

## Determinants of Private Investment in Ethiopia

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### Abstract

In Ethiopia, various economic and political reforms which are expected to stimulate the role of private sector in the economy have been made over the last couple of decades. Though some improvements have been registered as a result of such reforms, the performance of private sector has remained very low thus far. Hence, this study was conducted with the main objective of investigating and analyzing factors that determine private investment in Ethiopia (proxy for private sector performance in the economy). To this end, a 30-years secondary data (i.e. from 1981 to 2010) was collected from various national and international institutions. Then, multiple regressions using OLS model was applied after the data sets were transformed to log form. And, to account for inherent problems of time series data, different tests such as correlation and autocorrelation tests, stationarity test, integration and co-integration tests, and Engle & Granger Two Step Error Correction Model/ECM/were applied.

The regression results show that public investment, real GDP per-capita, and external debt have significant positive long run effect on private investment, while lagged private investment(proxy for investment climate) has significant negative long run effect. In the short run, real GDP per-capita and external debt have significant positive contribution to private investment, while inflation has significant short run negative effect on private investment after two lags.

Hence, to promote the performance of private sector in the country, it is essential to take measures that can improve real income of people, and make public investment in basic infrastructures and institutions that are crucial to attract private investment. Besides, ensuring stable investment environment (such as consistent investment policies and requirements/regulatory frameworks/, and macro-economic and political stability), and addressing bureaucratic inefficiencies and poor governance problems are necessary to build lasting confidence of private investors.

**Key words:** Determinants, Private Sector, Performance, Ethiopia

### 1. Introduction and Problem Statement

Ethiopia is located in the Horn of Africa at the cross-roads between Africa, the Middle East and Asia. The country is endowed with abundant and untapped resources such as large number of trainable labor force, vast arable land, varieties of plant and animal stocks, and precious minerals together with favorable weather conditions (EIA, 2010). It has population size of about 83.74 million with estimated growth rate of 1.51% according to CSA Inter Censal Estimation (2012), indicating one of the potentially large domestic markets in Africa.

With regard to economic performance, Ethiopia has been registering a remarkable GDP growth rate over the past seven years starting from 2004(which is around 11% according to official reports). However, according to WB(2013), as of 2012, the annual per capita income is still very low(which is 255.69 at constant 2005 US\$).The economy is predominantly based on agriculture, which accounts for about 44% of GDP, around 75.9% of foreign currency earning, and above 80% of total employment. The service sector accounts for about 45.6% GDP, while the industry sector comprises only about 10.85% GDP (which is mainly small and medium enterprises) as of 2011/12 (MoFED 2013).

The economy has undergone series of reforms i.e. from a liberalized economy (till 1974) to command type (from 1974-1989/90), and again liberalized after 1991(following the fall of military regime). Since 1991, a comprehensive structural adjustment programs (SAP) such as macroeconomic stabilization, privatization and public sector development, decentralized governance and other reform packages have been implemented in line with the free market ideals. However, deviations from such ideals became evident since recently due to changes in government policy and strategy in favor of developmental state ideology. Hence, important sectors like postal services (with the exception of courier services), transmission and distribution of electricity through the integrated national grid system; and air transport services (using aircraft with seating capacity of more than 50 passengers) and the like are still exclusively reserved for government, while manufacturing of weapons and ammunition, and telecom service can be undertaken jointly by government and private investors). And, a considerable portion of the remaining investment areas are also exclusively permitted for domestic private investors (Investment Proclamation 769/2012).

Nevertheless, there are still huge investment opportunities in the country for the foreign private investors too in various sectors/sub-sectors of the economy as indicated in the Council of Ministers Regulation No. 270/2012. Besides, the gradual opening of sectors set aside for government and/or exclusively reserved for domestic private investors alone, is believed to eventually create more space for foreign investors too as indicated in the Growth and Transformation Plan (GTP), which is being implemented since 2010. Along with opening of more sectors for private investors, packages of investment incentives are also being given. Some of these incentives includes, but not limited to: lower minimum investment capital requirement, full exemption from custom duty payment upon import of capital goods for investment; various export incentive schemes; reduction of income tax and exemption from the payment of income tax (for one to nine years depending on the nature of investment); and carry forward of losses. Besides, investment guarantee and protection against expropriation; remittance of funds by foreign investor on their profits and other income; provision of plot of land for investment with very low renting/leasing cost; and provision of investment loan facilities of various amount (depending on the type and area of investment), and the like are among the various incentives being provided to private investors (Investment Proclamation No.769/2012, Council of Minister's Regulation No. 270/2012).

In spite of such macro-economic and political reforms and ranges of investment incentives given, private investors have remained very shy to make significant strides thus far. Hence, their enormous development potential is far under fetched till now. This suggests that, in the face of present-day international competitions, promoting private investment should be approached with locally fit and globally responsive investment policies and strategies. But, the shortage of contemporary and contextual research on the area has remained to be a serious bottleneck for such policy making and action taking efforts. The purpose of this study is, therefore, to investigate and analyze factors that determine private investment in the country, and thereby contribute its level best in this connection.

## 2: Methodology

### 2.1: Type & Sources of Data, and Methods of Data Processing & Analysis

The study was conducted basically using secondary data. An attempt was made to gather a 30-years data (i.e. from 1981 to 2010) on some important variables. The data was gathered from various sources such as National Bank of Ethiopia (NBE), MoFED, EIA, CSA of Ethiopia, WB & IMF data basis, and from other relevant and reliable sources. The collected secondary data was summarized using tables, charts and other appropriate statistical tools. Then, OLS regression model was used together with other appropriate econometric techniques to explain factors that determine private investment in the country. This model is selected for its simplicity, and is also expected to fulfill the assumptions of efficiency, consistency and unbiasedness.

### 2.2: Definition of Variables and Hypothesis of the Study

The dependent variable in this study is 'Nominal Private Investment' (**pi**), which is proxy for the performance of private sector in the economy. It captures both domestic and foreign private investments in the country over the period under consideration. The explanatory variables are: Nominal Public Investment(**pbi**); Real GDP Per-capita(**rgdpc**)/proxy for market size/; Inflation Rate(**infr**)/proxy for macroeconomic instability/; Real Lending Interest Rate(**rlir**)/Proxy for cost of capital/; External Debt Burden (**exdt**); Official Exchange Rate(**exc**); International Trade as % of nominal GDP(**itrdngdp**)/Proxy for economic openness/; Corporate Tax Rate as % of total corporate taxable income (**txrate**); Structural Dummy(**stdmy**) / D = 0, and D = 1 for the time 'before 1991' and 'after 1991' respectively/; and Lagged Private Investment(**pi\_1**) /proxy for Investment Climate/.

The hypothesis of the study is that explanatory variables such as real GDP per capita, trade openness, good investment climate and the structural dummy are all expected to have positive effect; while high inflation rate, overvalued exchange rate, and high corporate tax are expected to have negative effect on private investment in Ethiopia. The effect of other variables such as increasing public investment, real lending interest rate, and external debt is not easy to presume. Anyways, a hypothetical long run relationship between dependent and independent variables is temporary set as:  $lpi = \beta_0 + \beta_1 lpbi + \beta_2 lrgdpc + \beta_3 linfr + \beta_4 lrlir + \beta_5 lexdt + \beta_6 lexc + \beta_7 litrdngdp + \beta_8 ltxrate + \beta_9 lstdmy + \beta_{10} ltpi_{-1} + \mu_t$ ; where, ' $\mu_t$ ' represents error term/stochastic variable/, and 'l' denotes natural logarithm; and where,  $\beta_1, \beta_2, \beta_4, \beta_5, \beta_7, \beta_9,$  and  $\beta_{10}$  are expected to be  $> 0$ ; while  $\beta_3, \beta_6,$  and  $\beta_8$  are expected to be  $< 0$

### 3: OLS Regression and Model Specification

In this section, the OLS regression is done for long run and short run relationship between the dependent variable and explanatory variables. In developing the long run and short run models, important statistical techniques such as log transformation, correlation test, Durbin-Watson Test, unit-root test and error correction techniques were applied to

account for the various inherent problems of time series data such as heteroscedasticity, multicollinearity, autocorrelation, non-stationarity and the like as presented under following sub-sections.

### 3.1: Long Run Model Presentation

The long-run relationship between the dependent variable and independent variables has been established using an OLS model as shown in equation (1), based on the regression result in table 1.

**Table 1: Long Run OLS Regression Result**

*Number of obs = 29; R-squared = 0.9388; F( 10, 18) = 77.65; Prob> F = 0.0000; Root MSE = .23162*

lpi	Coef.	Robust Std. Error.	T	P>t	[95% Conf. Interval]	
lpbi	.3803928	.1116681	3.41	0.003	.1457869	.6149987
lrgdpc	2.476057	.3619395	6.84	0.000	1.715653	.236463
linfr	.0243212	.0352325	0.69	0.499	-.0496995	.0983419
lrlir	-.0392417	.0918726	-0.43	0.674	-.232259	.1537755
lexdt	.5327513	.2024607	2.63	0.017	.1073973	.9581054
lexc	-.0556439	.3092135	-0.18	0.859	-.7052774	.5939896
litrdngdp	.064731	.390523	0.17	0.870	-.7557274	.8851895
ltxrate	.3924295	.2860204	1.37	0.187	-.2084771	.9933361
stdmy	.1204743	.1244748	0.97	0.346	-.1410376	.3819862
lpi_1	-.4973371	.1593237	-3.12	0.006	-.8320637	-.1626104
cons	-14.57397	3.229463	-4.51	0.000	-21.35882	-7.789115

**Durbin-Watson d-statistic (11, 29) = 2.196531**

Source: Computed from secondary data (2012)

The variables are put in the form of natural logarithm except the structural dummy variable, and then robust OLS regression is applied to address the problem of heteroscedasticity. According to Gujarati (1995), log transformation can help in reducing the problem of heteroscedasticity by compressing the scale in which the variables are measured. The actual values of inflation rate and real lending interest rate were scaled up by adding a constant number K=10 and K= 20 respectively before transforming to natural logarithm form so as to avoid the negative values sometimes assumed by these variables. And, to verify for multicollinearity, correlation between explanatory variables is checked, and most of the independent variables under consideration are found to have weak correlation. Besides, the Durbin Watson test (DW) was applied to account for the autocorrelation or serial correlation (where, as a rule of thumb, DW test statistics equal to two (2) implies absence of autocorrelation /zero (0) autocorrelation coefficient/). In this analysis, since the DW test statistics of 2.19 is not highly deviated from the magic number two (2), it does not indicate the presence of strong serial correlation/autocorrelation problem in the data series under consideration.

After the basic problems expected to affect time series data were accounted for in this manner, the OLS regression was run (as shown in table 1), and long run relationship between the dependent variable ‘private investment’ and the ‘explanatory variables’ is formulated as follows:

$$\begin{aligned}
 \text{lpi} = & -14.574 + 0.38 \text{lpbi} + 2.476 \text{lrgdpc} + 0.024 \text{linfr} - 0.039 \text{lrlir} + 0.5327 \text{lexdt} - 0.0556 \text{lexc} + \\
 & \quad (3.41) \quad (6.84) \quad (0.69) \quad (-0.43) \quad (2.63) \quad (-0.18) \\
 & 0.0647 \text{litrdngdp} + 0.3924 \text{ltxrate} + 0.1205 \text{stdmy} - 0.4973 \text{lpi}_1 \dots\dots\dots (1) \\
 & \quad (0.17) \quad (1.37) \quad (0.97) \quad (-3.12)
 \end{aligned}$$

The figures in the bracket are t-ratio, while R<sup>2</sup> = 93%, and N= 29 observation.

### 3.2: Stationarity Test (Augmented Dickey Fuller/ADF/ Technique)

Any sequence that contains one or more characteristic root/s/ that are equal to one is known as a unit root process. For OLS estimation in general to be valid, the error term must be time-invariant, that is, stationary. As Gujarati (2004) mentioned, a regression on non-stationary data may lead to a spurious regression if the variables are not

co-integrated. And, according to Salvatore and Reagle, (2002), continuous buildup of the errors create the problem that a non-stationary series will tend towards an infinite variance, and the model will have a spuriously (falsely) significant result and high  $R^2$ . Nevertheless, the problem of unit-root can be eliminated usually by taking the first differences of the variables under consideration. Hence, in estimating the short-run dynamic model, a unit root test was made both for the dependent and independent variables using the Augmented Dickey Fuller Technique /ADF/ (see table 2).

**Table 2: Augmented Dickey Fuller (ADF) Unit-Root Test Result**

Variables	T-Statistics	Critical Values			Decisions
		at 1%	at 5%	at 10%	
dltpi	-9.088	-3.730	-2.992	-2.626	Reject $H_0^*$
dltppi	-4.728	-3.730	-2.992	-2.626	Reject $H_0^*$
drgdpc	-4.232	-3.730	-2.992	-2.626	Reject $H_0^*$
dlinfr	-7.843	-3.730	-2.992	-2.626	Reject $H_0^*$
dlrlir	-7.438	-3.730	-2.992	-2.626	Reject $H_0^*$
dlexdt	-4.057	-3.730	-2.992	-2.626	Reject $H_0^*$
dlexc	-3.033	-3.730	-2.992	-2.626	Reject $H_0^{**}$
dlitrdngdp	-5.885	-3.730	-2.992	-2.626	Reject $H_0^*$
dltxrat	-5.358	-3.730	-2.992	-2.626	Reject $H_0^*$
dlpi_1	-8.851	-3.736	-2.994	-2.628	Reject $H_0^*$

\* Stationary at 1%      \*\* Stationary at 5%

Source: Computed from secondary data (2012)

From  $\Delta Y_t = \delta Y_{t-1} + \epsilon_t$ ; which is derived from the simplest unit root model for Auto Regressive of Order One AR (1) / i.e.  $Y_t = \gamma Y_{t-1} + \epsilon_t$  /, the null hypothesis takes the form of  $H_0: \delta = 0$  (i.e. the data series is non stationary when  $\gamma = 1$ ); vs the alternative hypotheses  $H_1: \delta < 0$  (i.e. the data series is stationary when  $\gamma < 1$ ); where  $\delta = (\gamma - 1)$ , and  $\Delta$  is the difference operator. The Augmented Dickey Fuller Unit-Root test has depicted that variables log inflation (*linfr*), log real lending interest rate (*lrir*), and log lag private investment (*lpi\_1*) are stationary at level, while the rest of the variables are non-stationary. Thus, to address the inbuilt problem of unit root autoregressive component, the first difference is taken, and tested for unit-root. Accordingly, all variables of interest are found to be stationary at first difference (integrated of order one i.e. I (1) as shown in table 2.

### 3.3: Co-integration Test

A model that includes lagged differenced variables only (like the ones presented under section 3.2) assumes that the effects of independent variable/s/ on dependent variable do not last longer than one time period. Thus, it does not show the long run relationship between the time series data under consideration. Hence, in this section, co-integration test was done using error-correction technique to check whether the data series under consideration are co-integrated i.e. whether each data series has a long run component that cancel out between the series (share stochastic trends and, hence never expected to drift too far away from each other).

**Table 3: Augmented Dickey-Fuller Co-integration Test**

<i>No. of Observations = 27</i>				
	Test Statistic	Critical Values		
		at 1%	at 5%	at 10%
Z(t)	-5.269	-3.736	-2.994	-2.628

*Mackinnon approximate p-value for z(t)=0.0000*

Source: Computed from Secondary Data Series(2012)

Deviations from such long-run equilibrium relationship due to short run shocks will be corrected over time with error correction factor. Two or more time series variables are said to be co-integrated if the test statistics (t-value) of ECM is greater than the critical value in absolute terms. With this background, a co-integration test was made using Augmented Dickey–Fuller Technique to see whether the time series variables considered in this study are co-integrated or not, and the result is presented in table 3. The Augmented Dickey–Fuller Test in table 3 shows that the test statistic for co-integration test is significant at 1%, confirming that the data series under consideration are co-integrated in the long run.

### 3.4. Engle and Granger Two Step Error Correction Model/ECM/

If there is no unit root in the error term of data sets of the form  $Y_t = b_0 + b_1X_t + \varepsilon_t$ , then Y and X are said to be co-integrated. And, when two or more integrated data variables are also co-integrated, then it could create a problem for time series data analysis if regression is run just by differencing the variables unless deviations from long run relationships are accounted for. However, such problem could be corrected by using Engle & Granger two-steps Error Correction Model (ECM), which can be shown in equation form as:  $\Delta Y_t = \alpha + \beta_0 \Delta X_t - \beta_1(Y_{t-1} - \beta_2 X_{t-1}) + \beta_2 \varepsilon_t$ ; where  $\beta_0$  estimates the short term effect of an increase in X on Y,  $\beta_1$  estimates the speed of return to equilibrium after a deviation (error correction factor) and takes value  $-1 < \beta_1 < 0$  if the ECM approach is appropriate, and  $\beta_2$  estimates the long term effect that a one unit increase in independent variable has on dependent variable. This short term dynamics/shocks/ will be distributed over future periods according to the rate of error correction coefficient  $\beta_1$ .

With this theoretical underpinning, Engle & Granger two-steps ECM is applied after (i) the long run relationship is estimated (as presented in equation (1), and the deviations from the long run relationship is estimated as  $e_t = Y_t - b_0 - b_1 X_t$ ; and (ii) the differences are included as additional explanatory variable in an error-correction model (short run dynamics), as shown in table 4 and presented in equation (2).

**Table 4: Error Correction Model/ Short Run Dynamics**

<i>Number of obs = 27, F(11,15)=17.11, Prob&gt;F = 0.0000, R-squared = 0.9262, Adj R-squared = 0.8721, Root MSE = .13544</i>						
<b>dlpi</b>	<b>Coef.</b>	<b>Std.Err.</b>	<b>T</b>	<b>P&gt;t</b>	<b>[95% Conf. Interval]</b>	
<b>dlpbi_1</b>	.2652053	.1452991	1.83	0.088	-.0444925	.574903
<b>dlrgdpc</b>	2.022733	.4566152	4.43	0.000	1.04948	2.995985
<b>dlinfr_2</b>	-.0898677	.0210961	-4.26	0.001	-.1348329	-.0449025
<b>dlrlir</b>	.0531747	.0465085	1.14	0.271	-.0459557	.1523052
<b>dlxdt</b>	.3378984	.1009079	3.35	0.004	.1228183	.5529784
<b>dlxec</b>	-.2306385	.3109141	-0.74	0.470	-.8933362	.4320592
<b>dlitrdngdp</b>	.0815165	.2885767	0.28	0.781	-.5335702	.6966032
<b>dltxrate</b>	-.1681646	.2981538	-0.56	0.581	-.8036644	.4673352
<b>stdmy</b>	-.0273733	.0688317	-0.40	0.696	-.1740845	.1193379
<b>dlpi_1</b>	-.311451	.0936171	-3.33	0.005	-.5109912	-.1119108
<b>ECM</b>	-.7434422	.1780641	-4.18	0.001	-1.122977	-.3639075
<b>Cons</b>	.0623336	.0523457	1.19	0.252	-.0492386	.1739057

*Source: Computed from Secondary Data Series (2012)*

An error correction estimation (short-term dynamics) is made using the first difference of the variables under consideration (except for dummy variable), and the deviation from the long run equilibrium as presented in table 4. Then, the regression is made using OLS since all variables in the error correction model are stationary. Hence, from the result shown in table 4, the error correction model (short run dynamics) can be put as:

$$d\pi = \beta_0 + \beta_1 d\pi_{t-1} + \beta_2 d\text{rgdpc} + \beta_3 d\text{linfr}_2 + \beta_4 d\text{rlir} + \beta_5 d\text{lexdt} + \beta_6 d\text{lexc} + \beta_7 d\text{litrdngdp} + \beta_8 d\text{ltxrate} + \beta_9 d\text{stdmy} + \beta_{10} d\pi_{t-1} + \beta_{11} \text{ECM} \dots \dots \dots (2).$$

By replacing the ‘ $\beta_s$ ’ with the corresponding numerical coefficients shown in table 4, and ‘d’ with ‘ $\Delta$ ’ in the equation(2), the ECM/Short-Run Model/ can be put as shown in equation(3):

$$\Delta\pi = 0.0623 + 0.2652\Delta\pi_{t-1} + 2.0227\Delta\text{rgdpc} - 0.0898\Delta\text{linfr}_2 + 0.0532\Delta\text{rlir} + 0.3379\Delta\text{lexdt} - 0.2306\Delta\text{lexc} + 0.0815\Delta\text{litrdngdp} - 0.1682\Delta\text{ltxrate} - 0.0274\text{stdmy} - 0.3114\Delta\pi_{t-1} - 0.7434\text{ECM} \dots \dots \dots (3).$$

As it can be seen from equation (3), the value of ECM is -0.7434 which is within the acceptable range in magnitude and appropriate in sign, with a significant t-value of -4.18. The coefficient of ECM shows that short run deviations of private investment is corrected/adjusted to long run equilibrium very fast at a rate of 74.34% each year. The negative sign shows that the short run private investment dynamics is below the long run equilibrium level.

**4: Discussion and Interpretation of Results**

In this section, the above presented long run and short run relationship between the dependent variable and explanatory/determinant variables is briefly described and interpreted in light of theoretical underpinnings and contextual realities of Ethiopia.

**4.1 Public Investment (pbi)**

The long run OLS regression result presented in table 1 shows that public investment (*pbi*) has positive and significant long run effect on private investment (*pi*) at 5% level of significance. Accordingly, a 1% change in public investment (*pbi*) results in a 0.38% change in private investment (*pi*) in the long run. The result is consistent with the findings of some scholars such as Asante (2000), Ribeiro(2001), Mbanga(2002), and Vergara (2004) among others, who have conducted research in a similar topic in various developing countries. It however, contradicts with findings by Wetzel (1991), Akpalu(2002), Attar & Temel(2002) and Badaw(2004), Balassa (1988). In Ethiopia, public investment is primarily concentrated on the development of basic economic infrastructures (such as road, telephone, power, irrigation canals, etc), and social overhead capitals (like schools, universities, health centers and the like). Such investments obviously create favorable ‘crowding-in’ effect on private investment. However, the insignificant positive short run effect could be due to partial ‘crowding out’ (due to competition for finance and market), and also because of sluggish response of private investment to public investment in infrastructural and social overhead capitals.

**4.2. Real GDP Per-Capita (rgdpc)**

The other determinant factor that is found to have significant positive effect on private investment(*pi*)both in the long-run and in the short run (at 5% level of significance) is real GDP per-capita /*rgdpc*/(see table 1 and table 4). A 1% increase in ‘*rgdpc*’ results in a 2.48% and 2.02% increase in private investment (*pi*)in the long run and short run respectively. The long run result in this study is in line with the findings of other researchers such as Frimpong and Marbuah (2010), Mbanga (2002), and Akpalu (2002); though it contradicts with that of Asante (2002). In the context of Ethiopia, this significant positive effect is expected as ‘*rgdpc*’ has nearly doubled during the period under consideration (though it is still very low in absolute terms). This increase in ‘*rgdpc*’ is believed to have raised the effective demand in the economy through increased disposal income. Such increased in effective demands for goods and services have stimulated more private investment in the economy over the period under study.

**4.3: External Debt (exdt)**

External Debt (*exdt*) is also found to have significant positive effect (at 5% level of significance) on private investment (*pi*) both in the short run and long run. As the results in table 1 and table 4 show, a 1% increase in external debt (*exdt*)results in about 0.53% and 0.34% increase in private investment(*pi*) in the long run and short run respectively. This finding is in line with the finding by Mbanga (2000), but contradicts with that of Frimpong & Marbuah (2010), and Ronge & Kimuyu (1997). Theoretically, too much external debt burden could have negative effect (as it could divert national resources towards debt servicing and by creating dependency behavior); or have a positive effect (as it could promote investment in productive capital projects). In Ethiopia, debt to GDP ratio is not so high, and a significant portion of it is soft loan with low interest rate. Besides, loan funds are usually used for productive investment projects essential for private investment such as physical and human capital development, which justify the finding in this regard.

**4.4: Inflation Rate (dlinfr\_2)**

In the short run, inflation rate, (which is proxy for macro-economic instability) is found to have a significant negative effect on private investment after 2-lags (at 5% level of significance).That is, a 1% increase in inflation rate results in a 0.089% decrease in the private investment and vice versa. However, the long run effect is positive though

insignificant at 5% level of significance. This result is in line with the findings of Seruvatu & Jayaraman (2001), Asante (2000), and Ibrahim (2000); but it contradicts with that of Frimpong and Marbuah (2010). In Ethiopian, the high inflation rate over the last couple of years seems to have affected private investment in the short run by undercutting the saving capacity of citizens (shortage of investment finance), by weakening investors' confidence and ability to invest, and/or by triggering diversion of investment from productive sector to speculative activities. Hence, the result suggests the need to cautiously handle inflation dynamics at a reasonable level.

#### **4.5: Lagged Private Investment (dlpi\_1)**

As it can be seen from table 1 and table 4, lagged private investment (which is proxy for investment climate) has significant negative effect (at 5% level of significance) on private investment, a result which is contrary to the researcher's prior expectation. The significant and negative effect (both in the short run and long run) of lagged private investment ( $pi_{-1}$ ) might be because of frequent changes in investment policies and requirements, inefficient bureaucracies, poor institutional arrangement and rampant corruption, and the associated high transaction costs of doing business among others. The high rate of decline by investors in Ethiopia after getting investment permission, and/or even after starting some investment activities seems to substantiate this result.

#### **4.6: Other Variables**

The regression results show that other variables such as international trade to nominal GDP ( $itrndngdp$ ) /proxy for economic openness/, corporate tax Rate ( $txrate$ ) and structural dummy ( $stdmy$ ) /for the period before and after 1991 macroeconomic policy reform/ have all a positive long run contribution to the private sector investment though not significant. On the other hand, variables like real lending interest rate ( $rlir$ ), and exchange rate ( $exc$ ) have insignificant negative long run effect on private investment.

### **5. Conclusion and Policy Implications**

The study was conducted using OLS regression model. Augmented Dickey Fuller/ADF/ Technique was applied to check for stationarity in the data series. Besides, correlation and autocorrelation tests, integration and co-integration tests, as well as Engle & Granger Two Step Error Correction Model/ECM/ were applied to optimize the utility of the model.

Accordingly, the results of OLS regression analysis show that public investments in basic infrastructures and social overheads are essential for private investment in countries like Ethiopia where such basics are in serious shortage, and where private sectors do not usually dare to go for. Besides, rising real per-capita income of the peoples has crucial positive effect on private investment by way of increasing market demand for goods and services, which in turn trigger private investment. Likewise, external debt, as long as it is used in productive investment (without creating serious debt servicing burden on the economy) has favorable effect on the private investment in countries like Ethiopia where there is serious shortage of finance.

On the other hand, high and protracted inflation rate could undercut private investment by signaling macro-economic instability, and thereby weakening investors' desire and ability to invest. Likewise, unpredictable and inefficient investment climate (which could be due to reasons such as frequent changes of investment policies and requirements, inefficient bureaucracy, prolonged poor governance and rampant corruption among others), would deteriorate investors' confidence and appetite.

Thus, based on these findings, the following policy implications are forwarded:

- ▶ Undertake public investment in a way that could ease/remove bottlenecks that undermine private investment, of course with adequate attention to its adverse effect of 'crowding out',
- ▶ Enhance the real per-capita income of people by creating various employment opportunities and income generating means,
- ▶ Efficiently utilize external sources of finance (loan) for productive investment activities,
- ▶ Ensure macro-economic stability by containing the inflationary trend persisted over a longer period,
- ▶ Create fertile investment environment by ensuring consistent investment policies and requirements, by creating clear and efficient bureaucracy and good governance at all levels, and by opening more space/investment opportunities/ for private investors,
- ▶ Last, but not least, the researcher suggests the need to conduct a comprehensive study on private investment in Ethiopia by adequately accommodating the essential quantitative and qualitative factors/determinants/ of private investment for proper policy actions and decisions.

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## Annexes

### Annex-1: Definition of Terms

For the purpose of this study, definitions given in Investment Proclamation No. 280/2002 of Ethiopia and other related definitions adhered to.

- i. **Investment**- means expenditure of capital by an investor to establish a new enterprise or to expand or upgrade one that already exists (Proclamation 280/2002),
- ii. **Investor**- means a domestic or foreign investor having invested in Ethiopia(Ibid),
- iii. **Domestic Investor**-means an Ethiopian or a foreign national permanently residing in Ethiopia having made an investment, and includes the government, public enterprises as well as a foreign national, Ethiopian by birth and desiring to be considered as a domestic investor(Ibid),
- iv. **Foreign Investor**- means a foreign or an enterprise owned by foreign nationals, having invested foreign capital in Ethiopia, and includes an Ethiopian permanently residing abroad and preferring treatment as a foreign investor (Ibid),
- v. **Capital**- means local or foreign currency, negotiable instruments, machinery or equipments, buildings, initial working capital, property rights, patent rights, or other business assents (Ibid).
- vi. **Private Investment**-for the purpose of this study, means the commitments of capital by individuals and/or private institutions such as companies (domestic or foreign) with the anticipation of realizing a future return.

### Annex -2: Abbreviations/Acronyms

CSA	Central Statistical Agency
ECM	Error Correction Model
EIA	Ethiopian Investment Agency
FDI	Foreign Direct Investment
GDP	Growth Domestic Product
GTP	Growth and Transformation Plan
IMF	International Monetary Fund
MoFED	Ministry of Finance and Economic Development
NBE	National Bank of Ethiopia
OLS	Ordinary Least Square
SAPs	Structural Adjustment Programs
SSA	Sub-Saharan Africa
UNCT	United Nations Country Team
UNDP	United Nations Development Program
WB	World Bank