

Research Article

Determinants of Private Investment in Ethiopia

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Abstract

The pillar for ensuring economic development is private investment. So that, the primary aim for this paper was to investigate key determinants of private investment in Ethiopia. The author used a quantitative research approach with an explanatory research design to realize the objective. The paper practically investigates whether Real GDP, inflation rate, real interest rate, foreign direct investment, tax rate, exchange rate, population growth rate, unemployment rate, international trade openness, education affect the growth of private investment in Ethiopia or not. The study mainly concentrated on thirty years of secondary data (i.e. from 1991 to 2020) on key variables. The data was obtained from a variety of sources including the NBE, IMF, WDA, CSA, and WB. Multiple regressions using the ARDL model with appropriate software E-views 9 was applied. The ECM is 110.6 percent that depicts the speed of adjustment from short run towards long run. The study also tests unit root (non-stationary), model stability, bounce, Johansson co integration, and diagnostic test. The main finding of the study showed that in real GDP, population growth rate, interest rate, trade openness, and unemployment rate were statistically significant at 5% level of significance in the long run and short-run and also exchange rate was a positive and statistically significant effect on private investment in short-run. And tax rate was insignificant in the short run. While FDI, Education, and inflation were statically insignificant both in short run and long run in this study. Finally, unemployment has a negative effect on private investment, the policy choice on the matter needs a cautious decision. To achieve the great short run and long run goals, it is advisable to employ integrated principle of action tools.

Keywords

Short Run, Long-Run Real GDP, ARDL, ECM, FDI, Johanson Co Integration

1. Introduction

As many studies ensure that of the struggle issues in the aspect of development-related discussion among policymakers, analysts, investors, researchers as well as various economic and financial institutions in developing and developed nations have been the role of the investment sector in the economic growth of countries. Besides, investment was defined by different scholars such as define investment to be an operation involving the purchase of items that will be used right away rather to consumed immediately [13, 34, 44, 46].

And others Bakare [13] defined as an investment. The act of acquiring income-generating assets, either as additions to existing assets or to replace assets that have depreciated. According to Ouattara [39] investment has different meanings which means broad and open-ended, defined that the term 'investment' is essentially ambiguous means has broad meanings.

Private investment is more successful and not subjected to corruption [12], private investment has a superior and more

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optimistic effect on the growth of the economy than public investment. Likewise, it supports that personal investment plays a greater role in deciding economic development than public investment [30]. The researcher concluded that in both nations, private investment is a contributor to economic development. According to Matwanga, [33] through increased domestic private investment there would be new technology has been adopted, good opportunities for employees, also increasing incomes and living conditions of the population can improve and eventually leading to the eradication of poverty.

This is because private sector investment is a vital prerequisite for economic growth. After all, it enables entrepreneurs to set in signal economic activity by putting together capital to generate products and services [24]. But most of the Sub-Saharan Africa (SSA) region, the growth of private investment low compared with developed nations. The relatively limited size of the formal private sector, especially in modernization and industrialization, and the difficulty of obtaining access to local investment funds, are critical factors [24].

Another consideration is that a high level of economic and political uncertainty can characterize many SSA countries, which discourages private domestic investments [24]. The basic tool which distinguishes industrialized countries from a developing country is their step of investment. In high-growth countries investment would be high, while it is low in low-growth countries. Low investment means the economy's productive potential will remain unchanged significantly, resulting in lower rates of growth and job creation, as well as fewer opportunities for the poor to better their living conditions White, [47]. According to Sackey [40] countries with better living standards are those that have diversified their economic structures. The weapon of structural diversification is investment commitment, concluded that Investment was essential for a country's economic growth and development.

Investment decision-making is a complex process that includes various steps and involves several evaluations. Modern investment decisions are based on diverse and complex investment-related expected risk and return models, risk-based capital asset pricing models, Efficient Market Hypothesis, and Modern Portfolio Theory Chinnasamy et al, [18]. Most financial theories and asset pricing strategies, such as discounted dividends, cash flow, and irregular earnings models, are based on the rationality of market actors and the available knowledge reflects stock market prices.

From 1974-1991 Ethiopia economy was state-centered and state-controlled. After these 17 years, changes in the country enabled Ethiopia to start building a market-oriented economy. Different reforms have been implemented to achieve macroeconomic stabilization and growth Privatization of state-owned businesses and currency rate regulations were among the macroeconomic changes. Taylor & Smith, [44]. In general, Ethiopia has continued to maintain a double-digit growth rate which averaged 10% over the last eight years. In

the 2014/15 fiscal year, (GDP) growth was 10.2% compared to the 4.4% forecast for Sub-Saharan African countries.

Ethiopia was ranked among the best-performing African and developing Asian countries in the NBE annual report for 2014/15. In terms of economic sectors, agriculture contributed 24.5%, industry 29.4 and service 46.1 percentage points to the 10.2% real GDP growth in 2014/15. Due to Ethiopia's favorable investment climate, investment has gradually increased over the last seven years.

Ethiopia is famous for its ancient civilization, historical culture, pride in tradition, and above all a territory with enormous potential for a country's economic development. Natural resources and human resources exist throughout the country. The climate and excellent soil are ideal for growing a wide variety of crops and raising livestock. However, due to the infancy of private investment, this land of plenty also suffers from poverty, lack of infrastructure, underdeveloped health centers, and other fundamental flaws of the economic system, and reacts by keeping the country underdeveloped [46]. So, this study was to investigate the key macroeconomic variables such as inflation, tax rate, exchange rate, foreign direct investment, gross domestic product, unemployment rate, education, real interest rate, and population growth that affect private investments in Ethiopia.

Statement of the Problem

Investment action is a vital vigor to a country's economic development. According to Bayraktar, [16] Economic growth and development are largely dependent on a country's capacity to invest and use its resources efficiently and productively. In this regard, the private sector's contribution to the quantity of gross domestic product as well as its ability to properly allocate and use resources is critical. Meaning that, development is unbearable without extensive and high-quality investment and active use of resources. Economic growth is both a result and a cause of investment.

Sesele [43], found that public investments, GDP growth, and public spending had a positive effect on the actions of private investors in South Africa. Similarly, Kariuki, [28], examining the factors of gross fixed capital formation in Kenya, the finding was governmental investment has a favorable impact on private investment. Abhijeet et al, [1] found that the experience of investment is highly determining both the investor behavior and investment decision, the study concludes that an increase in the experience will be helpful to the investor.

Factors that have encouraged private sector investment in Ghana have been empirically evaluated by Frimpong et al [40], Their findings indicate that private investment is determined by public investment, inflation, real interest rates, transparency, and a constitutional rule regime, using the co-integration and error correction strategies in the ARDL system. Knight et al, [31] according to the study, Private investment is positively affected by the raising of rates of return on capital savings, lower inflation, interest rates, more education leading to an increase in high-efficiency invest-

ment, and rapid economic expansion leading to comparable investment growth.

The OLS analysis was used to investigate the factors of private investment in Malaysia by Ang et al, [8], observed that both foreign direct investment and government investment enhance private investment. A higher level of aggregate production is achieved when private investment rises. Tobin et al, [45] analyzed the relationship between demographic variables and characteristics of the attitude of investors towards risk that may affect the growth of an investment. As, Bakare [9] investigated the determinants of private domestic investment in Nigeria using the ECM model determined that state investment competes with private investment.

Asante [10] used a time series analysis and a cross-sectional study, researchers investigated the determinants of private investment in Ghana. While some of the individual effects of macroeconomic instability components have been determined to be insignificant, the overall measure of macroeconomic instability has been a considerable obstacle to private investment. The expansion of real credit to the private sector boosted private investment in a statistically significant way. The Private and public investments were discovered to be mutually beneficial [41].

Even if the existence of free-market economy in Ethiopia after 1991 the involvement of private sectors investors are not enough because of that project stagnation and delays of operational problem exist especially at the revival of the private investment sector [7]. Ethiopia is the least developed country that is trying to improve its economic growth by increasing investment activity. However, the country's investment benefits are still lower than most of the other countries. Furthermore, the investment process from planning to execution must move through a lengthy and tedious bureaucratic process, according to the empirical evidence examined by Deneke [20].

This is partially due to the wide distance between accepted and operational projects, and also to the low number of projects that complete the project cycle [48]. This suggested that there was an issue in Ethiopia's investment sector concerning the involvement of private investors in the country's overall investment. A further consideration is a fact that most of the relevant private investment studies in Ethiopia were studied by using micro economics factors [15, 49].

Waktole et al [46] studies determinants of private investment in Ethiopia. His study adopts a quantitative research approach, in addition, uses secondary data and used a descriptive design for analyzing the impacts of private sector investment in Ethiopia. The findings show that public investment and inflation harm private investment. Even though multiple studies on the causes of private investment have been undertaken using various variables and in various locations. Furthermore, multiple empirical research on the determinants of private investment has been conducted this increasing the quality and advantages of investigations the

determinants of the private investment sector. However, studying private investment is a necessary thing because the effect of variables on private investment may be changed throughout time due to the nature of the variables has short and long-run effects on private investment sectors.

According to the researcher's knowledge, no empirical evidence has been conducted on the following variables, such as Unemployment rate, Exchange rate uncertainty, Trade liberalization, Education enrolment, and population growth rate. This study also uses an explanatory research design and with an appropriate econometrics model (ARDL) and error correction model (ECM). Finally, the finding of previous studies was inconsistent results in some independent variables that were used as the determinants of private investment. Based on this case the researcher forwarded this study and the researcher aimed to investigate the main causes of private investments and reach the appropriate results by test the inconsistent nature of the identified independent variables studied by the previous researcher.

2. Analysis of Related Literature

2.1. Theoretical Literature Framework

Definition and Concepts of Investment

Bayai et al [15] noted that economists generally reserve the term investment for transactions that increase the amount of real aggregate capital in the economy. This primarily involves the acquisition (or production) of new, sustainable (durable) assets such as factories and machines. Under the Convention on the International Centre for the Settlement of Investment Disputes, investment requires any form of activity. That is any form of investment, which adds to the existing capital formation of a country and so has a significant effect on the gross output of a country.

Keynes [29], who first brought attention to the presence of an autonomous investment role in the economy, dates back to the theories of public and private investment. Although ex-post savings and investment must be equivalent, the Keynesian study found that saves and investment decisions are frequently undertaken by different decision-makers, and there is no reason why ex-ante savings should equal ex-ante investment. The theory of the accelerator, which invested a linear proportion of changing output, was the next step in the history of investment theory. The accelerator model ignores expectations, profitability, and capital expenses.

Keynesians have long promoted the accelerator theory of investment while ignoring the role of factor cost. [10] When defining the determinants of investment, various approaches to the theory are usually considered. There are several conflicting investment behavior hypotheses, and some of the most relevant and commonly debated ones are examined in this article. There are four general approaches to modeling investment common in the current investment literature, ac-

cording to Ghura et al. [23]. The flexible accelerator model associated with Keynes, [29] the neoclassical model associated with Jorgenson et al. [27] the Q model of Tobin, [45], and the predicted model and financial factor of income are these broad categories. The last one mentioned has several alternatives.

Sources of Private Investment

Increasing investment or capital accumulation is a necessary condition for economic growth as well as economic development. So, the need for increasing the level and rate of investment is unquestionable [2]. The question is "how to finance the investment?" That's what the real sources of support for investment are. Therefore, it is impossible to bring about sustainable economic growth without raising the level and rate of investment. Capital accumulation in any developed economy involves the mobilization of an economic surplus that can be funded from external sources internally. Essentially, the sources of investment can be categorized into two: domestic (internal) and foreign (external) sources [49].

Domestic source of private investment

The accumulation of capital in any developing economy requires the mobilization of the economic surplus; in the case of private investment, it is possible to maximize the surplus from domestic sources, above current consumption, which can be tapped and directed into productive investment channels. This involves abstinence from present consumption for future use. In this situation, the value of financial institutions helps in creating the means of saving available to them. This implies the existence of a more developed capital market and the collection and distribution of inevitable funds by financial intermediaries [26].

External Source of Private Investment

Ndikumana, Leone, et al [35], it is important to mobilize capital from foreign sources when domestic resources are not adequate to fund investments. "Imports of foreign capital from developed countries might take the form of "stingless" loans and grants. But as cited in [49] the best way is to start joint ventures where foreign investors bring technical knowledge alongside capital, and they train local labor and enterprises.

2.2. Empirical Review

2.2.1. Studies Conducted Outside Ethiopia

There have been empirical studies by researchers to determine factors affecting investment behavior and volume of investment in Ethiopia and outside the country. The main determinants of investment in a given country can be at a micro and macro level. However, the study emphasizes the macroeconomic factor of private investment. the following discussion focuses mainly on the macro-level determinants of private investment using different kinds of literature.

In the period 1981-2015, N. Gisore et al. [24] examined the relationship between budget deficit availability and private investment growth in the East African Community using

the co-integration and error correction model test. The empirical outcome showed that the fiscal deficit harmed the region's private investment. Okorie [36] investigated the influence of private sector loans on private domestic investment in Nigeria using the ECM methodology. Although an increase in private sector lending has not contributed to an increase in private domestic investment growth in Nigeria, according to the study.

Ajide et al. [4] study which covered the period, 1970 to 2010 used the advanced econometric technique of the ARDL bounds testing approach in modeling long-run determinants of the growth of private investment. Interest rate, real GDP, exchange rate, terms of trade, external debts, public investments, credit to private investment, and reforms dummy were the most important long-run determinants of domestic private investment, while real GDP, public investment, and terms of trade are statistically significant in the short run. Real GDP, public investment, and terms of trade are statistically significant in the near run. In Botswana, research was carried out on the factors that influence private investment. [32] To evaluate both the short-term and long-term effects simultaneously, the study used a methodology that combined static OLS with co-integration and error correction model procedures. The study results showed that macroeconomic factors have influenced private investment both in the long and in the short term.

Asante [10] examined at the elements that influence private investment in Ghana. by combining a time-series analysis with a cross-sectional analysis, although some of the individual effects of macroeconomic instability components have been determined to be insignificant, the overall macroeconomic instability measure has been a severe impediment to private investment. The expansion of real credit to the private sector boosted private investment in a statistically meaningful way. Private and public investments were discovered to be mutually beneficial. The econometric findings show that political unrest may have generated an environment that discourages private investment. [12].

Serven et al. [42], and Greene et al. [25] all stated that private investment is positively linked to a country's real GDP growth. is that economic growth (RGDP) being one of the most widely used indicators for analyzing the impact of private investment. This is because higher-income countries are more likely to put more of their money into domestic investments, which can then be used to help finance private investment. Empirical findings from Nigeria's. Ajide et al., Asante and Senegal's Ouattara [4, 10, 39] have shown that a higher real GDP growth rate encourages domestic private investment. [23] In Asia and Latin America, real GDP growth has a stimulant effect on private investment, but this effect is insignificant in Sub-Saharan Africa.

Ajide & Lawanson, [4] In study that covered the years 1970 to 2010, researchers employed the advanced econometric technique of the ARDL bounds testing approach to estimate long-run determinants of domestic private investment.

Long-run determinants of private investment included interest rate, real GDP, currency rate, terms of trade, foreign debts, public investments, credit to private investment. This result would have in line with the previous empirical studies. Osmond, et al. [38] assessed the factors of private investment in Nigeria Between 1970 and 2012 using the (ECM). The empirical findings indicate that the degree of domestic investment is calculated by disposable revenue and real interest rates.

M. Ali et al. [5] During the period 1980 to 2011, (ECM) was used to explore the economic factors that affect private investment in Pakistan. Savings, credit, and gross domestic product are positive factors of domestic private investment in Pakistan, while inflation and external debt stock are negative determinants of domestic private investment, according to the empirical findings.

Batu, [14] The Ordinary Least Squares (OLS) method was utilized. To investigate the factors that influence domestic private investment, the findings of the empirical study show that, while national income, public spending, and the exchange rate all have a positive impact on domestic private investment, the interest rate, inflation rate, Agwu, [3] employed the Autoregressive Distributed lag model (ARDL) technique. To determine the determinants of investment in Nigeria, the results of the empirical study indicate that the important and optimistic determinants of long-run investment in Nigeria are past income level, capital investment, government size, and interest rate. Ajide et al. [4] used the advanced econometric technique of the ARDL bounds testing method in modeling long-run determinants of domestic private investment in research that encompassed the years 1970 to 2010. The finding showed that Interest rate, real GDP were the key long-run determinants of domestic private investment [22].

The neoclassical theory considers the real interest rate to be an important element in deciding the amount of investment. Theoretically, a negative relationship is predicted because changes in the amount of interest payable are a disincentive to invest [6]. However, according to McKinnon et al, [34] there may be a positive relationship between investment and the real rate of interest since a higher real rate of interest would increase savings, which would increase the amount of domestic credit, resulting in higher equilibrium investment.

2.2.2. Studies Conducted in Ethiopia

In Ethiopia, Batu [14] studied the factors of private investment. The information was primarily obtained from secondary sources and analyzed using descriptive and inferential statistics (OLS estimation). The study has reached the cost and quality of infrastructure, restricted financial access, and weak institutional establishments are major constraints on the success of the organization. Asongu, Simplice. A [11], stated that limited financial access and poor institutional setups are major restraints to firm performance and the econometrics result also concluded that poor infrastructural qualities, especially power interruption harm private investment

productivity. Finally, recommends that for the improvement of infrastructural services with a large emphasis on the public power supply. Over the period 1970-1989, Oshikoya, [37] looked at how interest rate deregulation influenced private investment in Kenya. The private investment ratio was the dependent variable, with the following explanatory variables real economic growth rate, real deposit rate of interest, adjustments in terms of exchange, public investment ratio, inflation rate, and lagged debt service ratio as explanatory variables. The findings revealed that the actual rate of interest is important and has a positive relationship to private investment. according to Beletew, [17] Both descriptive and econometric methods were used to examine the micro-level determinants of private investment in the manufacturing sector in the State of Tigray.

Ephrem et al. [21] study on "Wolaita Zone Domestic Private Investment Assessment." The case of Sodo, Areka, and Cities concluded that institutional problems (lack of consulting and advisory services, lack of promotional activities, and administrative services) are the key constraints hindering investment operation in the region Institutional problems (the absence of consulting and consultancy services, the absence of promotional activities, corruption and administrative services (their problems), the low level of skilled office workers), economic problems (such as the absence of capital loans, the low level of retail operation due to the absence of diversity and the high level of taxation) and infrastructural problems (including transport services, education, etc.

The Research Gap

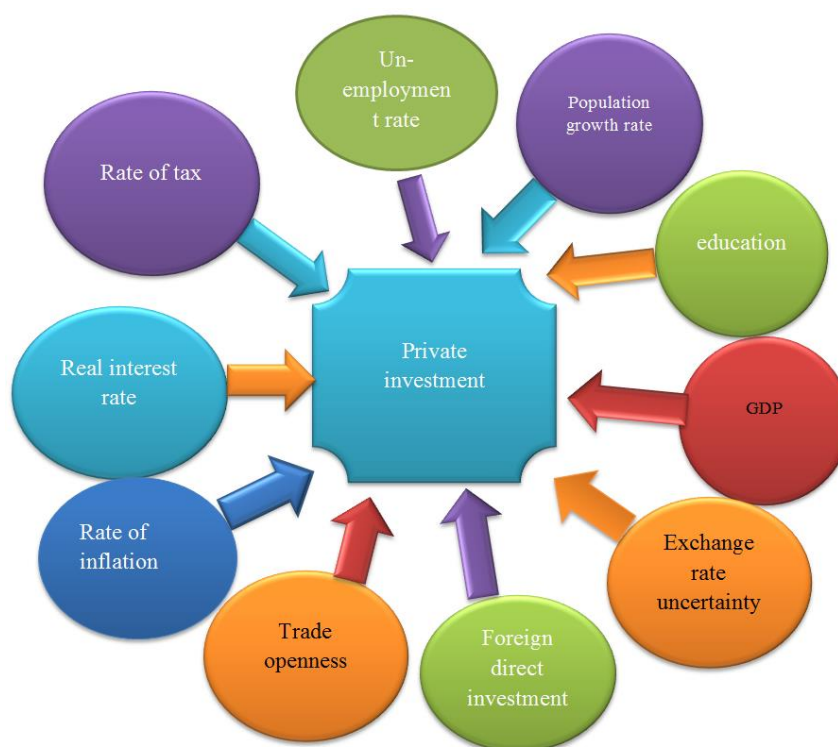
In recent years, private investment has been an important place as an engine of economic growth and development. It plays a crucial role and contributes a lot to the economic prosperity of a nation. In Ethiopia, the presence of little empirical analysis makes the researcher conduct this study this research also focused on studying the key determinants that critically determine the growth of private investment in Ethiopia such as gross educational enrollment, unemployment rate, exchange rate risk, tread openness, and population growth rate are not investigated by another researcher in the country Ethiopia. In addition, inconsistent results (conclusions) among the previous researchers on the effect of independent variables on the dependent variable (private investment) lead to conduct research.

2.3. Conceptual Framework

Studding the investment sector is a highly continuous and emphasized topic in economics and finance. Investment spending depends on the economic, social, and political situation of a country that affects the return, but such favorable conditions are often lost for most developing countries in realizing, there is a growing interest in countries on the factors that influence the pattern of investment activity and some factors identified. According to him, there are main determinates. These are revenue that is an investment will

bring more product which leads to encouraging investors less and otherwise it discourages. Different factors are expected to affect the performance of private investment activities.

However, this study was focused on macroeconomic factors affecting private investment. The following shows detailed the variable used by the researcher in this study.



Source: literature (conceptual framework)

Figure 1. Conceptual Frame work of the study.

3. Research Methodology

3.1. Research Design

Research designs are plans and procedures for research that spans the decision from broad assumptions to detailed methods of data collections Creswell, [19]. Explanatory research design helps to identify and evaluate the causal relationships between the different variables that pertain to the research problem. Accordingly, the study employed explanatory research design to identify the major factors that affect private investment. The whole group, or set, that would be considered qualified for data analytics is referred to as the target population. A target population is a distinct group of humans, animals, phenomena, or things that can be identified by at least one common attribute for data collection and analysis in statistics and other fields of mathematics. Thus, the target population of this study was the private sector investment in Ethiopia.

3.2. Data Analysis Methods

This research would be based on secondary data. An at-

tempt was made to collect data on certain major macro variables over 30 years (i.e., from 1991 to 2020). The data was collected from the Ethiopian National Bank (NBE), the World Bank (WB), Central Statistical Agency (CSA), World Data Atlas (WDA), and the International Monetary Fund (IMF), Ministry of Science and Higher Education (MoSHE). Tables and other relevant statistical techniques were used to collect and summarize secondary data. To explain factors that determine private investment in Ethiopia, the autoregressive distributed lag model (ARDL) was employed in conjunction with other applicable statistical methods.

3.3. Model Specification

The model was stated as

$$PRI = F(INF, IR, TXR, EXR, RUEP, FDI, GDP, EDU, POP \text{ and } TROP)$$

Where PRI is dependent variable represents private investment and from an independent variable, INF is the rate of inflation, IR is the rate of interest rate, TXR is the tax rate, EXR is the exchange rate, UEP, is the unemployment rate,

FDI foreign direct investment, GDP is a gross domestic product, EDU is educational enrollment, TROP is trade openness, pop population growth rate.

The standard model expressed as

$$\begin{aligned} prit = & b_0 + b_1inf_{1t} + b_2inr_{2t} + b_3txr_{3t} + b_4unr_{4t} + \\ & b_5exr_{5t} + b_6gdp_{6t} + b_7edu_{7t} + b_8tro_{8t} + b_9fdi_{9t} + \\ & b_{10}popro_{10t} + u_t \end{aligned} \quad (1)$$

INF is inflation, IRR is interest rate, TXR tax rate, EXR

exchange rate, UNR unemployment rate, GDP gross domestic product, FDI is foreign direct investment, EDU is education, TRO is trade openness, and bi is the parameters of all independent variable ui is random error.

4. Results and Discussion

Normality Test

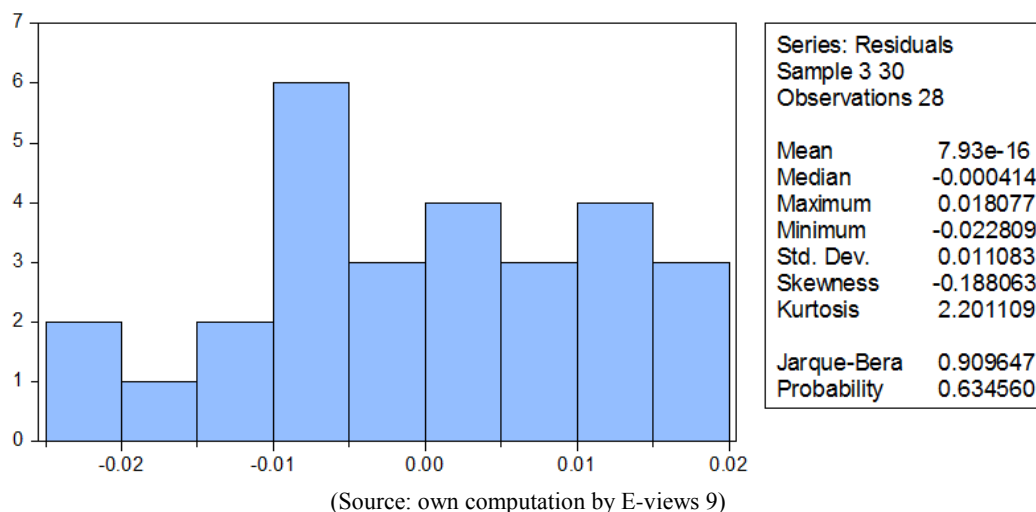


Figure 2. Normality test.

As shown the Jarque-Bera statistics have a P-value of 0.634560 implies that it is greater than 0.05, which indicates there is no evidence for the presence of abnormality in the data. Thus, the null hypothesis that the data is normally distributed should fail to reject since the P-values were over 0.05 significant levels. It could be concluded that there is no problem with normality.

Table 1. Test of multicollinearity.

Variance Inflation Factors			
	Coefficient	Uncentered	Centered
Variable	Variance	VIF	VIF
LNPRI(-1)	0.058083	10559.77	22.36867
LNGDP	0.000720	16613.55	10.03283
LNFDIOL	2.43E-05	254.0199	2.679851
LAGEDU	1.341890	1.884504	1.662257
INTSRATE	5.50E-06	15.66420	4.120782
INF	4.98E-07	3.284453	1.682958
EXCHAR	0.122504	86.38648	22.11269
POPGR	0.408165	14.21620	1.541954
TROPN	0.027614	39.11987	16.93479

Variance Inflation Factors			
	Coefficient	Uncentered	Centered
Variable	Variance	VIF	VIF
UNE	0.008682	2.147439	1.387208
TAX	3.69E-05	84.50845	2.276154
Mean of VIF			7.89

Based on this the centered variance inflation factor (VIF) of each independent variable was less than 10. So the null hypothesis was accepted. Therefore, there is less multicollinearity among on independent variable since the mean of the centered variance inflation factor was lower than the rule of thumb.

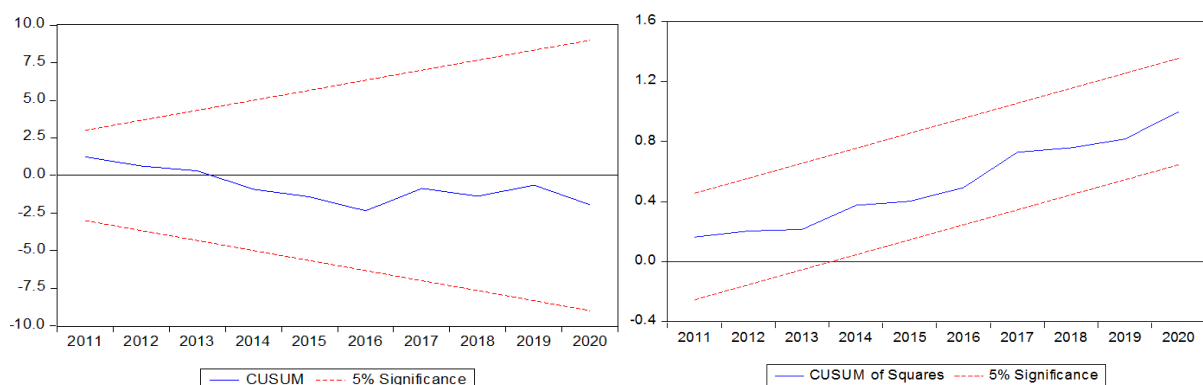
4.1. Model Stability

The test is conducted by drawing the line of recursive re-

sidual and based on the movement of the line relative to the 5% boundary line we decide whether the coefficients are stable or not simply by observing the graph. if the line is between the two red lines in both cumulative sum and cumulative sum square of recursive test stability of the parameter is existing or the model is stable. The hypothesis as follows.

H0: The parameter is not stable

H1: The parameter is stable



Source: Own computation by using e-views 9 (2021)

Figure 3. CUSUM of Squares.

Above figure reflects the plot of CUSUM and CUSUMS tests did not cross the critical limits or feasible boundary. So, it could be concluded that long-run estimates are stable and there is no structural break. Hence the results of the estimated model are reliable and efficient. The null hypothesis was stated that the model, not stable but based on the above cu-

mulative sum and cumulative sum square of recursive test the null hypothesis is rejected because at 5% degree of significance the blue line is not cross either upper and the lower line. This indicated that the null hypothesis is rejected and accept the alternative hypothesis means that that the parameter is stable.

4.2. Test of Model Adequacy (R^2) and Adjusted (R^2)

Table 2. Test of Model Adequacy.

R-squared	0.990488	Mean dependent var	2.432795
Adjusted R-squ	0.974319	S.D. dependent var	0.113635
S.E. of regression	0.018211	Akaike info criterion	-4.917539

Sum squared resid	0.003316	Schwarz criterion	-4.061122
Log-likelihood	86.84554	Hannan-Quinn criter.	-4.655724
F-statistic	61.25567	Durbin-Watson stat	2.460089
Prob(F-statistic)	0.000000		

(Source: own computation E-views 9)

The value of R-squared was 0.9904. This implies that the line explains 99% of the total variation of the dependent variable around their mean. The total variation of the private Investment was explained by 99% of the total variation of all explanatory variables that were inserted in the model. The remaining 0.01 or 1% of the total variation on the dependent variable was explained by unaccounted for the regression line; this could be disturbance term or random error. In this study the regression result of the ARDL model both R-squared and adjusted R-squared was high and the adjusted R-squared was around 0.974 or 97.4% this means the explanatory variable explain the dependent variable.

5. Conclusion

Private investment is one of the major contributors to economic growth in both industrialized and developing nations. Private investment is one of the key factors that differentiate developed countries from developing countries. Higher investment leads to faster growth and job development, as well as more chances for the poor to improve their living conditions. The objective of this study aimed to investigate determinants of private sector investment in Ethiopia.

This study investigated the effect of gross domestic product, foreign direct investment, population growth rate, educational enrollment rate, real interest rate, inflation, exchange rate, tax rate, unemployment rate, trade openness, on the private investment in Ethiopia. The ARDL model is suited for this investigation since the variable is integrated at order or first difference, or both. The co-integration test result of Johansen determines whether or not the variables have a long-term relationship. The findings demonstrate that GDP, population growth rate, unemployment rate, trade openness, tax rate, and real interest rate all have long-run and short run effect on private investment in Ethiopia, whereas exchange rates have a short-run determinants on private investment.

Based on the results of study GDP one of the most important indices of a country's economic prosperity. It represents the entire worth of all commodities and services produced over a given period. The GDP growth and level indicate the investment opportunities available to the economy. Thus, the finding of the study showed that increasing the growth rate of GDP results the private investment increases. Trade openness makes the process of importing and exporting more easier, producers are more likely to increase their investments in the country. Hence, the Ethiopian government needs to improve

the investment climate, by open up the Ethiopian economy to foreign trade and improve the quality of the human capital to encourage private investment in the country. The result of the study trade openness was positive and significant effects on private investment at 5% level of significance.

Population growth is the weapon of the country's growth. Because without population there would not growth of the economy. This indicated that the working labor forces and innovative persons would generate from the population. Based on this reason the population growth rate would be a significant and positive relationship to private investments at 5% level of significance. Population growth increase local demand for various goods and services, and the main sources of manpower supply. Interest rate helps to manage the inflation results reducing the cost of labor. Thus, the actual rate of interest is significant and has a positive relationship with the rate of private investment. High unemployment means that the economy is not working at maximum potential and is inefficient, resulting in lower productivity and incomes. Unemployed people are therefore unable to buy as many items, resulting in lower spending and productivity. The result of the study indicated that unemployment rate adversely affects private investment both short run and long run.

6. Recommendation

The following points are suggested based on the regression results and the overall analysis. Because of this recommendation necessary policy implications.

This study sought out to empirically identify the primary determinants of private investment in Ethiopia throughout the period 1991-2020, based on appropriate theoretical foundations and empirical research done for most industrialized nations. By using modern time series econometric techniques such as the ARDL model, the bounce test of cointegration, the Johansen cointegration test, stationary, and stability tests, this finding provide crucial information for policy formulation, implementation, and evaluation aimed at increasing private sector investment in Ethiopia.

The study forwarded to the Ethiopian government's or policy's side. Even though most of the variables in this study had a favorable impact on the increase of private sector investment in Ethiopia, but private investment would be influenced by more micro and macroeconomics variables. So, the government of Ethiopia should adopt the exit strategy by reversing from small growth to the rapid growth of the pri-

vate investment in Ethiopia. Through managing macroeconomics variables that have a negative influence on private investment in Ethiopia example unemployment rate.

The first strategy related to reducing of unemployment rate was use of labor-intensive technology. If sufficient employment opportunities are to be developed in both the urban and rural sectors of the economy, both the organized and unorganized sectors must adopt labor-intensive technology. Of course, the deployment of labor-intensive techniques that result in reduced worker productivity can limit output growth. As a result, there may be a tradeoff between employment and output growth. Due to the severity of unemployment in this study, some output should be sacrificed for the sake of employment. And the second strategy the government should ensure political stability, enhancing educational standards or education and training. And take a strategic plan to capitalize variables that would have a positive influence on private investments in the short-run and long run.

The finding show's that growth in real production (GDP), population growth, international trade, interest rate, and tax rate are all drivers of private sector investment growth in Ethiopia. The significant positive impact of trade openness or trade liberalization on private investment in the short and long run indicates that the government plays an important complementary role in boosting private sector initiatives.

The main thing was the government supports export by lowering tariffs on exporters. This means that by reducing the trade tariff for the exporting of goods and services for those exporters. And the other macro variables were the exchange rate. The appreciation and depreciation of foreign currency would be the risk for the local currency (LOC). Rate of exchange appreciation its possible things could better for investors. Because trying to sell country products to the rest of the nation at a higher price. As a result, increasing the value of foreign exchange has a positive impact on the growth of private domestic investments. And also, the residence of the country began to consume their products rather than the imported products this good opportunity for the domestic investors of Ethiopia.

Abbreviations

ADF	Augmented Dickey-Fuller
ARDL	Autoregressive Distributed Lag Model
CSA	Central Statistical Agency
CLRMs	Classical Linear Regression Model
CUSUM	Cumulative Sum
CUSUM	Cumulative Sum of Square
DF	Dickey-Fuller
ECM	Error Correction Model
EG	Engle and Granger
EPA	Ethiopian Privatization Agency
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GPDI	Gross Private Domestic Investment

IMF	International Monetary Fund
LCU	Local Currency Unit
LDC	Less Developed Country
NBE	National Bank of Ethiopia
OLS	Ordinary Lease Square
PESA	Public Enterprise Supervising Authority
SSA	Sub-Sahara Africa
VAR	Vector Auto Regression
VIF	Variance Inflation Factors
WB	World Bank
WDA	World Data Atlas

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Author Contributions

Mekuanint Temesgen: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing

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Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] Abhijeet, Chandra, & Dinesh, Sharma. (2010). Investment management by individual investors: A behavioral approach. *IUP Journal of Behavioural Finance*, 7, 7-18.
- [2] Adugna, Hailu. (2013). Determinants of private investment in Ethiopia. *Journal of Economics and Sustainable Development*, 4(20), 186-194.
- [3] Agwu, Charles. (2015). Determinant of investment in Nigeria: An econometric analysis. *Journal for Studies in Management and Planning*, 1(3), 418-430.
- [4] Ajide, Kazeem Bello, & Lawanson, Olukemi. (2012). Modeling the long-run determinants of domestic private investment in Nigeria. *Asian Social Science*, 8(13), 139.
- [5] Ali, MM, & Shaheen, S. (2016). An analysis of determinants of private investment in Pakistan. *International Interdisciplinary Journal of Scholarly Research (IIJSR)*, 2(2), 18-25.

- [6] Ali, Sharafat. (2013). A Cointegration Approach to Estimate Private Investment Demand Function of Pakistan. Ali, S.(2013). A Co Integration Approach to Estimate Private Investment Demand Function of Pakistan. *Asian Journal of Research in Business Economics & Management*, 3(9), 01-13.
- [7] Ambaye, Guesh Gebremeske, Berhanu, T, & Abera, G. (2013). Modeling the Determinants of Domestic Private Investments in Ethiopia. *Agris on-line Papers in Economics and Informatics*, 5(665-2016-44966), 13-23.
- [8] Ang, James B. (2010). Determinants of private investment in Malaysia: what causes the postcrisis slumps? *Contemporary Economic Policy*, 28(3), 378-391.
- [9] As, Bakare. (2011). The determinants of private domestic investment in Nigeria. *Far East Journal of Psychology and Business*, 4(3), 27-37.
- [10] Asante, Yaw. (2000). Determinants of private investment behaviour in Ghana.
- [11] Asongu, Simplice A. (2013). How would population growth affect investment in the future? Asymmetric panel causality evidence for Africa. *African Development Review*, 25(1), 14-29.
- [12] Asongu, Simplice A, & Nwachukwu, Jacinta C. (2016). Foreign aid and governance in Africa. *International Review of Applied Economics*, 30(1), 69-88.
- [13] Bakare, AS. (2011). A theoretical analysis of capital formation and growth in Nigeria. *Far East Journal of Psychology and Business*, 3(2), 11-24.
- [14] Batu, Muhdin Muhammedhussen. (2016). Determinants of private investment: A systematic review. *International Journal of Economics, Finance and Management Sciences*, 4(2), 52-56.
- [15] Bayai, Innocent, & Nyangara, Davis. (2013). An analysis of determinants of private investment in Zimbabwe for the period 2009-2011.
- [16] Bayraktar, Bahar. (2003). The role of private sector investments in the economic performance of OIC member countries. *Journal of Economic Cooperation*, 24(1), 63-110.
- [17] Beletew, Tewodros. (2020). determinant of delay in the implementation of privat investement: a case study oromia spesial zone surrounding finfinne. st. mary's university.
- [18] Chinnasamy, Gopalakrishnan, Hussein, Araby Madbouly Ahmed, & Aro-Gordon, Stephen. (2019). The Determinants of Investment Strategy: An Empirical Assessment of Behavioural Factors in the Omani Context.
- [19] Creswell, John W, & Creswell, J. (2003). *Research design: Sage publications Thousand Oaks, CA*.
- [20] Deneke, Solomon. (2001). Private sector development in Ethiopia.
- [21] Ephrem, G, & Andualem, U. (2015). Assessment of Domestic Private Investment in Wolaita Zone: Case of Sodo. *Areka and Bodity Cities*, ISSN, 2225-0565.
- [22] Frimpong, Joseph Magnus, & Marbuah, George. (2010). The determinants of private sector investment in Ghana: An ARDL approach. *European Journal of Social Sciences*, 15(2), 250-261.
- [23] Ghura, Dhaneshwar, & Goodwin, Barry. (2000). Determinants of private investment: a cross-regional empirical investigation. *Applied Economics*, 32(14), 1819-1829.
- [24] Gisore, Naftaly, & Jepchumba, Irene. (2017). Effect of budget deficit on private investment in East African community for the period 1981-2015: A panel data analysis. *International Journal of Business*, 4(1), 26-37.
- [25] Greene, Joshua, & Villanueva, Delano. (1991). Private investment in developing countries: an empirical analysis. *Staff papers*, 38(1), 33-58.
- [26] Haile, Getinet Astatike, & Assefa, Hirut. (2006). Determinants of Foreign Direct Investment in Ethiopia: A time-series analysis. Paper presented at the 4th International Conference on the Ethiopian Economy.
- [27] Jorgenson, Dale W. (1971). Econometric studies of investment behavior: A survey. *Journal of Economic literature*, 9(4), 1111-1147.
- [28] Kariuki, DK. (2003). Determinants of Fixed Capital Formation in Kenya. Unpublished MA Research Paper, Makerere University, Kampala, Uganda.
- [29] Keynes, John Maynard. (1936). *The general theory of unemployment. Interest and Money*. Harcourt Brace, London.
- [30] Kingori, Batistar M. (2015). An analysis of the determinants of private sector investment in Kenya using the autoregressive distributed lag (ARDL) approach.
- [31] Knight, John, & Ding, Sai. (2010). Why does China invest so much? *Asian Economic Papers*, 9(3), 87-117.
- [32] Lesotho, Patrick. (2006). An investigation of the determinants of private investment: The case of Botswana. University of the Western Cape.
- [33] Matwanga, FREDRICK LUSAMBILI. (2000). Determinants and constraints to private investment: The case of Kenya. African Institute for Economic Development and Planning (IDEP).
- [34] McKinnon, Ronald I. (1973). *Money and capital in economic development* (Brookings Institution, Washington, DC). Menyah, K., NazlÄ±oÄŸlu, S., and Wolde-Rufael, Y.(2014). Financial development, trade openness and economic growth in African countries: New insights from a panel causality approach, *Economic Modelling*, 37, 386-394.
- [35] Ndikumana, Leonce, & Verick, Sher. (2007). The linkages between FDI and domestic investment: Unravelling the developmental impact of foreign investment: Working Paper.
- [36] Okorie, George Chisom. (2013). An error correction model of the impact of private sector credit on private domestic investment in Nigeria. *Journal of Economics and Sustainable Development*, 4(11), 12-17.

- [37] Oshikoya, Temitope W. (1994). Macroeconomic determinants of domestic private investment in Africa: An empirical analysis. *Economic development and cultural change*, 42(3), 573-596.
- [38] Osmond, IROHAM Chukwuemeka, Adebayo, OGUNBA Olusegun, Adesiyun, OLOYEDE Samuel, & Omirin, Modupe Moronke. (2013). Factors Affecting the Usage of Major Heuristics in Nigeria Property Investment Valuation. *Journal of Sustainable Development Studies*, 4(2).
- [39] Ouattara, Bazoumana. (2004). Modelling the long run determinants of private investment in Senegal: Credit Research Paper.
- [40] Sackey, Harry A. (2007). Private investment for structural transformation and growth in Africa: where do small and medium-sized enterprises stand? Paper presented at the African Economic Conference, Addis Ababa.
- [41] Seruvatu, Elenoa, & Jayaraman, TK. (2001). Determinants of private investment in Fiji: Reserve Bank of Fiji.
- [42] Serven, Luis, & Solimano, Andres. (1993). Striving for growth after adjustment: the role of capital formation: The World Bank.
- [43] Sesele, Mmathabo. (2018). Determinants of private investments in South Africa. University of Cape Town.
- [44] Taylor, Ian, & Smith, Karen. (2007). United Nations Conference on Trade and Development (UNCTAD): Routledge.
- [45] Tobin, James. (1969). A general equilibrium approach to monetary theory. *Journal of money, credit and banking*, 1(1), 15-29.
- [46] Waktole, Tigist, & Bogale, Mekonnen. (2018). Determinants of growth of private investment in Jimma City, Ethiopia. *African journal of business management*, 12(15), 475-485.
- [47] White, Simon. (2005). Enhancing private investment for development: Policy guidance for development agencies. Southern African IDEAS.
- [48] Workie, Mitiku. (1999). Determinants and constraints of private investment in Ethiopia. *Ethiopian Journal of Economics*, 5(683-2016-46769), 57-80.
- [49] Yibelta, Adamu. (2018). determinants of small holdr farmers bio fertilizer technology adoption on fababean production: in caseoftiyowereda, eastarsi zone, ethiopia. st. mary's university.