CHAPTER - VII

FACTORS RESPONSIBLE FOR OVERDUES IN COMMERCIAL BANKS

The repayment performance of borrower is dependent on the multiple numbers of factors which simultaneously operate to determine such attitude. The analysis regarding the repayment of borrowed amount of the respondents on the basis of discriminant function has been carried out in this chapter. The objective of discriminant function analysis used in this chapter is to classify or distinguish the borrowers by a set of independent variables into defaulters and non-defaulters and further to classify defaulters into wilful and non-wilful defaulters. The set of independent variables used for these characteristics are based on the socio-economic characteristics of the borrowers. It is likely to suggest that which category of people is more prone to default. Further, it will make an attempt to identify the dominating factors responsible for poor repayment of loans.

Presently, the problem of mounting overdue has been one of the main constraining factors in the efficient flow of institutional credit to rural people in India. Overdue which render the recycling of funds impossible and thereby hamper the process of rural development, have been a cause of concern not only to the rural credit disbursing agencies but also to the policy makers, economists and politicians engaged in devising methods to achieve rural development through credit. If the borrowers on the basis of some socio-economic characteristics could be
classified into prompt repayer and defaulters and within defaulters wilful and non-wilful defaulters, it will go a long way in assisting the rural credit agencies in solving their problem of mounting overdues, on the one hand, and achieving the main objective of national rural credit policy without letting them sink into the quagmire of heavy overdues, on the other. Keeping in view the above, the present chapter analyse the repayment behaviour of the sampled borrowers of rural areas of Himachal Pradesh.

7.1 METHODOLOGY

300 households spread in different parts of the rural areas of Himachal Pradesh were interviewed through a questionnaire who had taken loan from commercial banks. Among the 300 sampled respondents, 93 were classified as non-defaulters and 207 as defaulters. A borrower who failed to make payment of his loan instalment in time is termed as defaulter. Further, the defaulters were classified as wilful and non-wilful defaulters. Based on repayment capacity of borrowers 207 defaulters, 125 were classified as non-wilful defaulters and 82 as willful defaulters. Non-wilful default may arise due to non-productive investment, failure of crops due to natural calamity, huge expenditure on sudden illness, etc. Wilful default may be defined as failure to meet the repayment obligation even when the borrower has the ability to repay the loan instalments. Such a default may arise mainly due to the borrower’s attitude towards repayment. Such attitude may be formed because of
influence of social and political groups, vested interest of some agencies insisting the borrower not to repay, high rate of interest etc.

7.2 RATIONALE BEHIND THE SELECTION OF VARIABLES

The present study is based on the assumption that demographic and socio-economic variables determine the repayment behavior of beneficiaries. There may be deviations in the normal repayment behaviour pattern caused by political or social pressure groups for non-repayment. Except under these abnormal conditions the normal repayment behaviour is presumed to be determined by a set of variables which have been included in this study. The variables selected for this study are as under:

7.2.1 Age

It is assumed that as the age of a person increases he become serious and shy of taking wrong steps, whereas younger ones, do not feel their responsibilities and thus their number as defaulters is more than older ones. The discriminant analysis has been used to classify the borrowers into defaulters and non-defaulters on the basis of their socio-economic characteristics and age group. The age of the borrower is significant in his repayment performance because it is believed that a person being older becomes mature, social and responsible in his family and he feels ashamed of indebtedness. Besides, it also increases a sense of financial liability among such borrowers which makes them to return
the loan in time. Thus, the age of the respondent is included for study purpose in discriminant analysis on this basis.

7.2.2 Education

It is assumed that the educated persons behave in a rational manner and those who are uneducated or less educated are irrational in their behaviour. The knowledge of a person about the social environment depends on his education level. The individual's education, viz., ability to read, write and understand things around him will affect the manner in which he gathers information and adjust himself to the environment. It is believed that a well educated person can make a better use of credit and thus generate enough surpluses to repay the loan as they have relatively better awareness regarding the repayment of the commercial loans. Thus, the education level of the borrower has been included in the list of socio-economic characteristics to be analyzed on the application of discriminant function analysis.

7.2.3 Caste

It is believed that there are some castes which are by nature resistant to follow the rules and regulations and there are others which are rule abiding. The caste system has a profound effect on the borrower's repayment attitude. This assumption is based on the premise that the ownership of economic resources, such a loan, is based on social hierarchy. Traditionally, higher caste people have been owing land
and other economic resources and the lower caste people do not own any significant size of these resources. Thus, caste system and pattern of landholding are closely associated. Keeping in view the above, caste of the respondent is studied whether upper caste and lower caste are behaving in the positive direction for the repayment of loan or in the opposite direction.

7.2.4 Occupation

It is assumed that magnitude and stability in income tends to reduce the overdue period. The nature of one's occupation determines the stability of earning on which, in turn, depends the repayment behaviour. Agriculture is the major occupation in rural India and income from agriculture varies widely. Occupations such as service, business and small industry is likely to have income more stable in comparison to rural artisans, labourers and small agriculturists. Thus, the positive correlation appears between occupation and repayment performance of an individual. For this purpose occupation is considered as one of the major characteristics to be discussed for the repayment behaviour of the respondents.

7.2.5 Family Size

Size of family plays an important role in the development of the members of the family and repayment of loans borrowed by any member of their family. It is also considered to be an important variable in
determining the magnitude of funds required to meet consumption needs. It is quite unlikely, in our opinion, that a borrower will repay the borrowed amount leaving the basic needs of family completely unsatisfied. It is with this intention, the family size of the respondent is included in the study.

7.2.6 Percentage of Irrigated land to Total Farm Size

Credit facilities are availed of by all the rural people irrespective of their agricultural income. Generation of agriculture income through the adoption of modern farming methods depends largely on the irrigation facilities available. It is, therefore, logical to assume that timely repayment of loan is directly related to the irrigation potential available to the farmer borrowers. Thus, the data regarding irrigation and total land of the borrower is collected for this purpose.

7.2.7 Total Farm Size

The size and stability of agricultural income is a function of agriculture yield. Quantum of this agriculture yield depends on the size of one's landholdings. It is quite natural that modern farming techniques can be more fruitfully deployed if the size of farm is big and thus the farm size and repayment behaviour seems to be positively correlated.
7.2.8 Agriculture Income

Agriculture income of the respondents is studied to determine its effect on the repayment behaviour of the borrower. Rural people of India mainly depend on agriculture and its produce, which are the main source of their income. Thus, agriculture income is included in this study to classify the respondents into defaulters and non-defaulters.

7.2.9 Total Non-farm Income

It is revealed in most of earlier studies on repayment performance that income from sources other than agriculture plays a dominant role in the repayment process as the same appears to be more certain and quick than the agriculture one. Thus, income by way of wages, earnings from business, trade, commerce and artisenary work seems to be relatively stable and certain.

7.2.10 Family Expenditure

The research hypothesis is, higher burden of expenditure coupled with lower income results in indebtedness. The repayment behaviour is based on the sufficiency of income to meet the normal household expenditure. In other words, insufficiency of income to meet the usual consumption expenditure may increase the probability of default. Thus, this variable is included in the study to distinguish defaulters into wilful and non- wilful.
7.2.11 Amount Borrowed

It is assumed that the probability of default may increase with the increase in debt burden and the rural people being basically poor have limited capacity to repay. It is with this objective in view that the variable amount of borrowing is included in the study. The researcher has also visited the commercial banks from which the loaner has borrowed to confirm the date, amount, purpose of loan, as well as status of the indebtedness on that date.

7.2.12 Utilization of Loan

It is believed that if the borrowed amount is utilized for the productive purpose, it will generate sufficient income to support family and to repay the loan instalments well in time. It is well understood that the loan used for productive purpose has a direct bearing on the repayment behavior of the borrower and it is also quite likely that the loan borrowed by a person from the commercial bank has been used for their consumption or social needs, such a misutilisation of credit causes more harm than betterment. With the misutilisation of loan for non-productive purposes and in the absence of incremental income from the investment, the borrower turns out to be a defaulter and the overdue with the lending commercial bank go on accumulating which render the recycling of funds impossible. Thus, the utilization of loan is classified into two parts, viz., used for a productive purpose and for a non-
productive purpose and is used for the study of discriminant function analysis.

7.2.13 Rate of Interest

Most of the earlier studies on repayment attitude of borrowers rate clearly indicate that interest on the borrowed amount plays a major role in the timely repayment of loan. Rate of interest on loan and the borrower's attitude towards repayment seem to be closely related. Thus, rate of interest is included in this study to see its impact on the repayment performance of the borrower.

7.2.14 Period of Loan

It is assumed that longer the period of loan, smaller is the amount of instalment and lesser is the case of indebtedness. This is because a loanee can easily repay small amount of instalments out of his income as it is less burdensome. Thus, the variable period of loan is used to classify respondents into defaulters and non-defaulters and defaulters into wilful and non-wilful.

7.2.15 Adequacy of Loan

As the rural borrowers do not have resources of their own to invest along with the borrowed amount to take up the economic activities, hence, the effective utilization of loan depends on its adequacy for a particular purpose to a greater extent. It is also quite likely that the inadequacy of funds may lead to diversion of borrowed amount to
channels other than productive. Thus, adequacy or inadequacy of loan being an important determinant of repayment behaviour is included in the study of discriminant function analysis.

7.2.16 Number of Visits by Commercial Bank Officers

It can be said without any doubt that the repayment behaviour of the borrower is guided by his attitude towards the repayment of loan and the branch of the commercial bank which has provided amount to the borrower. A borrower should not be harassed on non-repayment of instalment, but should be guided and motivated properly to repay the loan. With this view that the number of visits should be for positive guidance in the use of loan and not for underhand considerations, it is included in the study.

7.2.17 Prior Debt on the Borrower

The most important cause of the existing indebtedness is the prior and ancestral debt, which is handed over from generation to generation. Many rural people start their life with a heavy burden of ancestral debt and drag on the loan for the whole of their life. For their past debt burden, they may add fresh loans to meet religious and social obligations. In this way the debt burden goes on increasing and causes indebtedness. Thus, the impact of borrower’s prior debt obligations on the present borrowings is included in the discriminant function analysis.
7.3 Analytical Procedure

Among the sampled borrowers, the selected defaulters were further classified into wilful and non-wilful defaulters. The borrowers who did not repay the loan instalments in time even when they had the capacity to repay were defined as wilful defaulters and non-wilful defaulters were those who were eager to repay but due to some uncertainties in their income they could not repay the loan. Repayment capacity of each borrower was determined by the formula, \( R = Y - (A + B + C) \).

Where,

\[ R = \text{Repayment capacity of the borrower.} \]
\[ Y = \text{Total farm and non-farm income.} \]
\[ A = \text{Total farm and off-farm expenditure.} \]
\[ B = \text{Pre-existing liabilities to be met within the year.} \]
\[ C = \text{Risk allowance (taken as 10 percent of farm income).} \]

The qualification of the earlier discussed variables was done in the following manner:

1. Age \( (x_1) \) = Age of the borrower.
2. Education \( (x_2) \) = ‘1’ if the borrower is primary, ‘2’ if matric, ‘3’ above matric and below graduation and ‘4’ if he is graduate or above.
3. Caste \( (x_3) \) = ‘1’ if borrower belongs to general caste, ‘2’ scheduled caste and ‘3’ if belongs to other backward caste.
4. Occupation \((x_4)\) = ‘1’ if borrower’s occupation is agriculture, ‘2’ if business, ‘3’ if service, ‘4’ if labourer and ‘5’ if his main occupation is of rural artisan.

5. Family Size \((x_5)\) = No. of members in the borrower’s family.

6. Irrigation \((x_6)\) = Percentage of irrigated area to total area of land.

7. Total Farm Size \((x_7)\) = Farm size in hectares.

8. Agricultural Income \((x_8)\) = Borrower’s income from the farm.

9. Non-farm Income \((x_9)\) = Total income of the borrower other than farm.

10. Family Expenditure \((x_{10})\) = Total expenditure of the borrower’s family in the current year to meet usual household expenditure.

11. Amount Borrowed \((x_{11})\) = Amount borrowed by the borrower from the commercial bank.

12. Utilisation of loan \((x_{12})\) = ‘2’ if the loan is utilized for the productive purpose and ‘1’ if it has been used for a non-productive purpose.

13. Rate of Interest \((x_{13})\) = Rate of interest charged by the commercial bank on the principal borrowed.

14. Period of loan \((x_{14})\) = Period of the loan is the time period for which loan has been sanctioned to the borrower by the disbursing commercial bank.
15. Adequacy of Loan ($x_{15}$) = ‘2’ if the borrower stated that the amount of loan was adequate for the proposed activity and ‘1’ if he stated otherwise.

16. Number of Visits by Lending Agency Officers ($x_{16}$) = It is the total number of visits performed by any officer of the lending agency for the verification and guidance of the use of loan.

17. Prior debt on the Loanee ($x_{17}$) = It is the prior debt amount which the borrower repaid in the current year.

In order to measure the net effect of each variable included in this study, all other variables are held constant by using linear discriminant function analysis. This function was adopted to classify the borrowers into prompt repayers and defaulters and further estimated to discriminant defaulters into wilful and non-wilful defaulters. The discriminant function permits weighing several socio-economic characteristics of the borrowers of any loan according to their relative importance and allows for inter relationships between factors which are extremely difficult to account for by any other statistical technique. The function has the following form:

$$H_{i} = b_{i} + \sum_{i=1}^{20} \lambda_{i} x_{i}$$

i.e., $H_{1} = b_{1} + \sum_{i=1}^{20} \lambda_{i} x_{i}$ for defaulters and $H_{2} = b_{2} + \sum_{i=1}^{20} \lambda_{2} x_{i}$ for non-defaulters.
Where $b_1$ and $b_2$ are constant terms for the two functions. $-\lambda_{ji}$ are the coefficients of linear discriminant functions. The methods seek to obtain coefficients such that the variance of score $H$ between the populations should be the maximum and the variance of $H$ within a particular population should be minimum. In other words, the ratio of variance of $H$ between the population and within a particular population should be maximum.

The study does not assume that the variance-covariance matrices, of the groups, i.e., defaulters and non-defaulters or wilful and non-wilful defaulters, are the same and because of this reason the discriminant function for each population is different.

The Mahalanobis $D^2$ statistic has been calculated to measure the distance between the two populations. The ‘$F$’ statistic is used to determine whether the two populations are different from each other or not.

\[
F = \frac{N_a N_b (N_a + N_b - P - 1)}{P (N_a + N_b)(N_a + N_b - 2)} D^2
\]

\[
D^2 = \sum_{i=1}^{P} (\lambda_{2i} - \lambda_{1i})(\mu_{2i} - \mu_{1i})
\]

Where, $N_a =$ Number of observation of population one = Defaulters;
$N_b =$ Number of observation of population two = Non-defaulters;
$P =$ Number of variables taken into consideration;
\( \mu_{2i} \) is the mean of the ith variable of the population one and \( \mu_{2j} \) is the mean of jth variable of the population two. This value of 'F' is tested for its significance with \((P)\) and \((N_a+N_b-P-1)\) degrees of freedom.

7.4 Results of Discriminant Function Analysis

The discriminant functions considering the above mentioned socio-economic characteristics fitted to the data for defaulters and non-defaulters are as follows:

For defaulters,

\[
H_1 = -166.547 + 1.036 X_1 + 4.021 X_2 + 3.570 X_3 + 8.241 X_4 + 3.964 X_5 + 59.513 X_6 + 8.190 X_7 + 0.000007946 X_8 + 0.0004517 X_9 - 0.0001608 X_{10} - 0.00001545 X_{11} + 8.910 X_{12} + 20.401 X_{13} + 0.02595 X_{14} + 9.205 X_{15} - 3.814 X_{16} + 0.0001002 X_{17}
\]

For Non-defaulters,

\[
H_2 = -179.508 + 0.999 X_1 + 3.409 X_2 + 3.266 X_3 + 8.724 X_4 + 4.397 X_5 + 65.945 X_6 + 9.123 X_7 - 0.000317 X_8 + 0.0007346 X_9 - 0.0001834 X_{10} - 0.00001648 X_{11} + 11.553 X_{12} + 20.514 X_{13} + 0.03194 X_{14} + 11.260 X_{15} - 3.125 X_{16} + 0.0001584 X_{17}
\]
Table No. 7.1

Percentage Contribution of Individual Characteristics to the Total Distance Measured

|---------|-----------------------------------------------|-----------------------------------|---------------------------------------|------------------------|-----------------------------------------------|-----------------------------------------------|----------------~~~~|------------------------------------------|------------------------|
| 1       |                                              | 1.036                             | 0.999                                 | -0.037                 | 46.5072                                       | 45.7097                                       | -0.7975          | 0.02951                                 | 0.6703                |
| 2       |                                              | 4.021                             | 3.409                                 | -0.612                 | 2.6184                                        | 2.6344                                        | -0.016           | -0.00972                                | -0.2208               |
| 3       |                                              | 3.570                             | 3.266                                 | -0.304                 | 1.7295                                        | 1.5269                                        | -0.2026          | 0.06159                                 | 1.3989                |
| 4       |                                              | 8.241                             | 8.724                                 | 0.483                  | 1.5797                                        | 1.6237                                        | 0.044            | 0.02125                                 | 0.4827                |
| 5       |                                              | 3.964                             | 4.397                                 | 0.433                  | 5.5845                                        | 5.5376                                        | -0.0469          | -0.02031                                | -0.4613               |
| 6       |                                              | 59.153                            | 65.945                                | 6.432                  | 0.03329                                       | 0.04172                                       | 0.0084           | 0.0542                                  | 1.2315                |
| 7       |                                              | 8.190                             | 9.123                                 | 0.933                  | 1.0976                                        | 1.2924                                        | 0.1948           | 0.18175                                 | 4.1282                |
| 8       |                                              | 0.0000007946                      | -0.00003176                          | -0.000325546           | 2485.1733                                     | 1344.1628                                     | -1141.0105       | 0.37145                                 | 8.4370                |
| 9       |                                              | 0.0004517                         | 0.0007346                            | 0.0002829              | 9270.3704                                     | 16563.2002                                    | 6292.8298        | 1.78024                                 | 40.4361               |
| 10      |                                              | -0.0001608                        | -0.0001834                           | -0.0000226             | 6577.6330                                     | 7222.5717                                     | 644.9387         | -0.01458                                | -0.3312               |
| 11      |                                              | -0.00001545                       | -0.00001648                         | -0.0000103             | 66012.0773                                     | 82193.5484                                     | 16181.4711       | -0.01667                                | -0.3786               |
| 12      |                                              | 8.910                             | 11.553                                | 2.643                  | 1.4589                                        | 1.8065                                        | 0.3476           | 0.91871                                 | 20.8674               |
| 13      |                                              | 20.401                            | 20.514                                | 0.113                  | 9.5894                                        | 9.6398                                        | 0.0504           | 0.00570                                 | 0.1295                |
| 14      |                                              | 0.02595                           | 0.03194                               | 0.00599                | 46.9565                                        | 53.2903                                        | 6.3338           | 0.03794                                 | 0.8618                |
| 15      |                                              | 9.205                             | 11.260                                | 2.055                  | 1.2271                                        | 1.6237                                        | 0.3966           | 0.81501                                 | 18.5120               |
| 16      |                                              | -3.814                            | -3.125                                | 0.689                  | 0.7488                                        | 1.0215                                        | 0.2727           | 0.18789                                 | 4.2678                |
| 17      |                                              | 0.0001002                         | 0.0001584                            | 0.0000582              | 2980.6763                                     | 2956.9892                                     | -23.6871         | -0.00138                                | -0.0131               |
D² and E-values were worked out to be 4.4026 and 15.72625058 respectively. In order to indicate the relative importance of the characteristics in their power to discriminate between two groups of borrowers, the percentage to the total distance measured was calculated and is presented in Table No. 7.1. The total non-farm income, utilization of loan for productive/non-productive purposes, adequacy of loan, agriculture income, number of visits by lending agency for verification and guidance, farm size, caste and percentage of irrigated land to the total farm size are the major characteristics which classify the borrowers into defaulters and non-defaulters and their respective discriminant weights to the total distance measured are 40.4361, 20.8674, 18.5120, 8.4370, 4.2678, 4.1282, 1.3989 and 1.2315 percent.

Therefore, the following discriminant functions were re-run taking only these eight characteristics in the equations to see whether these characteristics are able to distinguish the defaulters and non-defaulters significantly.

For defaulters,

\[
H_1 = -30.079 + 6.431 X_3 + 34.499 X_6 + 6.820 X_7 - 0.000314 X_8 + 0.0002582 X_9 + 6.918 X_{12} + 5.873 X_{15} + 1.383 X_{16}
\]

For non-defaulters,

\[
H_2 = -20.690 + 6.275 X_3 + 38.517 X_6 + 7.692 X_7 - 0.0000915 X_8 + 0.0004515 X_9 + 8.874 X_{12} + 7.722 X_{15} + 2.192 X_{16}
\]
Table No. 7.2

Percentage Contribution of Individual Characteristics to the Total Distance Measured

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<td>6.431</td>
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<td>3</td>
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<td>6.820</td>
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<td>-0.0000314</td>
<td>-0.0000915</td>
<td>-0.0000601</td>
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D^2 and F-values of values are worked out to be 3.6157726 and 21.61603184 respectively. It means that these eight characteristics considered together were very useful in classifying the respondents into defaulters and non-defaulters.

Table No. 7.2 clearly indicates that the repaying capacity of the borrower depends mainly on the total non-farm income of their family, adequacy of loans, utilization of loans in productive and non-productive purposes, agriculture income, number of visits by officers of the loaning agency and the total size of land holding of their all family members and these are the major characteristics which classify the borrowers into defaulters and non defaulters. Besides these characteristics the ratio of irrigated land to total land and caste of the borrowers are also marginally contributing in discriminating borrowers into defaulters and non-defaulters. The respective weights to the total distance measured for these characteristics are 38.99, 20.28, 18.80, 9.38, 6.10, 4.70, 0.94, and 0.81 respectively.

7.4.1 Wilful and Non-wilful Defaulters

To further classify the defaulters into wilful and non-wilful defaulters the same analysis has been done on the basis of differences in their socio-economic characteristics. The discriminant functions considering the seventeen socio-economic characteristics fitted to data for wilful and non-wilful defaulters are as follows:
For willful Defaulters
\[ H_1 = -232.165 + 1.547 X_1 + 13.890 X_2 + 6.087 X_3 - 6.630 X_4 + 6.379 X_5 + \\
117.414 X_6 + 7.727 X_7 + 0.001160 X_8 + 0.0002787 X_9 - 0.001210 X_{10} - \\
0.00001195 X_{11} + 13.336 X_{12} + 27.059 X_{13} + 0.03077 X_{14} + 9.747 X_{15} + \\
2.224 X_{16} - 0.0001958 X_{17} \]

For Non-willful Defaulters
\[ H_2 = -236.971 + 1.615 X_1 + 14.618 X_2 + 5.676 X_3 + 7.922 X_4 + 5.863 X_5 + \\
116.367 X_6 + 7.775 X_7 + 0.0007268 X_8 - 0.0002663 X_9 - 0.0006816 X_{10} - \\
0.00001879 X_{11} + 13.320 X_{12} + 27.260 X_{13} + 0.1627 X_{14} + 9.646 X_{15} + \\
3.249X_{16} - 0.0001687X_{17} \]

\( D^2 \) and F-values were worked out to be 4.10211 and 11.01589641 respectively. To indicate the relative importance of the characteristics in their power to discriminate between the two groups of defaulters, the percentage to the total distance measured was calculated and is given in Table No. 7.3. This revealed that total family expenditure, non-farm income, period of the loan, size of the family, number of visits by the officers of the lending agency, age of the borrower and occupation are the major characteristics which classify the defaulters into wilful and non-willful defaulters; and their respective weights to the total distance measured are 40.5199, 27.6758, 14.9703, 7.3838, 6.7616, 4.4390 and 4.1574 respectively.
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<td>1.13529</td>
<td>27.6758</td>
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<td>-0.0005284</td>
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<td>27.260</td>
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<td>$x_{15}$</td>
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<td>9.646</td>
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<td>1.2560</td>
<td>0.0731</td>
<td>-0.00385</td>
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<tr>
<td>16</td>
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<td>1.025</td>
<td>0.5854</td>
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<td>0.27737</td>
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<td>17</td>
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<td>1159.5122</td>
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Therefore, the function was rerun by taking only these seven significant characteristics in the equation to enquire whether these characteristics alone were able to discriminate non-wilful defaulters from wilful defaulters in a significant manner. The new discriminant function was given as follows:

**For wilful Defaulters,**

\[ H_1 = -37.931 + 0.726 X_1 + 5.531 X_4 + 3.485 X_5 + 0.001170 X_9 + 0.00001513 X_{10} + 0.01189 X_{14} - 1.002 X_{16} \]

**For Non-Wilful Defaulters,**

\[ H_2 = -37.784 + 0.766 X_1 + 6.211 X_4 + 3.031 X_5 + 0.0007860 X_9 + 0.0004439 X_{10} + 0.03018 X_{14} - 0.335 X_{16} \]

D2 and F-values were worked out to be 2.604 and 17.88115941 respectively. These are highly significant and show that these seven variables when put together are useful in classifying defaulters into wilful and non-wilful. In order to find out the comparative significance of the characteristics in their power to discriminate between the two groups of defaulters, the percentage to the total distance measured was calculated and is presented in Table No. 7.4.
Table No. 7.4

Percentage Contribution of Individual Characteristics to the Total Distance Measured

<table>
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<td>1</td>
<td></td>
<td>0.726</td>
<td>0.7656</td>
<td>0.04</td>
<td>47.5680</td>
<td>2.6778</td>
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<tr>
<td>2</td>
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<td>2.531</td>
<td>6.211</td>
<td>0.68</td>
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<td>0.132</td>
<td>0.0898</td>
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<tr>
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<td>3.485</td>
<td>3.031</td>
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<td>-0.587</td>
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<td>4</td>
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<td>-0.000384</td>
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<tr>
<td>5</td>
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<td>0.0001513</td>
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<td>0.0002926</td>
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<td>0.03018</td>
<td>0.01829</td>
<td>52.1280</td>
<td>13.0548</td>
<td>0.2388</td>
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<tr>
<td>7</td>
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<td>-1.002</td>
<td>-0.335</td>
<td>0.667</td>
<td>0.8560</td>
<td>0.2706</td>
<td>0.1805</td>
<td>6.9316</td>
<td>0.8560</td>
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</tbody>
</table>
This analysis clearly indicates that family expenditure, total non-farm income, family size, period of the loan, number of visits by the officers of the lending commercial bank, age and occupation of the borrowers are the major factors which classify the defaulters into wilful and non-wilful. The respective weights to the total distance measured for these characteristics are 35.3456, 30.7181, 10.2727, 9.1705, 6.9316, 4.1129, and 3.4485 respectively.

7.5. CONCLUSION

The foregoing analysis of the discriminant function clearly shows that out of an array of factors, ‘the total non-farm income’, ‘utilization of loan’, ‘adequacy of loan’, ‘farm income’, ‘number of visits by the officers of concerned lending commercial bank’, ‘farm size’, ‘caste’ and ‘percentage of irrigated land to total land’ are the main factors that classify the borrowers into defaulters and non-defaulters. Among these ‘the total non-farm income’, ‘utilization of loan’ and ‘adequacy of loan’ are the major variables with highest values of discriminating power. As regards classification of defaulters into wilful and non-wilful, the relevant factors are found to be, ‘family expenditure, ‘non-farm income’, ‘period of loan’ ‘family size’, ‘number of visits by lending agency’, ‘age’ and ‘occupation’. However, among these, ‘family expenditure’ and ‘total non-farm income’ are found to be prominent determinants in the discriminant function analysis.