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Micro Level Determinants of Private Investment in Hadiya Zone Hosanna Town, Southern Ethiopia with Special Reference to Agro-Processing Investment

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Abstract
Ethiopia has been working tirelessly to transform its economy from agriculture dominated economy to industrialized and market-based economy. To a certain extent, the reform programme has resulted successful economic growth rates, private investment, and significantly higher volume of exports and export earnings. The major objective of this study was to find micro level determinants of private investment in Hadiya zone Hosanna town, Southern Ethiopia with special reference to agro-processing investment. A survey was conducted in Hadiya zone Hosanna town to find out the micro economic level determinants of private investment. Thus, econometric methods of data analysis involving Tobit models were used to analyze the micro-economic data collected. In addition, descriptive analysis was employed to analyze the survey data. The results of the study showed that firm size, education, access to land, access to credit, interest rate, legal system and corruption were the most important determinants of private investment in the study area. Moreover, the study result indicated firm size, education, access to land, and legal system were positively and significantly related with private investment. Where as corruption and interest rate were negatively and significantly associated with private investment. The results of this study revealed that most of the problems encountered by the private sector in Hadiya zone Hosanna town were institutional.
Keywords: Investment, agro-processing, Tobit models, Hadiya zone, Hosanna, Ethiopia

INTRODUCTION

Background and justification: Agriculture remains to be the main stay of Ethiopian economy contributing about 42% of GDP and providing employment to more than 80% of the rural population (World Bank 2010). Industrialization through private investment is an indispensable pathway towards economic growth and development for most developing countries relying on the agricultural sector (Timmer 1997). Private investment is a crucial pre-requisite for economic growth because it allows entrepreneurs to set economic activity in motion by bringing resources together to produce goods and services. Rapid and sustained growth is facilitated by a virtuous circle whereby entrepreneurship and investment lead to higher productivity, making it possible to invest larger sums in the future. In the course of this process, jobs are created and new technologies are introduced, especially through international trade and investment linkages. Competitive and well-functioning markets are crucial because they promote and reward innovation and diversification, foster firm entry and exit and help to ensure a level playing field for all private sector actors. They also have an important role in making the growth process more socially and geographically inclusive, which expands the opportunities for poor people to participate in and benefit from growth. Successful mobilization of private investment is thus increasingly important for creating employment, raising growth rates and reducing poverty (OECD, 2005).

A good investment climate fosters productive private investment. Many features of a good investment climate including efficient infrastructure, courts, and finance markets improve the lives of people directly, whether they work or engage in entrepreneurial activities or not. Improving the investment climate, the opportunities and incentives for firms to invest productively, create jobs, and is the key to sustainable progress in attacking poverty and improving living standards (World Bank, 2005a).

Ethiopia is now strongly seeking investment in all sectors in general and in agro processing sub sector in particular from foreign as well as domestic sources. The Foreign Direct Investment (FDI) which most of the time takes the form of private investment is expected to bring entrepreneurial skills and new technologies in addition to capital. Private Sector Development (PSD) is about enabling the enhanced utilization of labor and other resources of the country through the growth of private business by providing enabling environment both in domestic and overseas markets (MoFED, 2000). Empirical evidence (Ghura and Hadjimiheal, 1996; Ghura, 1997; Beddies, 1999) indicates that private investment has a stronger, more favorable effect on growth than government investment, probably because private investment is more efficient and less closely associated with corruption and bureaucratic red tape.

There is important development factors have put the Hadiya zone Hosanna town in a better position to attract a relatively better size of investment capital and a larger number of investment projects. However, the implementation of the approved investment projects in general is far from expectation. Access to land, competition from imports, tax administration, business regulations, shortage of demand, and access to credit,

corruption, and inadequate infrastructure are attributed to the low implementation rate (World Bank, 2005). Hence, it was important to analyse determinants of micro level private investment and point out potential factors policy should focus in the area.

METHODOLOGY

Description of the study area: The study was conducted in Hadiya zone Hosanna town of the SNNPRs. The administrative center of Hadiya zone is Hosanna town, which is located 232 km southwest of Addis Ababa following the asphalt road that passes through Alemgena, Butagera to Arbaminch. It is one of the 14 administrative zones of the SNNPRS with the population of 1,231,196 of which 49.7% are male and 50.3% are female. Out of these, 10.89% live in towns and the rest 89.11% live in rural areas (CSA, 2007).

According to Ethiopia Investment Agency (EIA), during the period 1992-2009, 1433 private investment projects were licensed to be implemented in Hadiya zone Hosanna town of the SNNPRs. Out of the total approved private investment projects, 122 were in agriculture sector, 16 were in manufacturing sector and the rest 1295 investment projects were in service sector. Regarding the performance of these investment projects is concerned; out of the total approved investment projects 43 projects (3 %) had started implementation. Whereas, 172 projects (12%) had started operation and the remaining 1218 projects (85%) were in pre implementation stage.

Sampling Techniques: In this study, a probability sampling technique was used to select sample respondents precisely because the individual investor is actually responsible for making decisions on investment activities. Thus, an individual investor will be the basic sample unit.

Because of heterogeneity among investor groups, stratification of the private investors was found to be imperative. Accordingly, the 122 private investors who took investment license in the agro-processing sub-sector from the Hosanna town Administration were first stratified in to three groups/strata by using their project status. More precisely, the main stratification criterion was the status of their investment project. Stratum 1 encompassed investors who started operation in the agro-processing sub-sector and the total number of investors categorized under this stratum was 53. Stratum 2 consisted of investors who were in the implementation stage of their investment project in the agro-processing sub-sector and their total number was 36. Stratum 3 was composed of investors who were in the pre-implementation stage of their investment project in the agro-processing sub-sector and the total number of investors under this category was 33. The total number of sample investors selected for this study added up to 122.

Data Types, Sources and Method of Collection: The primary data in the survey were collected between the first week of November and the beginning of December 2009 by using a structured questionnaire. Four enumerators and the author administered the structured questionnaire. The 4 enumerators were trained on the contents of the questionnaire and interview techniques. The structured questionnaire was pre-tested on thirteen respondents and necessary modifications were made based on the pre test. Rosters, which consisted of lists of investors, were obtained from the Hosanna town Administration Investment office. The structured questionnaire was administered to the 122 selected sample investors in the study area. The structured questionnaire was designed in such a way that it enables to collect data on personal, firm level characteristics and investment climate indicators. Major variables expected to have relation with investment decision including firm level characteristics, socio-economic, political, institutional and cultural factors were incorporated in to the questionnaire. The collected data were both qualitative and quantitative in nature.

Secondary data source: Secondary data pertaining to private investment in the study area over the 1992-2009 periods were collected. The collected data include detailed information about approved private investment by Ethiopian Investment Agency and Hosanna town Administration Investment office for the period under consideration. To supplement this, the IMF's International Financial Statistics (IFS) yearbook, the World Bank's World Debt Tables, Africa's Development Indicators and World Development Indicators year books and different economic surveys were used. Moreover, other relevant government and non-government organizations like the Ministry of Finance and Economic Development (MoFED), Central Statistical Authority (CSA), Industrial Project Service (IPS) and Addis Ababa Chamber of Commerce were also used as sources of secondary data.

Method of Data Analysis :Descriptive statistics like means, frequencies, percentages, were used to describe the descriptive result while t test and chi-square test were used to test it; and The Tobit model was used to analyze the micro level determinants of investment in the study area, Hossana town administration. The Tobit model used to identify factors influencing the willingness to invest and intensity of capital use is shown in equation (1). This model will be employed because; it has an advantage over other models such as (Linear Probability Models, Logit, and Probit) in that, it reveals both the probability of willingness to invest and intensity of investment capital use. The coefficients of the Tobit model can be disaggregated to determine the effect of a change in one variable on changes in the probability to invest and in the expected intensity of investment capital use.

Following Tobin (1958), the Tobit model can be defined as:

$Y_i^* = \beta X_i + u_i$ $Y_i = Y_i^*$ if $Y_i^* > 0$, $= 0$ if $Y_i^* \leq 0$, i = 1, 2,…….n

Where: Y_i = the observed dependent variable, in this case amount of initial investment capital registered for investment activities. Y_i^* = the latent variable which is not observable. X_i = vector of independent variables affecting willingness to invest and intensity of investment capital use β_i = vector of unknown parameters, u_i = residuals that are independently and normally distributed with mean zero and a constant variance σ^2, i = 1,2, … n. (n is the number of observation) Note that the threshold value in the above model is zero. This is not a very restrictive assumption, because the threshold value can be set to zero or assumed to be any known or unknown value (Amemiya, 1985).

The model parameters are estimated by maximizing the Tobit likelihood function of the following form (Amemiya, 1985 and Maddala, 1997).

$$L = \prod_{yi^*>0} \frac{1}{\sigma} f\left(\frac{Y_i - \beta_i X_i}{\sigma}\right) \quad \prod_{Yi^* \leq 0} F\left(\frac{-\beta_i X_i}{\sigma}\right)$$

Where as: f and F are the density probability function and cumulative distribution function of Y_i^*, respectively. $\prod_{Y_i^* \leq 0}$ means the product over those i for which $Y_i^* \leq 0$, and $\prod_{Y_i^* > 0}$ means the product over those i for which $Y_i^* > 0$. An econometric software known as Limdep was employed to run the Tobit model. It may not be sensible to interpret the coefficients of a Tobit in the same way as one interprets coefficients in an uncensored linear model (Johnston and Dinardo, 1997). Hence, one has to compute the derivatives of the estimated Tobit model to predict the effects of changes in the exogenous variables. The Tobit coefficients do not directly give the marginal effects of the associated independent variables on the dependent variable. But their signs show the direction of change in probability of investment and the intensity of investment capital use as the respective explanatory variable changes (Amemiya, 1985; Goodwin, 1992). McDonald and Moffit, (1980) proposed the following techniques to decompose the effects of explanatory variables into the probability to invest and intensity of investment effects. Thus, a change in Xi (explanatory variables) has two effects: it affects the conditional mean of Y_i^* in the positive part of the distribution, and it affects the probability that the observation will fall in that part of the distribution. This decomposition approach is used in this study.

1. Change in the probability (willingness) to invest as independent variable X_i changes is:

$$\frac{\partial F(Z)}{\partial X_i} = f(z)\frac{\beta_i}{\sigma}$$

2. The marginal effect of an explanatory variable on the expected value of the dependent variable is:

$$\frac{\partial E(Y_i)}{\partial X_i} = F(z)\beta i \qquad \text{Where, } \frac{\beta_i X_i}{\sigma} \text{ is denoted by z, following Maddala, (1997)}$$

3. The change in intensity of capital use for investment with respect to a change in an explanatory variable among those who invested:

$$\frac{\partial E(Y_i / Y_i^* > 0)}{\partial X_i} = \beta_i \left[1 - Z\frac{f(z)}{F(z)} - \left(\frac{f(z)}{F(z)}\right)^2\right]$$

Where as: F (z) is the cumulative normal distribution of Z, f(z) is the value of the derivative of the normal curve at a given point (i.e., unit normal density), Z is the z-score for the area under normal curve, β is a vector of Tobit maximum likelihood estimates and σ is the standard error of the error term.

Hypotheses and Definition of Variable

In this section, the working hypothesis and the definition of variables are presented. More precisely, a brief discussion on the dependent variable of the model will be followed by the definition and the hypothesis of the independent variables.

The dependent variable of the model

The dependent variable of this study is the amount of initial investment capital. This refers to the total initial

capital in Birr, registered for investment activities. This is a continuous variable that will help to capture the preference of an investor to participate in investment activities by contributing money, labor, time and his entrepreneurial ability. In this study, investors who had started operation and/or were under the implementation phase were categorized as "willing" investors. The amount of capital that an investor registered while obtaining his/her investment permit is used to measure the intensity of capital use for the investment project in question. This variable takes a value of greater than zero for those investors who had started operation and/or were under the implementation phase. Whereas, those investors who were in the pre-implementation stage or those who did not start any investment activity by the time the survey was conducted were categorized as "non-willing" investors so that their initial registered investment capital was censored to zero.

It should be noted that in the course of analyzing the determinants of private investment in the agro-processing sub-sector, which is the main objective of this study, it is important to first identify factors underlying the investment decision and examine the magnitude and significance these factors. Therefore, potential variables that are supposed to influence private investment decision in the agro-processing sub-sector in the study area are presented below.

The independent variables

The independent variables of the study are those variables which were hypothesized to have associations with private investment decision. The findings of past studies on private investment decisions, the existing theoretical knowledge as well as the researcher's knowledge and experience in the area of private investment were used to select the explanatory variables and structure the working hypotheses.

Thus, fifteen variables were identified to have direct/indirect effect on private investment decision. The potential explanatory variables, which were hypothesized to influence investors' decision on private investment in the study area, were classified in to two, namely firm level characteristics and investment climate indicators. Firm level characteristics included in this study are ownership structure, level of education, firm size, source of investment finance, and access to adequate credit. Whereas, the investment climate indicators considered in this study include interest rate, access to infrastructure facility, access to land, legal system, bureaucratic red tape, corruption, access to adequate market, source of raw material, cost of raw material, practice of competitors and political instability. In what follows these variables are discussed briefly.

Level of education: This variable is hypothesized to impact on the decision to invest in the agro-processing sub-sector. The implication is that as the education level of a sample respondent increase, he/she will have better understanding of the risks and opportunities associated with investment decision making. In the context of this study, this variable takes a value 1 if the education level of the sample investor is high school and beyond and 0 otherwise. These values are attached to the level of education precisely because those sample respondents with a high school and over level of education are expected to be able to read and understand texts written in other languages and listen to the news in electronic media, which would ultimately broaden their knowledge horizon and risk taking behavior. Results of earlier empirical studies revealed the existence of a positive and significant relation between the level of education and private investment (Smith, 2004; Kefay, 2005). In this study, it is hypothesized that the level of education will have positive influence on private investment in the agro-processing sub-sector.

Firm size (FIMSZ): In this study, firm size is defined to refer to the total number of employees working in the firm to perform any activities related with the project right after sample investors issued investment license and work toward the realization and smooth operation of the licensed investment projects owned by each sample investors in pre-implementation, implementation and operation phases. Thus, the level of employment is used as a proxy measure for firm size in that it would help to categorize whether the firm in question is large, medium or small. Recent empirical studies reported a positive and significant relation between firm size and private investment level (Reinikka and Svenssan, 2001; Czarnitzki and Toole, 2006; Boubakri et al., 2007). However, in the context of this country it is believed that the effect of this variable on investment decision is difficult to postulate *a priori*.

Source of investment fund (SORIF): This variable refers to sources of investment fund for financing investment projects by sample investors. A value 1 will be assigned to this variable if the source of investment finance is own capital and 0 otherwise. A study by Aramyan et al. (2007) reveals that high solvency (sufficient amount of own capital) motivates investors to make investments because they are less dependent on financial intermediaries. In the context of this study, the effect of this variable cannot be determined a priori.

Access to institutional credit (ACACR): This is a dummy variable, which takes a value 1 if the sample investor reported that he/she had access to adequate credit from formal credit sources and 0 otherwise. Economic theory has shown that access to credit plays a significant role in enhancing investment. Results of earlier research revealed that access to institutional credit plays a significant role in boosting private investment (Mlambo and Oshikoya, 2001; Charles et al., 2006). Thus, this variable is hypothesized to have a positive impact on investment decision.

Interest rate (INTRT): This variable captures the respondents' perception of the level of the prevailing bank lending interest rate. A value 1 was assigned to the variable if the sample investor reported that the prevailing interest rate was high and 0 otherwise. A review of the findings of past empirical studies reveals that the effect of this variable on private investment has been variable. On the one hand, some studies have confirmed the negative relationship between interest rate and private investment (Green and Villanueva, 1991; Jenkins, 1998). On the other hand, other studies reported that in repressed financial markets, credit policy affects investment in a distorted manner (Van Wijnbergen, 1985a, 1985b; Serven and Solimano, 1993). This variable is hypothesized to have a negative effect on private investment.

Access to infrastructure (ACINF): In this study, infrastructure refers to roads, water, electric power and telephone service. This is a dummy variable, which takes a value 1 if the sample investor reported that he/she had access to good infrastructure facility and 0 otherwise. As a general rule, investors prefer country with a well-developed network of roads, water supply, uninterrupted power supply, and reliable telephone services. Several studies and economic theory have shown that infrastructure plays a key role in promoting investment. Poor infrastructure increases the cost of doing business and reduces the rate of return on investment. Other things being equal, production costs are typically lower in countries with well-developed infrastructure than in countries with poor infrastructures. Earlier studies have shown that countries with good infrastructure tended to attract more private investment (Morisset, 2000; Mlambo and Oshikoya, 2001). Hence, this variable is expected to have a positive impact on investment decision.

Access to land (ACLND): It should be noted that any investor who would like to have land for investment activity is required to have an investment permit. It is quite obvious that land is one of the major factors of production and investment in the agro-processing sub-sector could not be materialized without having access to land. This is a dummy variable, which takes a value 1 if the sample investor has access to land for investment activities and 0 otherwise. Recent empirical studies confirm that access to land is significantly and positively related to private investment (Kefay, 2005). This variable is expected to have a positive association with investment decision making in the agro-processing sub-sector.

Legal system (LEGSY): This variable refers to the respondent's perception of the efficiency of the legal system, in the study area, in terms of enforcing laws and regulations. This variable is a composite index based on 4 questions measuring whether or not the legal system is strong and impartial, the pace with which legal cases are treated, protection of property rights and law enforcement reputation of the legal system. The values of this index range from zero (an efficient system) to one (a non- efficient system). Previous studies have reported a significant relationship between legal system and private investment (Knack and Keefer, 1995; Boubakri et al., 2007). This variable is hypothesized to have a positive impact on investment decision making.

Bureaucratic red tape (BEURT): It is a composite index, based on 6 questions, which assessed the opinions of the sample respondents about the efficiency of the government bureaucracy which is proxied by the time required to get investment license, land and title deed, construction permit, import machineries, bank loans and operation license. The values of this index range from zero (less bureaucratic) to one (highly bureaucratic). Previous empirical studies reported that bureaucratic red tape deters investors from investing in a country (Ayal and Karras, 1996; Rivlin, 2001). This variable is expected to have a negatively impact on investment decision.

Corruption (CORUP): Following Klitgaard et al. (2000), corruption is defined as the abuse of office for personal gain. Corruption manifests itself in several ways: through receiving donations and gifts, bribery, and the quest for favors in return for facilitation of administrative procedures. In this study, the sample respondents were asked a general question "on whether or not they perceived corruption as a serious problem", with two possible answers: yes and no. Past empirical studies revealed that, corruption was a barrier to investment because it increased transaction costs to investors and hence deterred them from investing (Narjess et al., 2007). This variable is expected to negatively affect private investment decision in the agro-processing sub-sector.

Access to adequate and reliable market (ACCMK): This is a dummy variable, which takes a value 1 if the investor reported that he/she had access to adequate and reliable market for the final products and by products and 0 otherwise. Earlier studies revealed that access to reliable and adequate market was positively and significantly related to private investment (Jenkins, 1998; Kefay, 2005, Alemayehu Geda and Befekadu Degefe, 2002). As a result, in this study, access to reliable and adequate market is expected to have a positive effect on the private investment decision in the agro-processing sub-sector.

Source of raw materials (SORRM): This variable refers to the source of raw material. This variable takes a value 1 if the sample investor uses purely domestic source of raw materials and 0 otherwise. In the context of this study it is hypothesized that those investors who procured their raw materials from foreign sources would face more difficulties (delays, foreign exchange constraint, administrative red tape. etc.) than those who procure them from domestic sources.

Costs of raw materials (COSRM): This variable refers to the perception of the sample investors about the costs of raw materials. It takes a value 1 if the respondents reported that the costs of raw materials are reasonable and 0 otherwise. Therefore, this variable is expected to affect investment decision positively.

Practice of competitors (PRACO): This variable measures respondents' perception of the practices of major competitors. It is a composite index based on seven questions measuring the malpractice/illegal actions taken by potential competitors such as tax evasion, copy/patent right infringement, employing children, etc. as well as benefiting from political patronage (having preferential access to credit and foreign exchange and priority to sell outputs to governmental organizations). The values of this index range from zero (level playing field) to one (not level playing field). A priori it is hypothesized that this variable will have a negative effect on investment decision making.

Perception about political instability (POLIN): This is a dummy variable, which takes a value 1 if the sample respondent perceived that there was threat of political instability in the country and 0 otherwise. It is evident that if there is a political instability in a country, the resulting uncertainty about the outcomes of investment decisions would have a strong disincentive effect on private investment. Earlier studies have shown the existence of a negative relationship between political instability and investment decision (Serven, 1997; Gyimah-Brempong and Traynor, 1999; Mlambo, and Oshikoya, 2001; Boubakri et al., 2007). Therefore, the variable is anticipated to have a negative effect on the decision of investors to participate in investment activities.

Results of the Descriptive Statistical Analysis

This section presents and discusses descriptive results of the survey data. As already noted, in the course of presenting and discussing the descriptive statistics, it was found appropriate to categorize the sample investor in two groups. Those investors who reported to have been in the operation and implementation stage of their investment project at the time of study were categorized as "willing" investors. Whereas, those investors who reported to have been in the pre-implementation stage were classified as "non-willing". Accordingly, of the 122 sample investors 51 and 79 were categorized as "willing" and "non-willing", respectively.

Variables	Willing		Non-willing		Total		χ^2-Value
	No	%	No	%	No	%	
Source of fund (Own capital,%)	17	33.3	30	38	105	80.8	0.289
Education level (High school and beyond, %)	44	86.3	61	77.2	105	80.8	1.638
Access to institutional credit (yes, %)	34	66.7	38	48.1	72	55.4	4.323**
Interest rate(high, %)	45	88.2	54	68.4	99	76.2	6.746**
Access to infrastructure(yes, %)	28	54.9	46	58.2	74	56.9	0.140
Access to land (yes,%)	30	58.8	24	30.4	54	41.5	10.325***
Problem of corruption (yes,%)	37	72.6	35	44.3	72	55.4	10.006***
Access to market(yes,%)	37	72.6	55	69.6	92	70.8	0.129
Source of raw materials(Purely domestic,%)	27	47.1	56	70.9	83	63.8	4.324**
Costs of raw materials (Reasonable,%)	13	25.5	16	20.3	29	22.3	0.490
Political Environment (Stable,%)	14	27.5	24	30.4	38	29.2	2.654*

Source: Computed from survey data, 2009.

With respect to the sample respondents' access to credit, the results of the survey indicate that 66.7% of the "willing" and 48.1% of the "non-willing" investors reported to have had access to institutional credit. Whereas, 33.3 % of the "willing" and 51.9% of the "non-willing" sample respondents reported that they had no access to institutional credit due to collateral problem, bureaucracy, corruption or inadequate credit. The chi- square statistical test shows the existence of a statistically significant ($\chi^2 = 4.323$; $P<0.05$) difference between the two groups of investors in terms of access to institutional credit. As interest rate is an important determining factor for any type of private investment decision, the sample respondents were asked to judge the level of interest rate. Accordingly, as indicated above, 76.2.% and 23.8% of the total sample investors judged the prevailing interest rate as high and not high, respectively. Moreover, 88.2% of the "willing" and 68.4% of the "non-willing" sample respondents believed that the prevailing interest rate was high. Whereas, 11.8% of the "willing" and 31.6% of the "non- willing" sample respondents reported that the interest rate was not high. The Chi-square test shows that there was a statistically significant ($\chi^2= 6.746$; $P<0.01$) difference between the "willing" and "non-willing" sample investor groups with respect to their judgment about the level of the prevailing official interest rate. Analysis of the survey data shows that 58.8% of the "willing" and 30.4% of the "non- willing" sample respondents reported that they had access to land. Similarly, of the total sample respondents 41.5% reported that they had access to land. The Chi-square test indicates that there is a strong and statistical significant ($\chi^2 = 10.325$; $P< 0.01$) difference between the two groups of sample respondents with respect to their access to land. In an attempt to identify administrative hurdles to private investment, the sample respondents were asked to point out whether or not corruption was a problem for investment in their area. The survey results show that 72.6% of the "willing" and 44.3% of the "non-willing" sample investors reported that they perceived corruption as a serious problem. The Chi-square test indicates the existence of a statistically significant ($\chi^2 = 10.00$; $p<0.01$) difference between the two groups of sample investors, with respect to their perception of the problem of corruption. With respect to the source of raw materials, 47.1% of the "willing", 70.9% of the "non- willing" and 63.8% of the total

sample investors reported that they procured their raw materials from domestic markets. The Chi-square test shows the existence of a statistically significant (χ^2=4.324; P<0.05) difference between the "willing" and "non-willing" sample respondents with respect to this variable.

Another very important factor impacting on investment decision making is the existence of political instability. In this respect, the sample respondents were asked to express their views on Political stability/instability at the national level and the results are set out. Accordingly, 72.5% of the "willing", 69.6% of the "non-willing" and 70.8% of the total sample respondent reported that political instability was a serious problem in the country. The Chi-square test reveals that there was statistically significant (χ^2=2.654; p<0.10) difference between the "willing" and "non-willing" sample respondents with respect to their view on the deterrent effect of political instability to investment.

Summary of the composite index for investment climate proxy variables by respondent group (Mean and standard deviation)

	Willing		Non-willing		Total		
Attribute	Mean	St.dev.	Mean	St.dev.	Mean	St.dev.	t–ratio
Practice of competitors	0.61	0.06	0.60	0.09	0.60	0.08	-1.079
Bureaucratic red tape	0.36	0.26	0.27	0.28	0.30	0.28	-1.700
Status of legal system	0.44	0.09	0.50	0.09	0.47	0.09	3.857***
Firm size	63	60.7	40.4	40.1	49.3	50.2	-2.34**

*** Show significance at 1% probability level

Source: Computed from survey data, 2009.

The t-test shows the existence of a statistically significant (t = 3.857; P<0.01) mean difference between the two groups of sample respondents in terms of their perception of the efficiency of the legal system. This implies that the respondents' perception of the efficiency of the legal system is a decisive factor in determining private investment decision in the study area. The average firm size of the total sample investors, as measured by the number of employees in a firm was found to be 49.3 with a standard deviation of 50.2. This average masks differences among firms which ranged from 6 to 268 employees. The "willing" sample respondents employed on average 63 employees. The corresponding figure for the "non-willing" sample respondents was 40.4. The t-test reveals the existence of statistically significant (t= -2.34; P<0.05) difference between the two sample investor groups with respect to this variable.

Results of the Econometric Model

Under this section, the effects of important socio-economic and institutional factors which were hypothesized to influence private investment decision in agro–processing industries were analyzed using the Tobit model and the Maximum Likelihood estimation procedure. The analysis was made using "LIMDEP" version 7 statistical software. Tobit model was used for econometric analysis.

The computed VIF values of the continuous explanatory variables are presented in Appendix 1. As can be seen in Appendix 1, all the VIF values are less than 10. This proves that there was no serious problem of multicolinearity among the continuous explanatory variables. Consequently, all of the continuous explanatory variables were used in the estimation of the specified mode. The contingency coefficients were computed for each pair of discrete variables and the results are set out in Appendix 2. From the table it can be concluded that there was no problem of strong association among the discrete variables as the respective coefficients were very low. Consequently, all the discrete explanatory variables were included in the estimation of the specified model.

Discussion of the econometric results

The model results show that the coefficients of six of the fifteen explanatory variables that were hypothesized to affect potential investors' decision to invest in the agro-processing sub-sector were statistically significant. It is worth noting that all of these six explanatory variables that were found to significantly affect the level of investment in the agro-processing sub-sector had the hypothesized signs.

More precisely, the sample investor's level of education (EDLEV), firm size (FIMSZ), perception of the level of interest rate (INTRT), access to land (ACLND), perception of the legal system (LEGSY), and perception of the problem of corruption (CORUP) were found to significantly affect the level of investment the agro-processing sub-sector. Among the six variables that were found to significantly affect the level of investment in the agro-processing sub-sector, the coefficients of the sample investor's level of education, firm size, access to land, and perception of the legal system were positive, implying that these variables had a significant investment-enhancing impact. Whereas the coefficients of perception of the level of interest rate, and perception of the problem of corruption had negative signs, implying that these variables had a significant investment-deterring impact.

Maximum likelihood estimates the Tobit model and the effects of change on the selected explanatory variables on intensity of willingness to invest

Explanatory Variables	Estimated Coefficients	Standard Error	t-ratio	Change among the whole	Change among willing	Change in Probability
Constant	7.232	3.202	2.258	-	-	-
EDLEV	1.341	5.506	2.435***	0.797627	0.561825	0.052555
FIMSZ	2.098	0.416	5.043***	1.24789	0.878978	0.082223
SORIF	-3.582	5.334	-0.671	-2.13057	-1.50071	-0.14038
ACACR	7.423	4.745	1.564	4.4152	3.10994	0.29092
INTRT	-1.393	6.365	-2.189**	-0.82856	-0.58361	-0.05459
ACINF	0.054	4.950	0.011	0.03212	0.02262	0.00212
ACLND	1.169	5.052	2.313**	0.695321	0.489764	0.045814
LEGSY	7.431	2.581	2.879***	4.419959	3.113291	0.291229
BUCRT	3.751	8.663	0.432	2.23109	1.57152	0.14701
CORUP	-1.127	5.182	-2.176**	-0.67034	-0.47217	-0.04417
ACCMK	2.329	5.448	0.427	1.385289	0.975758	0.091276
SORRM	-6.033	4.587	-1.315	-3.58843	-2.52759	-0.23644
COSRM	-0.598	5.486	-0.109	-0.35569	-0.25054	-0.02344
PRACO	-1.048	3.147	-0.333	-0.62335	-0.43907	-0.04107
POLIN	-5.976	5.159	-.158	-3.55452	-2.5037	-0.23421

*** and ** indicate significance at 1% and 5% probability level, respectively.

Log likelihood function = -951.432 F (z) = 0.5948 Sigma (σ) = 9.89, f (z) = 0.3876

A closer look at the above table shows that the significant explanatory variables do not all have the same level of impact on investors' decision to invest in the agro-processing sub-sector. It is, therefore, important to discuss the effects of the significant explanatory variables on individual basis. Accordingly, as expected, education level of the sample investor was found to be positively and significantly ($p<0.01$) related to the likelihood that the investor chooses to proceed with the investment. The marginal effect of education level of the sample investor on the level of investment in the agro-processing sub-sector was 0.79 and education increased the probability of investment among the "non-willing" investors in the agro-processing sub-sector by 5.2%. This result is consistent with the findings of several studies (Smith, 2004; Kefay, 2005) carried out in many developing countries that have concluded that investing in human resources development is essential for poverty reduction, efficient utilisation of available resources, and economic development. Firm size was found to positively and significantly ($p<0.01$) affect the propensity to invest in the agro-processing sub-sector. The marginal effect of firm size on the level of investment in the agro-processing sub-sector was 1.25 and firm size increased the probability of investment among the "non-willing" investors by 8.2%. One explanation for the positive and significant effect of firm size on the level of investment may be that the number of employees increases the opportunity of good returns on investment in the agro-processing sub-sector. Given that a considerable proportion of investment projects in the country are labor-intensive in nature, this argument appears plausible.

Another variable that played an important role in explaining variations in investment was access to land. The sign of its coefficient was found to be positive and significant ($p<0.05$), indicating that investors with access to land showed greater propensity to invest. The marginal effect of access to land on the level of investment in the agro-processing sub-sector was 0.69 and access to land increased the probability of investment among the "non-willing" investors by 4.6%. Similarly, the proxy for the efficiency of the legal system was positively and significantly ($p<0.01$) related to the level of investment in the agro-processing sub-sector, implying that, other things being equal, if potential investors have positive opinion about the efficiency of the legal system, investment is more likely to occur. In other words, the positive and significant coefficient of LEGSY is a clear indication that the efficiency of the legal system is highly valued by potential investors. The marginal effect of the variable legal system on the level of investment in the agro-processing sub-sector was 4.42 and this variable increased the probability of investment among the "non-willing" investors by 29.1%. The coefficient of the perception of the level of interest rate is negative and significant ($p<0.05$), implying that higher interest rate does not increase potential investors' propensity to invest. The marginal effect of this variable on the level of investment in the agro-processing sub-sector was -0.83 and this same variable decreased the probability of investment among the "non-willing" investors by 5.4%. As expected, investors' perception of the prevalence of corruption was estimated to have a significant ($p<0.05$) investment-deterring effect. This result is consistent with the view that corruption impedes investment and thus economic growth. The marginal effect of corruption on the level of investment in the agro-processing sub-sector was -0.67 and the variable corruption decreased the probability of investment among the "non-willing" investors by 4.4%.

Intensity of capital use for investment activities

The second part of the Tobit model measures the extent of capital use with respect to a unit change of the explanatory variables among the "willing" group. The marginal effects of the significant explanatory variables of the censored regression on the level of investment by the "willing" investors are presented in the above table.

The effect of change in the education level of sample investors increases the intensity of capital use by 0.56 million Birr among the "willing" investors. In the same manner, the change in firm size increases the extent of capital use by 0.88 million Birr among the "willing" group. As expected, access to land influences the level of capital use positively. In general, land accessibility increases the intensity of capital use by 0.49 million Birr among the "willing" investors. Perception of the efficiency of the legal system by sample respondents is another important variable, which significantly affected the level of capital use. The existence of an efficient legal system increases the extent of capital use by 3.11 million Birr among the "willing" group.

On the contrary, corruption and interest rate have a negative effect on the extent of capital use for investment. Holding other variables constant, the perception of the problem of corruption reduces the intensity of capital investment by 0.47 million Birr among the "willing" investors. Likewise, the fact that "willing" investors believe that the official bank interest rate is high would decrease the extent of their capital use by 0.58 million Birr.

Conclusion

The findings of this study indicate that education attainment is an important determinant of private investment in the agro-processing sub-sector in the study area. The demand for competent and experienced professionals has always been high in Ethiopia. However, supply has continuously fallen short of demand. The country's capacity to train higher-level personnel is below current requirements, mainly because of the extreme limitation of space in institutions of higher learning. To address the problem of skilled manpower, the Ethiopian Government is engaged in reorganizing higher education institutions, including expansion of higher education activities to more regions and increasing institutional independence. It is believed that this measure is a move in the right direction. It is, however, important to note that institutions of higher education in the country must go beyond the traditional ways of imparting too much theoretical knowledge and produce competent and confident graduates with good communication and entrepreneurial skills and abilities to deal with the wider problems of national development.

Another policy implication from the findings of this study is that it is in the best interest of the Hosanna town Administration to promote investment by providing good conditions for investors (e.g. providing sufficient land) which would increase the opportunity of good returns on private investment in the agro-processing sub-sector. Thus, in order to encourage private investment, the Hossana town Administration should introduce proactive land development and administration procedure, for accessing land for private investment in general and for agro-processing investment in particular. The level of interest rate was found to have a significant investment-deterrent effect on the agro-processing sub-sector in the study area. The implication is that a comprehensive measure to make loans available at reasonable interest rate is more capable of attracting private investment in the agro-processing sub-sector. As the inefficiency of the legal system and the problem of corruption were found to have deleterious effects on private investment in the agro-processing sub-sector in the study area, creating a favorable institutional environment, one in which investors' rights are protected, laws and contracts are enforced, and public authorities and government officials discharge their responsibilities with transparency and accountability, must be given priority. In a nutshell, issues related to the legal system and corruption should be considered as an integral part of economic development policy formulation and implementation.

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