

# Factors impacting formal credit access: A case study of Cau Duc pineapple farmers in Hau Giang province

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## Abstract

This study aims to determine factors affecting pineapple farmers' accessibility to formal credit in Hau Giang Province. Data of the study were collected by direct interviews of 152 pineapple farmers. By logit regression, the authors have indicated the factors beneficially affecting farmers' formal credit access are agricultural land area, production experience, education, cooperation, and familiarity with credit institutions. In particular, credit familiarity plays the most crucial role in farmers' ability to access formal credit.

**Keywords:** Demand; Formal credit; Farmer; Cau Duc pineapple

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## 1 Introduction

### 1.1 Problem statement

Cau Duc pineapple is one of the key crops of Hau Giang Province. The pineapple planting area is more than 1,600 ha. It is grown in Tan Tien Commune and Hoa Tien Commune (Vi Thanh City), and Vinh Vien Commune (Long My District). With an average yield of 16 tons/ha and a planting area of more than 1,600 ha, the pineapple total output of the whole province is equivalent to 26,000 tons/year. Cau Duc pineapple has become a familiar brand name to consumers in Vietnam, especially the Mekong Delta. The stable output helps farmers expand the production scale. The development of concentrated pineapple planting areas has created conditions to promote economic efficiency and increase farmers' income. However, pineapple farmers are still facing difficulties and need supports. In particular, capital is one of the most urgent problems. The accessibility to formal credit sources of Cau Duc pineapple farmers is limited. Therefore, this study is conducted to achieve the following goals. (i) Analyzing the current situation and identifying factors affecting the accessibility to formal credit of Cau Duc pineapple farmers. (ii) Proposing several recommendations to improve formal credit accessibility of Cau Duc pineapple farmers in Hau Giang Province.

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## 2 Methodology

### 2.1 Research hypotheses

The literature review shows that experts deeply concern about formal credit and factors affecting farmers' ability to access credit sources. Previous studies have indicated many affecting factors to farmers' credit accessibility. They are the farmer's collateral, cultivated land area, education level, and familiarity with credit institutions. Each element puts different impact levels.

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Agricultural land is a valuable asset to the farmer. The area of agricultural land reflects the ability to expand the production scale and their credit needs. The agricultural land area has a positive relationship with the accessibility to formal credit (Dat, 1998). Researches by Zeller (1994), Duong and Izumida (2002), Bendig et al. (2009) confirmed that the larger the scale of agricultural land, the higher formal credit accessibility. Hence, hypothesis H1 is as follows: The agricultural land area positively affects formal credit access of pineapple farmers.

According to Hanh (2016) and Nghi (2011), if farmers have different income resources, they are likely to access formal credit. According to Duong and Izumida (2002), farmers' limited income sources affect the lending capacity. Thus, hypothesis H2 states "The income resources positively influence Cau Duc pineapple farmers' access to formal credit."

According to Nghi (2010), cooperatives not only help farmers gain experience and production techniques but also offer them information. This enhances their trust in credit institutions. Dat (1998), Duong and Izumida (2002) demonstrated that participation in local cooperative groups supports farmers' credit access. Therefore, hypothesis H3 is as follows: Familiarity with credit institutions positively impacts farmers' formal credit access.

Farmers will be more proactive in borrowing if their family members work in credit institutions. The reason is that they receive reliable information and support from relatives (Canh, 2015; Thang, 2015). Khoi et al. (2014) said that farmers having good relationships with credit institutions easily access formal credit. As a result, stated hypothesis H4 is "Familiarity positively influences the accessibility to formal credit of Cau Duc pineapple farmers."

The accumulated experiences in production contribute to increasing farmers' reputation, thereby creating trust from credit institutions (Nghi, 2011). According to Duong and Izumida (2002), production experiences positively affect farmers' ability to access formal credit. Therefore, hypothesis H5 is said, "Production experiences beneficially affect Cau Duc pineapple farmers' formal credit access."

Researches by Dat (1998), Kaino (2006), Nghi (2010, 2011) showed that the educational background of farmers plays a decisive role and has a positive impact on the accessibility to formal credit. Farmers with high education level have a good acknowledgment of credit policy and the loan process, so they are more active in accessing loans. Thus, the study proposes hypothesis H6: Education attainment positively affects accessibility to formal credit of farmers.

Based on the literature review, the regression equation evaluating factors affecting formal credit accessibility of Cau Duc pineapple growers is as below.

$$FCA = \beta_0 + \beta_1ALA + \beta_2SOU + \beta_3COO + \beta_4FAM + \beta_5EXP + \beta_6EDU$$

In which: FCA is the dependent variable measuring farmers' ability to access formal credit, receiving value 1 if the farmer has borrowed money from formal credit institutions and value 0 otherwise. Independent variables are in the table below.

**Table 1** Interpretation of independent variables in the regression equation

| Variable | Interpretation                                                                                                 | Expectation |
|----------|----------------------------------------------------------------------------------------------------------------|-------------|
| ALA      | The total agricultural land area at the study time (1,000 m2).                                                 | +           |
| SOU      | The total number of income sources of the farmer at the time of the study (number of income sources).          | +           |
| COO      | Dummy variable taking the value 1 if the farmer participates in a local cooperative and value 0 otherwise.     | +           |
| FAM      | Dummy variable taking the value 1 if the farmer is familiar with the credit institution and value 0 otherwise. | +           |
| EXP      | The number of years of experience growing Cau Duc pineapple of the farmer up to the study time (years).        | +           |
| EDU      | Years of education of the farmer up to the study time (year).                                                  | +           |

## 2.2 Research data and analytical method

This study applied the logit regression to determine factors affecting the accessibility to formal credit of farmers. Also, the descriptive statistical analyzes the current situation of formal credit sources accessibility of households. According to Green (1991), Tabachnick and Fidell (1996), the minimum sample size in regression analysis follows the formula  $50 + 8m$  ( $m$ : number of independent variables). As a result, the research equation set up with six independent variables requires a minimum sample size of 98 observations. The study collected data by quota sampling. The survey criteria used in the study are location, production scale, and demographic characteristics. Survey objects are farmers growing Cau Duc pineapple in Hau Giang Province. The total number of surveyed farmers is 152, so the official sample size achieved is 152 reaching the reliability requirement.

## 3 Results and discussions

### 3.1 Credit access of Cau Duc pineapple farmers

Based on the statistical results in Table 2, the proportion of farmers accessing formal credit is high (67.11%). The ratio of farmers accessing semi-formal credit accounts for 18.42% and informal credit reaches 27.63%. Most farmers choose the Vietnam Bank for Agriculture and Rural Development (Agribank) and the Vietnam Bank for Social Policies (VBSP) as formal credit resources. For semi-formal credit, farmers access to the Farmers' Union and Women's Union. In terms of informal credit, farmers seek commercial credit sources or borrow from relatives, friends, and local private lenders. Overall, formal credit still plays an essential role in financial support for Cau Duc pineapple farmers in Hau Giang Province.

According to the survey result, Cau Duc pineapple farmers borrow from the formal credit with an average amount of VND 38,743 million. The average loan term is 10.2 months with a yearly interest rate reaching 9.8%. Meanwhile, the average amount that farmers borrow from semi-formal credit is 7,75 million VND with an interest rate of 10.5%/year in an average loan term of 3.2 months. Other farmers access to informal credit with an amount of VND 25,14 million on average and an interest rate of 35.5%/year during 1.5 months. Although the number of farmers accessing informal credit is low, they have to bear a high-interest rate. This greatly affects farmers' investment efficiency.

**Table 2** Credit access sources of pineapple farmers

| Credit source | Ratio (%) | Loan amount (1.000đ) | Loan term (month) | Interest rate/year (%) |
|---------------|-----------|----------------------|-------------------|------------------------|
| Formal        | 67.11     | 38,743               | 10.2              | 9.8                    |
| Semi-formal   | 18.42     | 7,750                | 3.2               | 10.5                   |
| Informal      | 27.63     | 12,284               | 1.5               | 35.5                   |

**Table 3** Pineapple farmers' purposes of formal credit

| Item                                            | Frequency (household) | Percentage (%) |
|-------------------------------------------------|-----------------------|----------------|
| Loan purpose                                    |                       |                |
| Planting pineapple                              | 142                   | 93.42          |
| Household expenses                              | 78                    | 51.31          |
| Business/ service                               | 32                    | 20.05          |
| Other (medical treatment/ children school fees) | 24                    | 15.79          |
| Use of loan                                     |                       |                |
| Accuracy purpose                                | 115                   | 76.66          |
| Partial accuracy purpose                        | 25                    | 16.45          |
| Improper purpose                                | 12                    | 7.89           |

The majority of farmers access to formal credit for planting pineapple (93.42%). In addition to this, a high proportion of farmers accessing formal credit for household expenses (51.31%). Meanwhile, some households accessing formal credit to do small business or services (20.05%), and other purposes such as medical treatment, children school fees, etc. The survey result also points out that the percentage of farmers using formal credit loans for appropriate purposes is high (76.66%). There are 16.45% of farmers use a part of loans for appropriate purposes and the rest 7.89% use the loan for improper purposes. To conclude, not using loans for accuracy purposes greatly affects farmers' reputation and ability to pay. Moreover, it influences the refinance ability of credit institutions.

### 3.2 Factors affecting formal credit accessibility

The study applied logit regression for the hypothesis test to determine factors affecting the accessibility to formal credit. Pearson correlation coefficient helps evaluate the degree of correlation among independent variables. The test result shows that all values are less than 0.7, so the model's multicollinearity is insignificant (Nam, 2008).

**Table 4** Factors influencing formal credit accessibility

| Variable                | dY/dX | P-value | Significance level |
|-------------------------|-------|---------|--------------------|
| ALA                     | 0.304 | 0.000   | ***                |
| SOU                     | 0.124 | 0.004   | ***                |
| COO                     | 0.328 | 0.029   | **                 |
| FAM                     | 0.425 | 0.000   | ***                |
| EXP                     | 0.032 | 0.018   | **                 |
| EDU                     | 0.091 | 0.014   | **                 |
| Percentage correct (%)  |       |         | 82.350             |
| Prob > chi <sup>2</sup> |       |         | 0.000              |

Note: \*\*\*: Significance level 1%; \*\*: Significance level 5%

The values guarantee as follows: (1) Chi-square test achieves a significant level (Prob > chi<sup>2</sup> = 0.000) much smaller than 5%. (2) The percentage correct of the model reaches 82.35%. All factors are statistically significant at the level from 1% to 5% and positively correlated with farmers' access to formal credit. The factors are production experience (EXP), education attainment (EDU), agricultural land area (ALA), cooperation (COO), income sources (SOU), and familiarity with credit institutions (FAM). To sum up, if the farmer has a high education level, more agricultural production area, or different income sources, they easily access formal credit sources. Also, cooperative groups or good relationships with credit institutions help farmer's access formal credit quickly.

According to the above result, the "familiarity" (FAM) factor has the most impact on farmers' ability to access formal credit. If a farmer's relatives or friends working in the banking sector, they may support the farmer with lending procedures and rules. Therefore, farmers easily access formal credit. Moreover, when farmers have closed relationships, they can build trust from the credit institutions, thereby accessing larger loans than farmers without any acquaintances.

## 4 Conclusion

The study has proved the following outcomes. (i) Formal credit plays an essential role in growing pineapple, in which the role of the Bank for Agriculture and Rural Development is significant. (ii) The major purpose of most farmers accessing formal credit is for planting pineapple. The proportion of farmers using loans for accuracy purposes is high. (iii) Factors positively impacting farmers' formal credit access are manufacturing experience, education, income sources, agricultural land area, cooperation, and familiarity with credit institutions. In which, the familiarity with credit institutions most influences farmers' access to formal credit.

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## Compliance with ethical standards

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### *Disclosure of conflict of interest*

The authors declare that there are no competing or potential conflicts of interest.

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