M., Hailu, K. B., & Tsehay, S. (2019). *Policy Options to support the Rural Job Opportunity Creation Strategy in Ethiopia*. Publications Office of the European Union.
- Dumo, G. A., Ico, H. D., & Magpantay, E. V. (2023). Applicability of Harrod-Domar Model in Explaining Economic Growth in the Philippines. *Journal of Economics, Finance and Accounting Studies*, 5(3), 22-46.
- Creswell, J. W., & Hirose, M. (2019). Mixed methods and survey research in family medicine and community health. *Family medicine and community health*, 7(2).
- Beshir, H. (2017). Factors affecting savings as means of economic growth in Ethiopia. *Ethiopian Journal of Economics*, 26(2), 59-88.
- Hundie, S. K. (2014). Savings, investment and economic growth in Ethiopia: Evidence from ARDL approach to co-integration and TYDL Granger-causality tests. *Journal of Economics and international finance*, 6(10), 232-248.
- Prabhakaran, S. (2019). Augmented dickey fuller test (adf test)—must read guide. *Machine Learning Plus*. <https://www.machinelearningplus.com/time-series/augmented-dickey-fuller-test>.
- Mexhuani, F., & Ribaj, A. (2018). Some factors for growing savings in Kosovo. *European Journal of Marketing and Economics*, 1(3), 131-140.
- Engeda, E., Tamru, S., Tsehay, E., Debowicz, D., Dorosh, P., & Robinson, S. (2011). Ethiopia's Growth and Transformation Plan: A Computable General Equilibrium Analysis of Alternative Financing Options.
- Ribaj, A. (2020). Issues related to financial education of youth in a developing country (the case of Albanian youth). Available at SSRN 3598539.
- Turan, G., & Gjergji, O. (2014). What is the impact of savings on growth? The case of a small open economy (Albania). *Mediterranean Journal of Social Sciences*, 5(13), 360.
- Sabra, M. M., & Eltalla, A. H. (2016). Foreign aid, domestic savings and economic growth in selected MENA countries. *Business and Economic Research*, 6(1), 352-362.
- Singh, S. N. (2019). Private investment and business opportunities in Ethiopia: a case study of Mettu Town in Ethiopia.
- Gebeyehu, W. (2010). Causal links among saving, investment and growth and determinants of saving in Sub-Saharan Africa: Evidence from Ethiopia. *Ethiopian Journal of Economics*, 19(2), 1-34.
- WONDIMU, A. (2022). *DETERMINANTS OF FINANCIAL SUSTAINABILITY OF MICROFINANCE INSTITUTIONS IN ETHIOPIA* (Doctoral dissertation, ST. MARY'S UNIVERSITY).
- Yohannes, G. (2014). *An Empirical Time Series Analysis on the Determinants of Gross National Saving in Ethiopia: ARDL approach to Co-integration* (Doctoral dissertation, MSc Thesis. Addis Ababa University).