Risk Factors of Loan Default Payment in Ghana: A case study of Akuapem Rural Bank

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ABSTRACT
This study seeks to determine some risk factors that influence loan default repayment among customers in Akuapem rural bank. Secondary data on some variables which influence customer loan default was obtained from the credit department of Akuapem rural bank. Data was collected for the period 2006 to 2010. A logistic regression model was fitted to the data. It was found that among the variables that were used, Security and Type of Loan were significant to the study whereas Sex, Marital Status, Age, Educational Level, Town were not significant to the study. We conclude that there is a high risk of customers who use personal guarantee to default than those who use collateral as a security in accessing the loan. Taking transport loan as a reference group, the risks of a customer defaulting when given a personal loan is less than when given a transport loan, all other factors being equal.

KEY WORDS Loan default, logistic regression, Risk, Akuapem rural bank

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1. Introduction
The role of banking institutions on the socio economic lives of the citizenry have been very significant and worth nothing especially over the past decades. On the whole, financial institutions have had an immense effect on real economic activity by affecting the supply of bank loans. The role of rural banks in the socio-economic life of people has been seen to have a positive effect on the entire economy. The banking institutions in spite of the risk associated with giving out loans are increasingly expanding the area of their services. Currently there are institutions that employ full time personnel with sole duties of selling bank loans. The banks have various forms of valuation methods to access the credit worthiness of their customers. This area is very critical if the banks are to recover their loans when the time is due. Most banks therefore have credit
department that carry out all these important functions. However, despite the laudable ideas of the banks, there are quite a large number of customers who are unable to pay both the principal and the interest. This situation has been so alarming to the extent that some financial institution have adopted some unconventional means of retrieving these loans.

2. Literature Review

The Rural Banks are private unit banks organized in the rural communities for the purposes of specializing in the extension of credit to small farmers and other small entrepreneurs. The bank belongs to the people in the region and its management, control and general operations are vested in the people. The Rural Banks are a division within the Central Bank of Ghana. The role of the Bank of Ghana is first that of a shareholder and second that of a supervisor in accordance with the Bank of Ghana Act of 1963 (Act 182) and the Banking Act of 1970 (Act 339). The Rural Banks are empowered to collect savings and make loans and advances under approved terms to small scale farmers, fishermen and entrepreneurs in rural areas (Bank of Ghana ACT, 1970). In general, the rural banks have the power to carry out the following functions: (a) provide checking, savings, and time deposit accounts for its customers; (b) act as an agent of other financial institutions in the country; (c) rediscount its papers and accept and discount bills of exchange; (d) accept securities for safe custody; (e) act as executors and trustees of wills of small scale farmers, fishermen and merchants; (f) provide finance for small scale farmers, fishermen, merchants, industrialists and cooperatives of such farmers fishermen, and industrialists residing in the area; (g) engage in any other related activity,(Bank of Ghana Act, 1970). Empirical evidence on informal lending activities indicates that informal lending and borrowing arrangements have effectively persisted for a long time in low-income countries. The loans typically are small and unsecured, with high real interest rates. However, as pointed out by Wai (1957) the interest rates are not out of line given the high level of risk. The middle man is an important ingredient in these credit transactions. In many instances this individual is the village shopkeeper. ie is generally in an excellent position to know the resources and character of those in the area. Ward (1960) suggests that the middle man is limited in the number of loans he can carry because of the size of his own resources and his need to have close and accurate personal knowledge of each debtor. Moreover, in those rural societies where it is customary for borrowers to pledge land and/or its product to creditors, each creditor is further limited by the small number of farms he can effectively supervise.

Corroborative evidence concerning the market area for lending activities in informal settings comes from Nisbet's (1967) study in Chile. He found that rural moneylenders operated within a two-mile radius of their home villages. Nisbet agrees that moneylenders and shopkeepers have and need close personal knowledge of their borrowers’ circumstances. The studies by Ward and Nisbet suggest that credit information, that is, the knowledge of who are not good credit risks, is valuable information and may limit the geographical size of rural informal credit markets. Pandy and Muralidharan (1979), using data from the Uttar Pradesh State in India, attempted to develop criteria for classifying borrowers as to their willingness to repay their loans on the basis of differences in their socio-economic characteristics. The discriminant function analysis indicated that the percentage of total income derived from sources other than crop production, the amount of loan, the purpose of loan, per capita consumption expenditure, and the ratio of cash expenditure to total expenditure were the major characteristics that classified borrowers into defaulter and nondefaulters. Sundararajan and Errico, (2002) opine that while PLS modes may
shift the direct credit risk of Islamic banks to their investment depositors, they may also increase the overall degree of risk of the asset side of banks balance sheet since the assets under this mode are uncollateralised. Quercia et al., (1995) show that a lower loan-to-value (LTV) ratio at the time of origination (i.e., higher down payment) leads to lower default rates for rural, low-income borrowers. According to Oni O.A et al., (2005) study on factors influencing loan default among poultry farmers in Ijebu Ode Local Government Area of Ogun State Nigeria; the result from the profit model revealed that flock size of the farmers significantly influence default in loan repayment at (P < 0.10) level. Age of the farmers significantly influence default in loan repayment at (P < 0.01) level, while Educational level and Income of the farmers also significantly influence default in loan repayment at (P < 0.05) level.

The main objective of the study is to fit a logistic regression model for the repayment status of the loan customer’s data in Akuapem rural bank. The Specific objective is to determine the risk(s) factors that have impact on repayment status of the loan customers.

3. Methodology of Research

3.1. Study Area and Source of Data

The Akuapem Rural Bank was officially commissioned on 29th August 1980 as the 12th rural bank to be established in Ghana and the 3rd in the Eastern Region (Akuapem Rural Bank 2011 Annual Report). The Bank mobilizes savings from rural areas and on-lend these resources to customers in these areas for the improvement of their business and welfare (Akuapem Rural Bank 2011 Annual Report). It is the mission of the bank to mobilize local resources and to use them through the credit instrument and innovative financial services to respond to the essential/developmental needs of Akuapem at the same time that the bank grows and profits are made for shareholders (Akuapem Rural Bank 2011 Annual Report). The bank has its headquarters in Mamfe in the Akuapem North District. The district is located in the south-eastern part of the eastern region and is about 58km from Accra, the capital city of Ghana. The District has a population of about 166,700 (Ghana Statistical Service, 2011). The following services are rendered by the bank; Personal banking: These are current account service, salary account and savings deposit account service, loans, local payment service, treasury bills, fixed deposits. Financial advice to customers and money transfer services (Akuapem Rural Bank 2011 Annual Report). A total number of 800 loan customers were sampled. The data was collected from the credit department of the bank, since they keep records of all the bank’s loan customers and other relevant information. Information was gathered for a period of five (5) years (i.e. 2006-2010); the relevant data for the research were Repayment Status, Age, Marital Status, Sex, Security, Town dummy, Interest Rate, Type of Loan and Educational Level of all the customers.

3.2. Assumption Associated with Data Collection

The loans that were not paid within the repayment period were assumed to be defaulted. Although some of them are in the long run realized within an extended period and others are written off. Also, collaterals used for security such as plots of land, office properties, building properties, assignment of account receivables were assumed to be mortgaged. Data was collected from all the bank’s branches, since all loans were accessed through their main office. Data was obtained for 800 customers of the bank during the period 2006-2010.
3.3. Model specification, estimation and tests

The response variable in logistic regression is usually dichotomous, that is, the response variable can take the value 1 with a probability of success $p$, or the value 0 with probability of failure, $(1-p)$. To explain the logistic regression, we show here the logistic function $f(z)$, which describes the mathematical form on which the logistic model is based

$$f(z) = \frac{1}{1+e^{-z}}$$

(1)

Where $z$ denotes the values of this function, such that $-\infty \leq z \leq +\infty$. The relationship between the predictor and response variables is not a linear function in logistic regression; instead, the logistic regression function is used, which is the logit transformation of $p$. To obtain the logistic model from the logistic function, we write $z$ as the linear sum.

$$z = \alpha + \sum_{i=1}^{k} \beta_i x_i$$

(2)

Where $x_i$ are independent variables of interest and $\alpha$ and $\beta_i$ are constant terms representing unknown parameters and $k$ is the last term. Combining (1) and (2) gives:

$$f(z) = \frac{1}{1+e^{-(-\alpha + \sum_{i=1}^{k} \beta_i x_i)}}$$

(3)

For notational convenience, we will denote the probability statement as simply $p(x)$ where $x$ is a notation for the collection of variables $x_1$ through $x_k$. Thus, the logistic model may be written as

$$f(x) = \frac{1}{1+e^{-(-\alpha + \sum_{i=1}^{k} \beta_i x_i)}}$$

(4)

However, since the above logistic model is non-linear function, the logit transformation would be used to make it linear.

$$\text{Logit}(x) = \ln \left( \frac{p(x)}{1-p(x)} \right)$$

(5)

Where, $p(x) = \frac{1}{1+e^{-(-\alpha + \sum_{i=1}^{k} \beta_i x_i)}}$

(6)

This transformation allows us to compute a number, logit $p(x)$, for an individual with independent variables given by $x$.

$$\text{Logit}P(x) = \alpha + \sum_{i=1}^{k} \beta_i x_i$$

(7)

Thus, the logit of $p(x)$ simplifies to the linear sum. The quantity $p(x)$ divided by $1-p(x)$, whose log value gives the logit, describes the odds for a customer not defaulting in loan repayment, with independent variables specified by $x$. 
\[
\frac{P(x)}{1-P(x)} = \text{Odds for individual } X
\]  

(8)

The goal of logistic regression is to correctly predict the category of outcome for individual cases using the most parsimonious model. To this end, a model is created that includes all predictor variables that are useful in predicting the response variable (Kleinbaum and Klein, 1994). For this study, the risk of a loan default are influenced by predictors such as repayment status, age, sex, marital status, town dummy, interest rate, type of loan and educational level. The following logistic regression model was fitted to the data.

\[
\text{Logit}(P(y=1)) = \beta + \varepsilon + \sum_{i=1}^{k=8} \beta_i x_i
\]

(9)

Where \( P \) is the probability of loan repayment default, the \( x \)'s are independent variables of interest, \( \alpha \) and the \( \beta \) are constant term and coefficients respectively representing unknown parameters and \( \varepsilon \) is the residual term. The coefficients of the model predictors are tested via the hypothesis as follows:

\[
\begin{align*}
H_0: \beta_j &= 0 \\
H_1: \beta_j &\neq 0
\end{align*}
\]

\( j = 1, 2, 3, 4, 5, 6, 7, 8 \)

Once a logistic regression model has been fit to a given set of data, the adequacy of the model is examined by overall goodness-of-fit tests and examination of influential observations. One concludes a model fits if the differences between the observed and fitted values are small and if there is no systematic contribution of the differences to the error structure of the model. A goodness-of-fit test that is commonly used to assess the fit of logistic regression models is the Hosmer–Lemeshow test (Hosmer and Lemeshow, 1980). Although appropriate estimation methods which take into account the sampling design in estimating logistic regression model parameters are available in various statistical packages, there is a corresponding absence of design-based goodness-of-fit testing procedures. Due to this noted absence, it has been suggested that goodness-of-fit be examined by first fitting the design-based model, then estimating the probabilities, and subsequently using iid-based tests for goodness-of-fit and applying any findings to the design-based model (Hosmer and Lemeshow, 2000). The hypothesis for model fitness can be measured by the Hosmer and Lemeshow test as follows:

\[
\begin{align*}
H_0: & \quad \text{The model fits the data} \\
H_1: & \quad \text{The model does not fit the data}
\end{align*}
\]

4. Empirical Results

This section analyzes the factors that influence customers’ ability to repay loans from the data collected. This was done by exploring relationship between some variables and also by using binary logistic regression analysis with the help of SPSS. We regress repayment status on some predictor variables. Repayment Status is a categorical variable, therefore the ordinary regression approach is not appropriate. For this reason we resort to binary regression technique. Repayment Status is categorical because it comprises Yes/No, thus whether respondents defaulted or not the loan accessed. As a result the response variable is suitable for not just any logistic regression but a
binary logistic regression. Using SPSS, the result of the binary regression of repayment status on type of security, age, marital status, city dummy and education level are discussed below.

Exploring the Relationship between Amount Approved and the Type of Loan

Figure 1 shows the distribution of Amount Approved to customers by the Type of Loan Accessed. It can be seen that among the types of loans, commercial loan was given the highest total amount approved to customers which is GH¢ 38810.00, followed by personal loan which also recorded GH¢ 27,500.00. Transport loan was the third highest with a total amount approved as GH¢ 23,520.00. Finally, Agric loan recorded the least amount approved which was GH¢ 15,170.

Table 1. Frequency Distribution of Variables

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>FREQUENCY (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOAN TYPE</td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td>128 (16)</td>
</tr>
<tr>
<td>Commercial</td>
<td>328 (41)</td>
</tr>
<tr>
<td>Personal</td>
<td>200 (25)</td>
</tr>
<tr>
<td>Transport</td>
<td>144 (18)</td>
</tr>
<tr>
<td>INTEREST RATE</td>
<td></td>
</tr>
<tr>
<td>24%</td>
<td>288 (36)</td>
</tr>
<tr>
<td>30%</td>
<td>312 (39)</td>
</tr>
<tr>
<td>35%</td>
<td>136 (17)</td>
</tr>
<tr>
<td>38%</td>
<td>64 (8)</td>
</tr>
<tr>
<td>SECURITY</td>
<td></td>
</tr>
<tr>
<td>MO</td>
<td>272 (34)</td>
</tr>
<tr>
<td>PG</td>
<td>528 (66)</td>
</tr>
<tr>
<td>MARITAL STATUS</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>736 (92)</td>
</tr>
<tr>
<td>Unmarried</td>
<td>64 (8)</td>
</tr>
<tr>
<td>TOWN DUMMY</td>
<td></td>
</tr>
<tr>
<td>Akuapem</td>
<td>464 (58)</td>
</tr>
<tr>
<td>Others</td>
<td>336 (42)</td>
</tr>
<tr>
<td>SEX</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>336 (42)</td>
</tr>
<tr>
<td>Male</td>
<td>464 (58)</td>
</tr>
</tbody>
</table>
From table 1, we observed that 16% of the loan customers applied for Agriculture Loan, 41% applied for Commercial Loan, 25% applied for Personal Loan and 18% applied for Transport Loan. About 36% of the customers were given Loan with an interest rate of 24%, 39% were given loan with an interest rate of 30%, 17% were given loan with an interest rate of 35% and only 8% were given loan with an interest rate of 38%. About 34% customers used personal guarantee as security for their loans whiles 66% of the customers used mortgages as collaterals for their loans. About 58% of the customers were regarded to be residents of Akuapem where the bank’s main office is located and 42% of the customers were from the other branches of the bank which is outside Akuapem. About 58% of the customers were males while 42% were females. Finally, about 92% of the customers were married whiles the remaining 8% were unmarried. And on the average customers who were about 42 years accessed most of the loan. Taking into consideration the number of years the customer has been operating with the bank, it was realized that the average years customers have been operating with the bank is 10 years with the minimum years being 2 years whiles the maximum years customers has operated with bank is 20 years.

### Table 2. Type of Loan versus Repayment Status

<table>
<thead>
<tr>
<th>LOAN TYPE</th>
<th>REPAYMENT STATUS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>Agriculture</td>
<td>16</td>
<td>110</td>
</tr>
<tr>
<td>Commercial</td>
<td>160</td>
<td>168</td>
</tr>
<tr>
<td>Personal</td>
<td>152</td>
<td>48</td>
</tr>
<tr>
<td>Transport</td>
<td>56</td>
<td>88</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>384</td>
<td>416</td>
</tr>
</tbody>
</table>

**Chi-square Test for Independence**

Table 2, indicates the test of independence between the Loan Type and Repayment Status, the Pearson Chi-square test of Independence value obtained is 16.450 with degree of freedom 3. 
P-value = 0.0001 which is less than 0.05. This means that the ability of a customer to default or otherwise of a loan depends on the Loan Type applied for.

### Table 3. Cochran-Armitage Trend Test

<table>
<thead>
<tr>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std.Dev.</th>
<th>Observed</th>
<th>Standardized</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.00</td>
<td>81.00</td>
<td>46.56</td>
<td>4.627</td>
<td>50.00</td>
<td>0.7435</td>
</tr>
</tbody>
</table>

**Exact Inference:**

One-sided p-value: Pr \{Test Statistic .GE. Observed\} = 0.2632  
Pr \{Test Statistic .EQ. Observed\} = 0.0653  
Two-sided p-value: Pr \{| Test Statistic - Mean | GE. | Observed - Mean | = 0.5183  
Two-sided p-value: 2*One-Sided = 0.5264

From the Cochran Armitage Trend Test output, the P-value = 0.2632 which is greater than 0.05. This means that an increase in interest rate given on a customer’s loan does not increase the risk of loan default payment.
Table 4. Security versus Repayment Status

<table>
<thead>
<tr>
<th>SECURITY</th>
<th>Repayment Status</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>MO</td>
<td>176</td>
<td>96</td>
</tr>
<tr>
<td>PG</td>
<td>206</td>
<td>320</td>
</tr>
<tr>
<td>TOTAL</td>
<td>384</td>
<td>416</td>
</tr>
</tbody>
</table>

Table 4, indicates the test of independence between the Security and Repayment Status, the Pearson Chi-square test of Independence value obtained is 5.760 with degree of freedom 1. The P-value = 0.0016 which is less than 0.05. This means that the ability of a customer to default or otherwise of a loan depends on the type of security offered as collateral. It is also seen that the Chi-square test of Independence between Town-Dummy and Repayment Status, Marital Status and Repayment Status, Sex and Repayment Status and Educational Level and Repayment were not significant. This means that the ability of a customer to default or otherwise of a loan applied for does not depend on the Town-dummy, Marital Status, Sex and Educational Level of the customer.

Table 5. Omnibus Test

<table>
<thead>
<tr>
<th>Step</th>
<th>Chi-square</th>
<th>df</th>
<th>P-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step</td>
<td>31.345</td>
<td>14</td>
<td>0.001</td>
</tr>
<tr>
<td>Block</td>
<td>31.345</td>
<td>14</td>
<td>0.001</td>
</tr>
<tr>
<td>Model</td>
<td>31.345</td>
<td>14</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Considering table 5, where the model (set of predictor variables) is tested. The Omnibus Test of Model Coefficients gives us an overall indication of how well the model performs, over and above the results obtained for Block, with none of the predictors entered into the model. This is referred to as the ‘goodness of fit’ test. For this set of result we want a highly significant value (the Sig. value should be less than 0.05).

For the Hosmer and Lemeshow Test for goodness of fit table, a Chi-square value 6.800 a P-value of 0.558 was reported. This test indicates that the model is good.

Table 6. Classification Table

<table>
<thead>
<tr>
<th>Repayment Status</th>
<th>Predicted Repayment Status</th>
<th>Percentage Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Repayment Status</td>
<td>No</td>
<td>447</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>180</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the result in table 6, it indicates how well the model is able to predict the correct category (default/no default) for each case. Thus the model correctly classified 71.0 per cent of cases overall. Here, the model correctly classified 65.0 per cent of the customers who did default in loan repayment. The specificity of the model is the percentage of the group without the characteristics of interest (no default in loan repayment) that is correctly identified. Here the
specficity is 77.1 per cent (customers with no default in loan repayment correctly predicted not to have defaulted by the model).

Table 7. Parameter Estimates

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>Estimates</th>
<th>Std.Error</th>
<th>Wald</th>
<th>df</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>2.975</td>
<td>0.981</td>
<td>2.254</td>
<td>1</td>
<td>0.133</td>
</tr>
<tr>
<td>Age</td>
<td>-0.027</td>
<td>0.039</td>
<td>0.483</td>
<td>1</td>
<td>0.487</td>
</tr>
<tr>
<td>Sex(1)</td>
<td>-0.097</td>
<td>0.600</td>
<td>0.026</td>
<td>1</td>
<td>0.872</td>
</tr>
<tr>
<td>Marital Status</td>
<td>-0.514</td>
<td>0.884</td>
<td>0.338</td>
<td>1</td>
<td>0.561</td>
</tr>
<tr>
<td>Educ. Level</td>
<td>-0.360</td>
<td>0.690</td>
<td>0.272</td>
<td>1</td>
<td>0.602</td>
</tr>
<tr>
<td>Security</td>
<td>-2.927</td>
<td>1.104</td>
<td>7.033</td>
<td>1</td>
<td>0.008</td>
</tr>
<tr>
<td>Years</td>
<td>0.000</td>
<td>0.073</td>
<td>0.000</td>
<td>1</td>
<td>0.998</td>
</tr>
<tr>
<td>Town</td>
<td>-0.729</td>
<td>0.615</td>
<td>1.404</td>
<td>1</td>
<td>0.236</td>
</tr>
<tr>
<td>Loan Type(1)</td>
<td>1.554</td>
<td>0.987</td>
<td>2.476</td>
<td>1</td>
<td>0.116</td>
</tr>
<tr>
<td>Loan Type (2)</td>
<td>1.075</td>
<td>1.008</td>
<td>1.139</td>
<td>1</td>
<td>0.286</td>
</tr>
<tr>
<td>Loan Type (3)</td>
<td>-1.451</td>
<td>0.746</td>
<td>3.784</td>
<td>1</td>
<td>0.052</td>
</tr>
</tbody>
</table>

From table 7, the fitted logistic regression equation is:

$$
\pi_s = \frac{1}{1 + e^{(2.975 - 2.927S + 1.554LT(1) + 1.075LT(2) - 1.451LT(3))}}
$$

And the logit model; logit (Ps=1/x) = 2.975 - 2.927S + 1.554 LT (1) + 1.075 (2) – 1.451 (3)

Where, PS=Repayment Status, LT=Loan Type, S=Security.

Table 7 gives information about the contribution or importance of each of predictor variables. The test that is used here is known as the Wald test, and the test statistic for each predictor variable is seen in the column labeled Wald. These are variables that contribute significantly to the predictive ability of the model. It is seen that two of the variables were significant the Type of security used as collateral for the loan and the Type of Loan assessed. The factors influencing whether a customer defaulted a loan repayment are Security and the Type of Loan assessed. Marital Status and Sex, Age, Educational Level, Town, Years the customer has been operating with the bank did not contribute significantly to the model.

Another useful piece of information in the parameter estimates table is provided in the $e^\beta$ column. These values are the odds ratios (OR) for each of the independent variables.

Taking Transport loan as the reference group, the odds of a customer defaulting in a loan repayment is 0.234 times higher for a customer who was given Personal loan than for a customer who was given a Transport Loan, all other factors being equal.

To conclude, the odds of a customer defaulting in a loan repayment is 0.054 times higher for a customer who used mortgage as collateral than for a customer who used personal guarantee, all other factors being equal.
5. Discussions

The findings from the data available to the researchers for the purpose of the study indicates that, among the various types of loans accessed, Commercial loan was given the highest amount approved, it was followed by Personal loan, then Transport loan and Agric loan was given the lowest amount approved for the period 2006-2010 fiscal year. It was observed that from the Pearson Chi-square test of independence, Type of Loan and Security were dependent on the Repayment Status whiles Sex, Marital Status, Educational Level and Town Dummy were independent on Repayment Status of the customer. The Cochran Armitage Trend Test which was performed to determine if increase in interest rate places an increasing risk of loan default repayment showed that an increase in interest rate does not place an increasing risk of loan default repayment. It was clear that the from the interpretation of the SPSS output of the binary logistic regression model, Security and Type of Loan were the factors which significantly influenced whether a customer defaulted a loan repayment whiles Sex, Marital Status, Educational Level, years the customer has been operating with the bank and Town did not contribute significantly to the model. With Akuapem Rural Bank Ltd as the main focal point the objective of this study was to determine some factors that influence loan repayment which is a canker to the operations of the bank. Therefore with the aid of statistical tool especially binary logistic regression analysis, the aim was to model the repayment status of the bank loans. The result obtained was indeed quite enlightening. According to Oni O.A et al, (2005) a study on factors influencing loan default among poultry farmers in Ijebu Ode Local Government Area of Ogun State; the result from the profit model revealed that flock size of the farmers significantly influence default in loan repayment at (P < 0.10) level. Age of the farmers significantly influence default in loan repayment at (P < 0.01) level, while Educational level and Income of the farmers also significantly influence default in loan repayment at (P < 0.05) level. These really show that all the variables which were used can somehow influence loan default.

6. Conclusions

It was found that among the variables that were used, Security and Type of Loan were significant to the study where as Sex, Marital Status, Age, Educational Level, Town were not significant to the study. We conclude that the risk of loan default for a customer who used collateral as a security in accessing the loan is less than for a customer who used personal guarantee. Taking transport loan as a reference group, the risks of a customer defaulting when given a personal loan is less than when given a transport loan, all other factors being equal.

We recommend that more variables be added or different variables should be used in exploring the variation in repayment status. With the influx of financial institutions into the Ghanaian economy as a result of its astronomical growth and expansion, the issue of loan repayment will continue, to be an issue for all financial institutions, a further study is recommended with entirely different approach and variables. This study was to serve as a preparatory ground for further analysis into the subject matter.

References