Analysis of Factors Influencing Private Investment Implementation in the Region of Najran

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Abstract: This study examines the factors that influence private investment in the Najran region of southern Saudi Arabia. We collected primary data from 120 potential investors from the Najran region in 2021 with a questionnaire for individual respondents. Using a logistic regression, we found that the variables representing the educational level of the investor, level of interest rates, the land tenure system, accessibility of markets, and the perception of the tax rate were statistically significant in explaining potential investors' decision whether to invest in the region. Moreover, the signs of the coefficients of these predictor variables were as expected. However, other important variables, such as access to credit, infrastructural facilities, access to land, government instability, and accessibility of investment information were not significant in affecting the decision to invest in the Najran region.

Keywords: Private investment, willingness to invest, questionnaire, logistic regression, Najran region.

Introduction

Investment is an important development factor for any region or economy, particularly for emerging countries such as Saudi Arabia. It is especially important for diversification of the economy, providing employment opportunities and using domestic resources efficiently. Private investment is the main engine of growth in market economies. It sustains growth when many factors combine to create an enabling environment for private sector development (Khan & Carmen, 1990). The Saudi government has introduced a series of reforms in recent years as well as bold and ambitious plans to transform the Saudi economy as part of its 2030 Vision and National Transformation Agenda. One of the most important policy priorities in this area is the diversification of the economy, the creation of employment opportunities for citizens in the private sector, and the implementation of a gradual but substantial and continuous process of regulating public finances (King Abdullah Petroleum Studies and Research Center, 2017).

Saudi Arabia is making significant efforts to develop its economy through domestic and foreign investment opportunities, in line with Vision 2030, which aims to empower investors using joint ad hoc approaches to facilitate investment transactions and business services (National Competitiveness Center: https://www.ncc.gov.sa/en/Pages/default.aspx). Saudi Arabia wants to identify and develop investment opportunities and promote domestic investment by providing facilities and services to investors. The Saudi Ministry of Investment is undertaking an initiative to develop the investment environment in Saudi Arabia and is assisting the domestic investor through the following:

- Carrying out economic market analyses, either by providing different and normative information or by submitting and preparing reports and case studies, sharing this information on databases and participating in feasibility studies;

- Developing partnerships and linkages with business, industry and local businesses for potential partnerships;

- Preparing field visits to investors, arranging logistics and reservations and coordinating meetings with government agencies and stakeholders;

- Offering start-up assistance for finding an appropriate location, obtaining legal advice and coordinating with the competent authorities;

- Providing incentives;

- Facilitating business; and

- Resolving investor operational issues.

This study attempts to answer the following question: What factors influence the decision of domestic private investors in the Najran region? Our main objective is therefore to explore the factors influencing potential investors' decision to invest in the Najran region of Saudi Arabia using a survey of local private investors. The study helps identify private investors and analyses the factors that influence private investor participation in the region. This information should help facilitate private investors in the target region, promote similar private investment in other areas of the country and help overall economic development in this area. The originality of this study comes from the fact that we used original data obtained and collected for the first time from local investors. Our results should therefore provide useful recommendations for local decision makers to encourage private investment.

The paper is organised as follows. After presenting the Najran region and the survey in the second section, the research methods and model specifications are discussed in the third section. Section four presents the descriptive and econometric results and the discussion. The final section presents the main conclusions and recommendations.

Description of the Najran Region and the Survey

Description of Najran region

Najran is one of the oldest of the 13 regions in Saudi Arabia and is located in the south western part of the country on the border with Yemen. According to the 2018 census, Najran has an area of 360,000 km² and a population of 595,705 inhabitants. Its capital is the town of Najran. Its civilization extends to the Early Palaeolithic more than 1.5 million years ago. The Najran region is characterised by charismatic nature, temperate climate, picturesque natural features, monuments, indigenous heritage, popular markets and dams. One of the carpenters' most famous relics is the groove. In addition to the

Najran Mountains, many historical and archaeological sites and graphic inscriptions have not been excavated and documented (Mashreef, 2020).The region has the Najran Dam, one of the largest in Saudi Arabia. The nature and topography of the Najran region are diverse: the agricultural environment in the valleys, the mountainous environment around the valleys and the sandy environment to the east. Najran has historically been characterised as an economically important location between the north and south of the Arabian Peninsula. It occupies a strategic position as a corridor for the western and central tribes of the country. The Najran region has eight major cities: Najran is the capitol and largest city in the region. There are also Sharurah, Habuna, Thar, Yadamah, Badr Al Janoub, Khabash, and Al Kharkheer (Mashreef, 2020; Ministry of Municipal and Rural Affairs, 2019).

Description of the Survey

The study used a questionnaire to collect primary data for statistical analysis. The survey was conducted in the Najran region of Saudi Arabia. Initial data were collected from 120 investors active in the different cities of the Najran region. Primary survey data were collected between the first week of November and the third week of December 2021 using a structured questionnaire. Data expected to influence the investment decision, including investor characteristics and socio-economic and demographic factors, were included in the questionnaire. In addition, the questionnaire focused on external factors affecting private investors' decision to invest in the region. Secondary data on the investment and production sector and the number of investors were collected to support information from primary sources. The Najran Investment Office, Najran Trade Industry and Development Office, Bureau of Business Enterprises, and other sources were consulted to obtain secondary data.

Data Analysis Methods and Model Specification

A quantitative analysis used Eviews 12 software to identify descriptive statistics comprising the frequency, percentage and cross tabulation for variables considered important for private investment decisions. The Phi coefficient, Cramer's V and contingency coefficient and Chi-square tests are also employed.

In addition, a log it model was used to identify factors affecting investment willingness because of its advantage over other linear probability models. Logistic regression, also known as the log it model, is used to model the factors that influence the decision to invest in the Najran region because that decision is a dichotomous outcome variable. In this model, the log odds of the outcome are modelled as a linear combination of the predictor variables. Since the research focused on factors affecting the investment decision, the outcome (response) variable is binary, in that 1 indicates a decision to invest and 0 indicates a decision not to invest in the Najran region based on these factors. The predictors of interest for this model are information factors, land factors, market factors, financial factors and some microeconomic factors. Therefore, our empirical model assumed that domestic private investment is linear in terms of some socio-economic characteristics, information factors, land factors, market factors and financial factors. In addition, the model contained a fixed term that reflected the level of autonomous investment, that is, the level of investment that is not dependent on any factor(Ayeni, 2020; Egberi and Monye, 2017; Osebo, 2018; Oshikoya, 1994). The analysis therefore tested the importance of factors (such as land factors, financial factors, market factors and socio-economic factors) that are likely to influence domestic private investment activity in the Najran region.

Based on the above, we used a binary dependent variable (y_i) that takes the value 1 or 0, where1 indicates a domestic private investor invests in the region of Najran and 0 indicates the decision not to

invest. We denoted the factors that affect the investor's decision by the vector of predictor variables X_i'. a multiple linear regression of y_i on X_i' is not suitable because the fitted value of y_i from this linear regression is not restricted to be between 0 and 1. Thus, we considered a model that takes into account the characteristics of a binary dependent variable. We assumed the probability of an investor to invest (probability of value one) was modelled by

$$Prob(y_i = 1 / X_i', \beta) = 1 - F(-X_i' \beta) \qquad (1)$$

Where F is a continuous and strictly increasing function taking values from 0 to 1. If we consider p as the probability of investors' decision to invest in the region of Najran, then p/1-p is the corresponding odds (Gourieroux, 2000; McFadden, 2001).

y_i: denotes the dichotomous qualitative variable;

X_i': denotes the vector of predictor variables;

β: denotes the vector of parameters;

i: denotes the index for the investors, i =1, 2, ..., 120.

The vector of predictor variables includes 25 variables:

X_1: gender of the investor (male or female);

X_2: age of the investor;

X_3: educational level of the investor (did not attend, primary school, middle school, high school, diploma, bachelor degree, master degree, PhD);

X_4: marital status (married, single, divorced, other);

X_5: residential area (urban, semi-urban, rural);

X_6: job of the investor (Do you have a job other than your business? Yes, No);

X_7: financial institutions (After getting your investment permit, have you ever asked financial institutions like bank for a loan? Yes, No);

X_8: Access to credit (If you asked to get a loan from financial institutions, have you experienced any difficulty in acquiring loan? Yes, No);

X_9: collateral requirements of banks (Yes, No);

X_{10}: bank bureaucracy (bank paperwork/bureaucracy/delay in loan delivery bureaucracy, Yes, No);

X_{11}: high interest rate of banks (Yes, No);

X_{12}: inadequate credit/finance of banks (Yes, No);

X_{13}: infrastructural facilities (Do you have problems that result in investment implementation delay regarding infrastructural facilities? Yes, No);

X_{14}: roads facilities (Does the overall quality and efficiency of roads facilitate or affect your investment activity? Yes, No);

X_{15}: telephone and internet service (Does the overall quality and efficiency of telephone and internet services affect your investment activity? Yes, No);

X_{16}: electric power service (Does the overall quality and efficiency of electric power service affect your investment activity? Yes, No);

X_{17}: water and sewerage service (Does the overall quality and efficiency of water and sewerage services affect your investment activity? Yes, No);

X_{18}: postal service (Does the overall quality and efficiency of postal service affect your investment activity? Yes, No);

X_{19}: access to land (Do problems of accessing land result in investment implementation performance or delay? Yes, No);

X_{20}: land tenure system (To get land or access it for your investment, does land tenure system present a problem? Yes, No);

X_{21}: bureaucratic procedure (To get land or access to it for your investment, does bureaucratic procedure represent a problem? Yes, No);

X_{22}: political or governmental instability (Does political or governmental instability affect your investment decision? Yes, No);

X_{23}: access to investment information (Does access to investment information affect your decision to invest in the region of Najran? Yes, No);

X_{24}: access to markets (Does access to markets for raw materials and favourable market competition affect the investment performance in the region of Najran? Yes, No);

X_{25}: perception of tax rate (Does your perception of the tax rate affect your investment performance or your decision to invest in the region of Najran? Yes, No).

The probability of an investor deciding not to invest (probability of value 0) is modelled as:

$$Prob(y_i = 0 \; / X_i', \beta) \; = F(-X_i' \, \beta) \tag{2}$$

The vector of parameters β can be estimated by maximizing the following log-likelihood function:

$$\text{Log L}(\beta) = \sum_{i=0}^{n}(y_i \, \log(1 - F(-X_i' \, \beta)) + (1 - y_i)\log(F(-X_i' \, \beta))) \tag{3}$$

In general, there are two alternative interpretations for this specification. We consider here that the binary model is treated as a latent variable specification. This continuous variable can help describe an investor's preference for participating in investment activities by contributing funds, work, time and entrepreneurial ability. In this study, investors who have begun operations or are in the implementation phase were considered "willing" investors. The dependent variable takes a value greater than 0 for investors who have started or are in the implementation phase. Although investors who had not yet implemented or had not undertaken any investment activity at the time of the survey were classified as "non-willing" investors, their initial registered investment capital was fixed at 0. We therefore assumed a latent unobservable variable Z_i, which is linearly related to the vector of predictor variables X_i',

$$Z_i = X_i'\beta + \; \varepsilon_i \tag{4}$$

Where ε_i denotes the error terms. In this case, the observed dependent variable y_i is determined by whether the latent variable Z_i exceeds a threshold value of zero as follows:

$$y_i = \begin{cases} 1 \; if \; Z_i > 0 \\ 0 \; if \; Z_i \leq 0 \end{cases} \tag{5}$$

Thus,

$$Prob(y_i = 1 \,/X_i', \beta) = Prob\,(Z_i > 0) = Prob(X_i'\beta + \varepsilon_i > 0\,) = 1 - F_\varepsilon(-X_i'\,\beta) \quad (6)$$

Where F_ε is a cumulative distribution function of the error term ε.

From this specification, we obtained the result that the expected value of y is equal to the probability of y =1.

$$E(y_i = 1 \,/X_i', \beta) = 1\,.\,Prob(y_i = 1 \,/X_i', \beta)\; + 0\,.\,Prob(y_i = 0 \,/X_i', \beta)$$

$$= Prob(y_i = 1 \,/X_i', \beta) (7)$$

In the case of logit model,

$$Prob(y_i = 1 \,/X_i', \beta) = 1 - \frac{\exp(-X_i'\beta)}{1+\exp(-X_i'\beta)} = \frac{\exp(X_i'\beta)}{1+\exp(X_i'\beta)} \tag{8}$$

Considering a logistic function, the maximum-likelihood estimator of the vector of parameters β is given by maximizing the logarithm of the following likelihood function:

$$L(y, X', \beta) = \prod_{i=1}^{n} \left(\frac{\exp(X_i'\beta)}{1+\exp(X_i'\beta)}\right)^{y_i} \left(\frac{1}{1+\exp(X_i'\beta)}\right)^{1-y_i} (9)$$

The main variables that are expected to affect investment performance in this study are the following:

- Educational level of the private investor: This is a continuous variable related to the education level of the investor. It is expected that respondents that are more educated prefer to take jobs in public administration in Saudi Arabia because they can obtain good salaries. Thus, we expect a negative relation between education level and the investment decision.

- Interest rate: In general, private investors are affected by the level of interest rates. This variable takes the value 1 if investors report a higher interest rate and 0 otherwise. It is assumed that a high level of interest rates will have a negative impact on investors' decision to invest in the region.

- Infrastructural facilities: Access to a good location, such as roads built to transport goods and services from one region to another, should be positively linked to the investment decision because it ensures the security of investments.

- Access to land: The factor of access to land comprises problems of accessing land that result in investment implementation performance or delay. It is noted as a dummy variable that takes 1 if there are problems of access to land and 0 if not. Access to a good location of land without difficulties may be positively linked to the investment decision.

- Land tenure system: The variable takes 1 if there is problem of land tenure system and 0 if not. The presence of land tenure system problems should reduce the probability of investment decision.

- Government instability: This is a dummy variable, which takes a value of 1 if the respondent experienced government instability and 0 otherwise. If there were government stability, investors would be more interested due to the probability of a higher return. Therefore, the variable government instability factor is anticipated to have a negative relation with investors' decision.

- Access to investment information: The variable "access to investment information" is a key factor for investors to do what they want. It is a dummy variable that takes a value of 1 if the investor has adequate access to information and of 0 otherwise.

- Credit access: Credit access is the most important factor helping attract investors. This is a dummy variable taking the value of 1 if the investor has experienced any difficulty in acquiring a loan from a financial institution and 0 if not. It is hypothesized that access to credit would have positive influence on the investment decision. It is expected that the coefficient of this variable would be negative.

- Market access: This factor reflects access to raw materials and favourable market competition. It is a dummy variable that takes the value of 1 if the respondent has experienced a market access problems and 0 if not. Market access is assumed to have a positive impact on investor decisions. It is expected that the variable has a negative coefficient.

- Tax rate perception: The tax rate is a dummy variable that is assigned the value of 1 if the investor perceives that a high tax rate may affect the investment decision and 0 if not. Tax rate is assumed to have a negative impact on investor decision.

Data Analysis and Findings

This section focuses on analysis and interpretation of research results. Descriptive statistics and econometric results were used to compare willing and non-willing investor groups with the factors determining individual investment decision-making in the Najran region. Investors were classified as willing or non-willing depending on their investment status. Those who had commenced investing activities were called willing, while those who had not yet undertaken operational activities were called non-willing. We present the factors influencing investors' decision whether to invest in the Najran region. The targeted sample size was 150, and we received only 120 responses. The rate of response was 80%.

Descriptive Statistics Analysis

The descriptive statistics analysis shows the relation between some socio-economic factors of respondents and their willingness to invest by employing cross tabulation. Table 1 reports these results. It shows that the factors of gender, age, marital status, collateral requirements of banks, inadequate credit, infrastructural facilities, road facilities, water and sewerage services, postal service and land bureaucratic procedures are associated with respondents' willingness to invest. Investigating the association between gender and willingness to invest, we found that the three measures of association (Phi coefficient, Cramer's V and contingency coefficient) are equal respectively to 0.194, 0.194 and 0.190, indicating a low relation between gender and the investment decision. The result of the Pearson chi-square test indicates rejection of the null hypothesis at a level of 5%, which suggests dependence between gender and willingness to invest. Turning to the variable age of the respondent, the values of Phi coefficient, Cramer's V and contingency coefficient are equal respectively to 0.382, 0.382 and 0.357, indicating an average relation between age and the willingness to invest. The result of Pearson

chi-square test reports rejection of the null hypothesis at a level of 1%, indicating the existence of a link between age of the respondent and willingness to invest. However, the results for the job variable, which indicates whether the respondent had a job, report that having a job or not is not linked to willingness to invest. In fact, the values of Phi coefficient, Cramer's V, contingency coefficient and the probability of Pearson chi-square test of rejection of the null hypothesis are equal respectively to 0.085, 0.085,0.084 and 0.351.Moreover, the findings indicate that other factors such as "having received a credit from a financial institution", bank bureaucracy, telephone and internet services and electric power services are not linked to the investors' decision to invest.

Table 1

Measures of association between some socio-economic factors of respondents and their willingness to invest

Variable	Phi coefficient	Cramer's V	Contingency coefficient	Pearson chi-square test	
				Test statistic	p-value
Gender	0.194	0.194	0.190	4.539	0.033**
Age	0.382	0.382	0.357	17.54	0.007*
Marital status	0.291	0.291	0.279	10.17	0.006*
Job	0.085	0.085	0.084	0.868	0.351
Financial institutions	0.040	0.040	0.040	0.195	0.687
Collateral requirements of banks	0.154	0.154	0.152	2.858	0.090***
Bank bureaucracy	0.004	0.004	0.004	0.002	0.963
Inadequate credit	0.248	0.248	0.241	7.413	0.006*
Infrastructural facilities	0.245	0.245	0.238	7.247	0.007*
Roads facilities	0.179	0.179	0.176	3.869	0.049**
Telephone and internet services	0.087	0.087	0.087	0.921	0.337
Electric power services	0.104	0.104	0.103	1.300	0.254
Water and sewerage services	0.168	0.168	0.166	3.413	0.064***
Postal service	0.153	0.153	0.151	2.814	0.093***
Land bureaucratic procedure	0.154	0.154	0.152	2.858	0.090***

Note : *, ** and *** indicate significance at 1%, 5% and 10% probability levels, respectively.
Source: Authors' data computation.

We next calculated the association between some socio-economic factors of respondents and their willingness to invest in the region of Najran. Table 2 reports the frequencies for combinations of values of respondents' education levels and their willingness to invest. It shows 44 respondents of the willing group (53%) at or above the degree level and47% of respondents at or below the diploma level, whereas from the non-willing group the respective figures were78% and 22%, respectively. On average, the proportion of respondents having a degree from the non-willing investors was larger than the proportion of willing investors. Table 3 shows the degree of association between residential area and willingness to invest of respondents. Among 120 respondents, 55.83% are residents of urban cities, 35% of semi-urban cities and 9.17% of rural areas. It also shows 67.1% of urban residents are willing to invest, whereas only 63.6% of rural residents are. This result indicates the area of residence should not

be a determinant in the investment decision. Table 4 reports the degree of association between land tenure system and respondents' willingness to invest. Among 68 respondents who indicated a problem of land tenure system, 38 (55.8%) are willing to invest, whereas 30 (44.2%) are not. However, of 52 respondents who cited no problem of land tenure system, 45 (86.5%) are willing to invest, and 7 (13.5%) are not. This implies the absence of land tenure problems encourages investment in the region.

Table 2

Association between level of education and willingness to invest

Count		Willingness to invest		Total
		No (0)	Yes (1)	
Education level	Did not attend (1)	0	1	1
	Primary school (2)	1	4	5
	High school (3)	4	22	26
	Diploma (4)	3	12	15
	Bachelor degree (5)	22	29	51
	Master degree (6)	6	12	18
	PhD (7)	1	3	4
Total		37	83	120

Source: Authors' data computation.

Table 3

Association between residential area and willingness to invest

Count		Willingness to invest		Total
		No (0)	Yes (1)	
Residential area	Urban (1)	22	45	67
	Semi urban (2)	11	31	42
	Rural (3)	4	7	11
Total		37	83	120

Source: Authors' data computation.

Table 4

Association between land tenure system and willingness to invest

Count		Willingness to invest		Total
		No (0)	Yes (1)	
Land tenure system	No (0)	7	45	52
	Yes (1)	30	38	68
Total		37	83	120

Source: Authors' data computation.

For the access to credit variable, among 83 willing to invest, 26 respondents indicated no credit access problems (31.32%),and among 37 non-willing respondents, 18 cited no credit access problems (48.64%).Thus, the percentage of willing respondents encountering some problems of access to credit is

higher than that of the non-willing group. These findings show that credit access should encourage potential investors. Table 6 reports the link between high interest rates and willingness to invest. As the interest rate is an important determining factor for any type of private investment decision, the sample respondents were asked if the interest rate was high or not. The results indicate that (31/37) 83.78% of the non-willing and (43/83) 51.8% of willing groups responded that the rate of interest was high. This implies the level of interest rates was one of the main factors affecting the investment decision. The relation between the tax rate perception and the willingness to invest is shown in Table 7. The results report that of 37 non-willing respondents, 33 (89.2%) judged that tax rate is high, whereas of 83 willing respondents, 54 (65%) considered the rate of tax high. Both the willing and the non-willing groups judged the tax rate as high. However, a higher proportion of non-willing respondents said the tax rate was high compared to willing respondents. This implies the tax rate affects the decision of potential investors.

Table 5

Association between access to credit and willingness to invest

Count		Willingness to invest		Total
		No (0)	Yes (1)	
Access to credit	No (0)	19	57	76
	Yes (1)	18	26	44
Total		37	83	120

Source: Authors' data computation.

Table 6

Association between high interest rate and willingness to invest

Count		Willingness to invest		Total
		No (0)	Yes (1)	
High interest rate	No (0)	6	40	46
	Yes (1)	31	43	74
Total		37	83	120

Source: Authors' data computation.

Table 7

Association between tax rate perception and willingness to invest

Count		Willingness to invest		Total
		No (0)	Yes (1)	
Tax rate perception	No (0)	4	29	33
	Yes (1)	33	54	87
Total		37	83	120

Source: Authors' data computation.

Because land is an essential factor input, access to it strongly affects the investment decision. As shown in Table 8, of 37 non-willing respondents, 10 (27.0%) had access to land, whereas of 83 willing respondents, 47 (56.6%) did. On average, the willing group proportion of land access was larger than that of the non-willing group. This implies that if there is access to land, investors are motivated to invest. Government instability is another important factor that affects the investment decision. The survey results

shown in Table 9 report no significant difference between the two sample groups regarding government instability. It shows that 75.9% (63/83) of the willing sample respondents reported that government instability does not affect the investment decision, and 64.4% (24/37) of the non-willing groups said that government instability does not affect the investment decision. Table 10 reports the results of the link between access to investment information and willingness to invest. It shows that 66.2% (55/83) of the willing respondents had access to investment information for investment activities, whereas78.3% (29/37) of the non-willing respondents reported they did not. This result implies that access to information is not important for willingness to invest in the region of Najran.

Finally, in Table 11, we present the results of the link between access to markets and willingness to invest. The findings indicate that almost 73.4% (61/83) of the willing and 78.3% (29/37) of the non-willing sample respondents judged that access to markets affects the investment decision.

Table 8

Association between access to land and willingness to invest

Count		Willingness to invest		Total
		No (0)	Yes (1)	
Access to land	No (0)	10	47	57
	Yes (1)	27	36	63
Total		37	83	120

Source: Authors' data computation.

Table 9

Association between governmental instability and willingness to invest

Count		Willingness to invest		Total
		No (0)	Yes (1)	
Governmental instability	No (0)	24	63	87
	Yes (1)	13	20	33
Total		37	83	120

Source: Authors' data computation.

Table 10

Association between access to investment information and willingness to invest

Count		Willingness to invest		Total
		No (0)	Yes (1)	
Access to investment information	No (0)	8	28	36
	Yes (1)	29	55	84
Total		37	83	120

Source: Authors' data computation.

Table 11

Association between access to markets and willingness to invest

Count		Willingness to invest		Total
		No (0)	Yes (1)	
Access to markets	No (0)	8	22	30
	Yes (1)	29	61	80
Total		37	83	120

Source: Authors' data computation.

Results of the Econometric Model

Before estimating the log it model, we checked for the presence of multicollinearity and heteroscedasticity. Multicollinearity is a statistical problem that occurs when independent or predictor variables in a logistic regression model are closely related. Multicollinearity can lead to unstable estimates and inaccurate variations affecting confidence intervals and hypothesis tests by inflating the variances of the parameter estimates. Hence, multicollinearityleads to incorrect inferences about relationships between predictor and response variables (Habshah et al., 2010). In this case, it was important to test for multicollinearity before estimating our model of investigation. As our model contained many categorical variables, we used variance inflation factors (VIF) to check for multicollinearity in continuous variables and the contingency coefficient based on Chi-square test in categorical variables(Gujarati, 2003).[1]All VIF values of the continuous variables in the model were less than 5, suggesting an absence of association between the variables. However, the contingency coefficient values for some discrete variables were higher than 0.3, which indicated that these explanatory variables were associated. Hence, all these discrete variables were removed from the estimated model. The Phi correlation coefficient was also used to check for collinearity between the dichotomous variables[2]. It gave the same results as the contingency coefficient.

The heteroscedasticity of errors in the logit model was not a problem because the homoscedasticity of disturbances is not an assumption in a logistic regression. Our statistical analysis was undertaken using Eviews 12 statistical software.

We estimated the logit model using predictor variables, and finally we retained only five variables that were statistically significant in explaining potential investors' decision to invest in the region of Najran. These variables were the educational level of the investor, high interest rate levels, the land tenure system, access to markets and perception of the tax rate. It should be noted that the five explanatory variables had the expected impact signs. However, the rest of independent variables (gender, age, marital status, residential area, job of the investor, financial institutions, bank bureaucracy, access to credit, collateral requirements of banks, inadequate credit of banks, infrastructural facilities, road facilities, telephone and internet service, electric power service, water and sewerage service, postal service, access to land, bureaucratic procedures, political or government instability and access to investment information) were not significant. The coefficient of the access to markets variable was

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[1]Statistically, VIF cannot be used for categorical variables.

[2]The phi is a nonparametric statistic that is employed in cross tabulation of dichotomous variables.

positive and significant at 1% probability level. This result was expected, and it implies that when the potential investor has access to raw materials markets, it will increase the probability of the decision to invest in the Najran region. The coefficients of the educational level, high interest rate, land tenure system and perception of tax rate variables were negative and significant at 10%, 5%, 1% and 5% probability levels, respectively. For the variable educational level, its result implies that the higher the education level of the potential investor, the lower the probability of investment becomes. This finding is as expected because of the assumption that higher educated individuals will prefer jobs in public administration rather than investments. The finding of the high interest rate variable implies that when interest rates are high, the probability of investment will decrease. This result conforms to our expectations. In addition, the result of the land tenure system variable was expected because its negative coefficient indicates that the presence of problems in the land tenure system discourages investments in the Najran region. Finally, the result of the perception of the tax rate variable was expected because a high tax rate lowers the expected return on investment.

Table 12

Estimates of logit model

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	4.29*	1.15	3.72	0.00
X3	-0.33***	0.20	-1.65	0.10
X11	-1.19**	0.56	-2.11	0.03
X20	-1.91*	0.58	-3.26	0.00
X24	1.76*	0.71	2.44	0.01
X25	-1.58**	0.71	-2.22	0.02
McFadden R-squared	0.26			

Note: *, **, and *** indicate significance at 1%, 5% and 10% probability levels, respectively.
Source: Authors' own data computation.

Conclusions and Recommendations

The object of this study was to investigate the factors that determine potential investment in the region of Najran. A questionnaire of 120 potential private investors from the region was designed and employed. Data obtained were encoded and tabulated. We analyzed the primary data using descriptive statistics and econometric analyses employing the Eviews 12 software program.

The cross tabulation shows that the educational level of the investor, high interest rates, the land tenure system, access to markets and perception of the tax rate are important variables affecting the probability of willingness to invest in the Najran region. Furthermore, logistic regression analysis showed the variables representing educational level, high interest rates, the land tenure system, access to markets and perception of the tax rate have significant and expected impact on the probability of investment. These results signify that high interest rates, the problems of the land tenure system and a high tax rate have a negative effect and therefore discourage investment in the Najran region. However, access to markets has a positive effect on investment and thus could encourage private investors in the region.

The results of the study suggest that decision makers in the region can encourage private investment by providing a good environment for investors in terms of service facilities and incentives. Decision-makers should provide training to investors before they start operations, there should be appropriate conditions for private investors to borrow from financial institutions and interest rates should be kept as low as possible. In addition, tax rates could be tied to the level of capital invested by private investors, and access to raw materials markets should be assured. Finally, any administrative difficulties related to the land tenure system should minimized to help the implementation of investment activities.

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