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Adoption of Green Banking in India: Challenges and Prospects

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Abstract: ***Green banking is different from traditional banking, as green banking focus on promoting environment friendly banking. Green banking is also known as ethical banking. This paper attempts to analyze the adoption of green banking products among customers with different educational qualification and different age groups. ANOVA and post hoc tests are applied for analyzing both the objectives. This paper finding explains thatyoung generation is more inclined towards green banking products than middle age and senior age groups but there is no significant difference in mean usage of green banking products among the customers with different educational qualification. Therefore, the educational qualification has nothing to do with usage of green banking products, whereas, more awareness is need to be created among the middle and senior age groups individuals.***

Keywords: Green Banking, ANOVA, Ethical Banking, Post hoc analysis& Sustainable Development

1. Introduction

Green banking is different from conventional banking as conventional banking is based on the principal of security and profitability and it hardly focuses on morality. Green banking is a new concept that considers environmental and socially responsible investing. Green banking is defined as promoting environmental-friendly practices and reducing the carbon footprint from banking activities. In simple words, green banking is a banking that benefits the environment. The green banking is also known as ethical banking. The bank can minimal the use of paperwork by promoting paperless banking through online banking. To initiate sustainable development, there is a need to promote green banking practices so that we can tackle the problems like global warming, natural calamities, and disaster. Bank is a financial institution that deals with masses and banks by adopting green activities can influence the attitude of the customers towards the environment. The concept and practice of green banking is new to India, but not in developed nations like the USA. There is a need to focus on sustainable banking to protect the environment from disaster. In less developed countries (LDC) like Bangladesh, where losses from natural calamities are huge. The Bangladesh bank shown keen interest in promoting green banking and formulated guidelines for effective implementation of green banking practices.The performance of bank's clients impact the performance of banks so there is a need for appropriate environmental and social due diligence to reduce the chance of non-performing assets, as legal environmental compliance failure can halt the client's project and result in NPA to the bank. Bank should take into consideration the ecological aspect in lending apart from security and profitability. Various international protocols such as UNEPFI, Equator Principles, and LEED certificates have been issued in order to facilitate green banking, but Indian banks are still lagging behind. Various banks in India have formulated strategies and initiated green banking practices to support environment-friendly banking and reduce the carbon footprints of bank and customers. The banks in India also started green banking practices such as online banking, mobile banking, Green channel counters, e-statement, green loans, solar ATMs, etc.

2. Review of Literature

A general scanning of literature available in India from different published sources indicates that very few detailed studies have been conducted in India in the field of Banking, particularly in the field of Green Banking. However, many studies have been conducted abroad, particularly in the western developed countries. But these are not very relevant in Indian context. This section reviews empirical literature on Green Banking conducted in country as well as abroad in chronological order.

Jeucken and Bouma (1999) in their study identified four stages or attitudes of banking toward sustainability. The authors concluded that banks looks for highest sustainable rate of return not for highest financial rate of return. Getzner and Kra¨uter (2004) found education; income, environmental awareness and the expected profit are the main explanatory variables. Bhardwaj and Malhotra (2014)found a positive relationship between adoption of green banking and bank profitability. On the other hand, similar study by Rajput, Arora, and Khanna (2014) found no relationship between green banking initiatives and bank's profitability. Sudhalakshmi and Chinnadorai (2014) showed that not many initiatives have been taken by banks in India as far as green banking is concerned. Ahmed (2012) gave policy recommendation which included giving rewards to the banks for positive green banking initiatives by developing green index rating and building awareness amongst the stakeholder.

At policy level, Choudhury et al. (2014) advocated for the necessity of stakeholder's influences in green banking practice and recommends some indication for Government, the whole banking sector and for the business community. Bahl (2012) suggested RBI and Indian government should play a proactive and formulate green banking policy, guidelines & financial incentives for effective green banking. Nath, Nayak, and Goel(2014) recommended for change in routine operations of banks by adoption of paperless banking, online banking, and mobile banking, and mass transportation system, green cards made up of recycled plastic.

Papastergiou and Blanas (2011) conducted study on "Sustainable Green Banking. They identified 50% banks were in defensive phase, 40% in preventive, and 10% in offensive stage. KO et al. (2014) in their research paper found that there is a significant positive relationship between green concern and internet use. Similarly, Singh and Singh (2012) in their paper expressed society's growing concern about the natural environment, the business organization are also modifying their working in order to increase greenery. Verma (2012) concluded that only few banks in India adopted green banking and there is lack of awareness among the bank staff and customers.

Taking in to consideration the limitation of the above studies on Green Banking so far, the need for a systematic study on Adoption of Green Banking in India is felt by us.

3. Objectives of the Study

The adoption of green banking has many dynamic. It is always important for decisions makers to know how the usage of green banking product is different among various age groups, gender, and occupants. Geographical location, accessibility of green banking products, and financial literacy also play an important role in the adoption of green banking products. It enables the decisions makers to determine which group need to be more focused and targeted because green banking not only provides convenient to the customer but also help the banks to reduce their cost (Bhardwaj and Malhotra, 2014). However, due to time constraint, the present study only emphasize on

1. To examine the *relationship between level of education and adoption of green banking product*.
2. To examine the *relationship between age groups and adoption of green banking product*.

4. Research Hypotheses

On the basis of above-mentioned objectives, the present study aims to test the following hypothesis:

1) *Relationship between age groups and adoption of green banking products*

a. H_0: The mean usage of green banking products (adoption) is independent of age.

2) *Relationship between level of education and adoption of green banking products*.

a. H_0: The mean usage of green banking products (adoption) is independent of level of education.

5. Research methodology

To test the relationship between adoption of green banking products and level of education of the users, the following methodology has been applied:

5.1 Data Collection and Sample Size

The data for adoption of green banking product and age pattern have been collected through structured questionnaire. The questionnaire includes thirteen question on the usage of green banking products, namely Solar ATMs, Mobile banking, Green channel counters, Online banking, Green mortgages, Green remit cards, Green credit card, Online savings account, Green certificate of deposits, Green checking account, E-Investment services, Bonds and mutual fund for environmental friendly project, and Recyclable debit & credit cards. The individual usage score for each green banking product has been calculated on 5 likert point scale, where, likert scale measure frequency of usage of green banking products. To select sample, the present study has used convenient sampling and snowball sampling [A non-probabilistic sampling technique in which an initial group of respondents is selected randomly]. The 112 questionnaires have been distributed personally and online through Google forms to the sample respondent.

5.2 Statistical Techniques

In order to test the null hypothesis, Analysis of Variance and Post hoc Multiple Comparisons test has been applied. To test the equality of variance among various age groups, Levene test has been applied.

6. Data Analysis and Results

6.1 Adoption of Green Banking and Age groups

The descriptive statistics of mean usage of green banking products across various age groups have been shown in Table 1. The descriptive statistics shows that the usage of green banking product is high among individuals of age groups of 15-30, with mean score of 26.51, whereas, the usage is minimum among individuals of age above 60 with mean usage of 15 only. The standard error of the mean score for each group is between one and two, which is consistent and moderately low.

Table 1: Descriptive statistics of green banking product across various age group

Age Groups	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
15-30	66	26.5152	9.09648	1.11970	24.2790	28.7513	13.00	49.00
30-45	27	26.0741	7.74560	1.49064	23.0100	29.1381	13.00	49.00
45-60	15	22.9333	7.38209	1.90605	18.8453	27.0214	13.00	39.00
60 Above	4	15.0000	2.30940	1.15470	11.3252	18.6748	13.00	17.00
Total	112	25.5179	8.66492	.81876	23.8954	27.1403	13.00	49.00

To test the hypothesis, is usage of green banking products (adoption) independent of age, ANOVA test has been conducted. The result of ANOVA test has been shown in Table 2. The p value of chi-square statistics is found to be 0.039 (less than 0.05), which reject our null hypothesis that usage of green banking is independent of Age. Since, ANOVA test assume variance is equal across various group age group, therefore, to test the equality of variance, Leven test [The null hypothesis is variance of mean usage of green

banking products is equal among various age group] has been applied.

Table 2: ANOVA results of test of equality of mean usage across various age groups

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	616.694	3	205.565	2.877	.039
Within Groups	7717.270	108	71.456		
Total	8333.964	111			

The p value for Levene statistics is found to be more than 0.05 [Results not shown due to brevity purpose] which provide evidence of equality of variance. To identify which groups have significant difference in mean usage of green banking product, post hoc analysis has been performed and results have been shown in Table 4.

Table 4: Post hoc analysis of mean usage of green banking products across various ages.

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
15-30	30-45	.44108	1.93111	.996	-4.5981	5.4803
	45-60	3.58182	2.41794	.452	-2.7277	9.8914
	60 Above	11.51515*	4.35278	.046	.1566	22.8737
30-45	15-30	-.44108	1.93111	.996	-5.4803	4.5981
	45-60	3.14074	2.72218	.657	-3.9628	10.2442
	60 Above	11.07407	4.52886	.075	-.7439	22.8921
45-60	15-30	-3.58182	2.41794	.452	-9.8914	2.7277
	30-45	-3.14074	2.72218	.657	-10.2442	3.9628
	60 Above	7.93333	4.75687	.346	-4.4796	20.3463
60 Above	15-30	-11.51515*	4.35278	.046	-22.8737	-.1566
	30-45	-11.07407	4.52886	.075	-22.8921	.7439
	45-60	-7.93333	4.75687	.346	-20.3463	4.4796

*. The mean difference is significant at the 0.05 level.

The post hoc analysis shows a significant difference between age group of 15-30 and 60 above, with p-value of 0.046, which is cause for difference in mean usage of green banking products across various age groups. Our results show that the usage of green banking products is not same across various age groups. The present study finds significant difference in usage of green banking products between age group of 15-30 and 60 above.

6.2. Adoption of Green Banking and Level of Education

The descriptive statistics of mean usage of green banking products across various level of education has been shown in Table 1. The descriptive statistics shows that the usage of green banking product is high among individuals who have attained professional qualification, with mean score of 27.538, whereas, the usage is minimum among graduates with mean usage of 24.21 only. The descriptive results show that mean usage of green banking product is higher among intermediate than graduates. The standard error of the mean score for each group is between 24-27, which is consistent high among all groups.

Table 1: Descriptive statistics of green banking product across various level of education

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Intermediate	9	24.2222	11.69164	3.89721	15.2352	33.2092	13.00	49.00
Graduate	19	24.2105	6.45135	1.48004	21.1011	27.3200	13.00	39.00
Post Graduate	71	25.6620	8.17128	.96975	23.7279	27.5961	13.00	49.00
Professionals	13	27.5385	11.95558	3.31588	20.3138	34.7631	13.00	46.00
Total	112	25.5179	8.66492	.81876	23.8954	27.1403	13.00	49.00

To test the hypothesis, is usage of green banking products (adoption) independent of education, ANOVA test has been conducted. The result of ANOVA test has been shown in Table 2. The p value of chi-square statistics is found to be 0.720, which reject our alternate hypothesis that usage of green banking is not independent of level of education. It postulate that adoption of green banking is independent of level of education. Since, ANOVA test assume variance is equal across various age group is same, therefore, to test the equality of variance, Leven test [The null hypothesis is variance of mean usage of green banking products is equal among various age groups] has been applied.

Table 2: ANOVA results of test of equality of mean usage across various level of education

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	102.133	3	34.044	.447	.720
Within Groups	8231.832	108	76.221		
Total	8333.964	111			

The p value for Levene statistics [The results are not shown due to brevity purpose] is found to be more than 0.05 which provide evidence of equality of variance. Our results show that the usage of green banking products do not get influenced by level of education. The present study finds no significant difference in usage of green banking products across various level of education.

7. Conclusions

The present study finds that the young generation is more inclined towards green banking products than middle age and senior age groups (above 60 years). The mean score of usage of green banking products among low age group (15-30) is 26.50, whereas, it is just 15 for individuals age above 60. Therefore, the present study finds that there is more of need to create awareness about green banking products adoption among the middle and senior age groups individuals than young age people. Whereas, the present study finds no significant difference in usage of green banking products across various level of education

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