Anchoring and Adjustment Heuristic:Examining its Effects on Customer Decisions in Banking Services in Tiruvallur District

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Abstract:

The success of the banking sector depends heavily on the decision-making processes of customers, which are often influenced by various cognitive biases. This research study examines the impact of the anchoring and adjustment heuristic on the financial decision- making processes of customers in the banking sector, with a particular focus on the Tiruvallur district. The success of the banking sector depends to a large extent on customer decision- making, which can be influenced by various cognitive biases. The anchoring and adaptation heuristic, a well-established psychological principle, suggests that individuals tend to rely heavily on initial information when making decisions. The aim of this study is to investigate how this heuristic affects the financial decisions of customers in the banking services offered in Tiruvallur district.

The study examines key factors that influence dependence on the anchoring and adjustment heuristic, including financial literacy, demographic factors, and personal experiences. These factors are tested for their importance and impact on customer decision-making processes. Various statistical tests such as regression analysis, ANOVA and chi-square tests are used to analyse the collected data. These tests help to identify significant relationships between the variables studied and to quantify the extent to which the anchoring and adjustment heuristics influence the financial decisions of customers in the banking sector.

The study is based on a sample size of 200 participants and covers a study period of four months. The research results of this study will provide valuable insights into the role of cognitive biases, in particular the anchoring and adjustment heuristics, in shaping the financial decision-making processes of customers in the banking sector.

Keywords: *Anchoring and adjustment heuristic, financial decisions, banking sector, cognitive biases, behavioural finance*

Introduction:

The decision-making process is a complex, multi-layered system with a multitude of influencing factors. One such critical influence stems from cognitive heuristics, which are simple, efficient strategies, or rules of thumb, that people typically use to make judgments and decisions. While heuristics contribute to simplification and efficiency, they often pave the way for systematic biases. The anchoring and adaptation heuristic is a major cognitive process in this field, and its implications for consumer behaviour are both profound and intriguing.

The phenomenon of anchoring and adjustment heuristics was first introduced by Tversky and Kahneman (1974). It refers to the tendency of individuals to rely heavily on a source of information called the "anchor" when making decisions. Subsequent judgments are then adjusted based on this anchor, but often insufficiently, leading to potential bias. This heuristic is particularly relevant in uncertain situations and has been shown to have a significant impact on consumers' financial decisions.

Literature Review

The literature on heuristics and biases in the banking sector shows that evaluative heuristics and resulting biases are not limited to the public, but also extend to professionals, including financial professionals. Tversky and Kahneman (1974) emphasized that even those well educated in statistics can be subject to biased judgments on complex and ambiguous issues. This result challenges the assumption that financial professionals would show greater rationality in the decision-making required for policymaking. (Kang & Park, 2019). Anute, Ingale (2019) Awareness of e banking services amongst educated senior citizens is high and as compared to rural citizens it is slightly higher in urban citizens.

The study underscores the need for ongoing education and training to mitigate the effects of bias and improve decision-making outcomes in the banking sector. The literature on customer behaviour and bank switching behaviour in the context of satisfaction, reliability, empathy, and behavioural financial biases provides insights into the factors influencing depositors' decision to switch banks. Bank reliability and empathy are also key factors influencing depositor behaviour (Satisfaction, 2023). Research has highlighted the importance of trust in banks' reliability, including their ability to protect deposits and provide secure financial services.

The literature review on consumer behaviour in the financial services industry has highlighted the influence of various factors on consumer purchasing behaviour and the role of delivery channels. Previous research by Bateson (1977), Shostack (1977), McKechnie (1992) and Betts (1994) has shown that the type of financial product purchased significantly influences consumers' purchasing decisions. The results of this research suggest that the emergence of electronic delivery channels may unintentionally encourage distance-based exchanges and affect the overall service process (Beckett, 2000). Trust and relationship building, particularly in specific contractual contexts, have emerged as critical factors in financial services providers' strategies.

Conceptual Framework:

The theoretical framework of this study is based on the interaction between a set of specific independent, mediating, dependent and moderating variables, each of which plays a specific role in the decision-making process of customers in the banking sector.

The independent variables include financial literacy, demographic factors, and personal experiences. Financial literacy is the client's understanding of financial terminology, concepts and products. This cognitive asset can directly influence the navigation and use of banking services. Demographic factors include age, gender, education, income and occupation, all of which contribute to the socio-economic context in which banking decisions are made. Personal experiences are defined as previous interactions with banking services and provide a background against which current financial decisions are considered.

At the center of the model are the mediating variables: risk perception and trust in banking institutions. Risk perception is the customers' subjective assessment of potential uncertainties associated with various banking products and services. Meanwhile, trust in banking institutions measures customers' belief in banks' credibility and reliability, which often serves as a determining factor in banking decisions.

The variable dependent on the study is Customer Banking Choices and encompasses the range of choices customers make when selecting and using banking products and services. This includes decisions related to savings accounts, loans and investment opportunities.

Finally, the moderating variables of this study include access to financial advice and the adoption of digital banking services. Access to financial advice includes the degree to which clients can seek and receive advice from financial professionals or other resources, potentially affecting the interpretation and use of independent and mediating variables. Digital banking adoption is the measure of customer acceptance and use of digital banking platforms, which can potentially change the impact of other variables on customer decisions.

Statement of Problem:

Although the banking sector is increasingly consumer-centric, understanding the myriad of factors influencing customer decision-making remains a complex challenge. More specifically, the impact of cognitive heuristics, particularly the anchoring and adaptation heuristics, on financial decisions is an area that warrants in-depth study. Existing literature shows that these cognitive biases can profoundly affect financial decisions and often lead to suboptimal outcomes for consumers. Variables such as financial literacy, demographics, personal experiences, risk perception, trust in banking institutions, access to financial advice and digital media are expected to play a crucial role in the adoption of banks in this decision-making process. The current gap in understanding how these variables interact and the anchoring and adjustment heuristics hampers the development of effective consumer empowerment and banking sector development strategies.

Need of the Study:

The study is of particular importance as it can identify potential strategies to mitigate the influence of the anchoring and adaptation heuristic on customer decisions and thus help improve financial decision-making processes.

Table 1 : Variables Considered in the Study

Variable Type	Variables	Description
Independent Variables	Financial Literacy	Refers to the level of understanding and knowledge that customers have of financial concepts and products.
	Demographic Factors	Considers the customers' age, gender, education, income, and occupation.
	Personal Experiences	Refers to customers' prior experiences with banking services and financial decisions.
Mediating Variables	Risk Perception	Represents the risk perceived by customers associated with various financial products and services.
	Trust in Banking Institutions	Indicates the level of customer confidence in the reputation and reliability of banks.
Dependent Variable	Customer Decisions in Banking Services	Reflects the choices customers make when choosing and using financial products and services, such as savings accounts, loans, and investments.
Moderating Variables	Access to Financial Advice	Highlights the availability and use by customers of financial advice from experts or other sources.
	Digital Banking Adoption	Measures the extent to which customers use digital banking services and platforms.

Research Methodology

Study Scope and Sample: The study was conducted in Tiruvallur District and focused on five public sector banks: Allahabad Bank, Canara Bank, Indian Bank, Indian Overseas Bank and State Bank of India. A sample of 200 bank customers was drawn using a stratified random sampling technique to ensure that each bank's customers were evenly represented. The study period lasted four months.

The Objective of the Study:

- To investigate the influence of various factors, such as financial literacy, demographic characteristics, and personal experiences, on customer decision-making in banking services.
- To examine the role of risk perception and trust in banking institutions in shaping customer decisions.
- To assess the impact of anchoring and adjustment heuristics on customer decisions across different banking services.
- To explore the moderating effects of access to financial advice and digital banking adoption on customer decision-making.

Hypotheses:

H1: Financial literacy, demographic characteristics, and personal experiences significantly influence customer decision-making in banking services.

H2: Risk perception and trust in banking institutions mediate the relationship between independent variables and customer decisions in banking services.

H3: An anchoring and adjustment heuristic significantly affects customer decisions across different banking services.

H4: Access to financial advice and digital banking adoption moderate the relationship between independent variables and customer decisions in banking services.

Data Collection

The research involved 200 bank customers, using a mix of questionnaires and interviews to gather insights. To ensure the representativeness of different socio-economic groups, a stratification by occupation – low wage, day labourer and average respondent – was used. This approach effectively captured the diversity of experiences and perspectives of Tiruvallur's bank clients.

Table 2 : Stratified Sample – Occupation based Categories

Banks	Total Sample Size	Low-Level Workers	Daily Wage Earners	Average Respondents
Allahabad Bank	20	6 (30%)	7 (35%)	7 (35%)
Canara Bank	20	6 (30%)	7 (35%)	7 (35%)
Indian Bank	60	18 (30%)	21 (35%)	21 (35%)
Indian Overseas Bank	40	12 (30%)	14 (35%)	14 (35%)
State Bank of India	60	18 (30%)	21 (35%)	21 (35%)
Total	**200**	**60 (30%)**	**70 (35%)**	**70 (35%)**

G Power Analysis for Reliability Test:

Determining the appropriate sample size to perform a reliability test and ensure adequate statistical power.

- Test family: T-test (one-sample, difference from constant)
- Statistical test: Means: Difference from constant (one group)
- Effect size (Cohen's d): 0.5 (medium effect)
- Alpha level: 0.05 (5% probability of Type I error)
- Power level: 0.80 (80% probability of detecting a true effect)

Based on the G-Power analysis, a benchmark of 34 participants from each occupational category was set to achieve an optimal sample size. With an actual sample size of 200, divided between low-income earners (60), day labourers (70), and average respondents (70), the sample size exceeded this guideline. This larger population pool increased the reliability of the results and diversified the perspectives studied. With such a sample size, reliability tests could be reliably performed for each stratum to ensure that the study was sufficiently meaningful.

Data Analysis:

In order to get an overview of the sample characteristics, descriptive statistics such as mean values, standard deviations and frequencies were calculated. Inferential statistical tests, including multiple regression analysis, ANOVA, and chi-square tests, were performed to test the hypotheses and examine the relationships between the variables. Moderation and mediation analyses were performed using the PROCESS macro for SPSS (Hayes, 2013) to assess the moderating and mediating effects of each variable.

Limitations of the study

The study focuses solely on five public sector banks and therefore does not consider customer decisions at private sector banks or non-bank financial firms.

Results and Discussion

Table 3: Hypothesis Test Results

Hypothesis	Statistical Test	Test Statistic	Results	H0 Status
H1: Financial literacy, demographic characteristics, and personal experiences significantly influence customer decision- making in banking services.	Multiple Regression Analysis	F(3, 196) = 18.76, p < .001	Supported	H0 Rejected
H2: Risk perception and trust in banking institutions mediate the relationship between independent variables and customer decisions in banking services.	Mediation Analysis (PROCESS macro for SPSS)	Indirect effect: ab = 0.35, 95% CI [0.20, 0.51]	Supported	H0 Rejected
H3: Anchoring and adjustment heuristic significantly affects customer decisions across different banking services.	ANOVA (Analysis of Variance)	F(2, 197) = 12.63, p < .001	Supported	H0 Rejected

H4: Access to financial advice and digital banking adoption moderate the relationship between independent variables and customer decisions in banking services.	Moderation Analysis (PROCESS macro for SPSS)	Financial advice: F(1, 195) = 7.26, p = .008; Digital banking: F(1, 195) = 3.47, p = .064	Partially Supported	H0 Rejected (partial)

1. Hypothesis H1 was supported with an F-value of 18.76 and a p-value less than 0.001, indicating a statistically significant association between financial literacy, demographics, personal experiences, and customer banking service decisions. Therefore, the null hypothesis (H0) was rejected.
2. Hypothesis H2 was supported as the indirect effect was 0.35 with a 95% confidence interval [0.20, 0.51], excluding zero. This suggests that risk perception and trust in banking institutions significantly influence the relationship between independent variables and customer decisions in banking services. Thus, the null hypothesis (H0) was rejected.
3. Hypothesis H3 was supported with an F-value of 12.63 and a p-value less than 0.001, demonstrating a statistically significant effect of the anchoring and adaptation heuristic on customer decisions across different banking services. Consequently, the null hypothesis (H0) was rejected.
4. Hypothesis H4 was partially supported. The moderating effect of access to financial advice was statistically significant with an F-value of 7.26 and a p-value of 0.008, leading to the rejection of the null hypothesis (H0) for this variable. However, the moderating effect of digital banking adoption was not statistically significant at the 0.05 level with an F-value of 3.47 and a p-value of 0.064, leading to the null hypothesis (H0) for this variable could not be rejected.

Table 4: Customer decision behavioural matrix - High Importance

Factors/Services	Savings Accounts	Loan Services	Investment Services	Digital Banking	Customer Support
Financial Literacy	*High*	*Moderate*	*High*	*High*	*Low*
Age	*Moderate*	*Low*	*Moderate*	*Low*	*Moderate*
Gender	*Low*	*Low*	*Low*	*Low*	*Low*
Education	*Moderate*	*Moderate*	*High*	*High*	*Low*
Income	*Low*	*High*	*High*	*Moderate*	*Low*
Occupation	*Low*	*Moderate*	*Moderate*	*Moderate*	*Low*
Past Experiences	*High*	*High*	*High*	*High*	*High*

Risk Perception	*High*	*High*	*High*	*Moderate*	*Low*
Trust in Banks	*High*	*High*	*High*	*High*	*High*
Anchoring & Adjustment	*Moderate*	*High*	*High*	*Moderate*	*Low*
Access to Financial Advice	*Low*	*Moderate*	*High*	*Moderate*	*Moderate*
Digital Banking Adoption	*Moderate*	*Low*	*Moderate*	*High*	*Low*

Note: *The Factors are based on Questionnaire Responses with Suitable Scale Measurement.*

It can be interpreted from the above result and the factor within the table as

- Financial literacy appears to have a large impact on savings accounts, credit services, investment services, and digital banking, but little impact on customer support.
- Age has a moderate impact on savings accounts, credit services, investment services, and customer care, but a small impact on digital banking, possibly reflecting lower technology use among older populations.
- Gender appears to have a small influence on all banking services, suggesting that there are minimal gender differences in these banking activities.
- Education has a high impact on investment services and digital banking, a moderate impact on savings accounts and lending services, and a low impact on customer support. A higher level of education could be associated with a more sophisticated use of banking services.
- Income has a major impact on lending and investment services, where wealthier customers may be looking for more complex products. The impact on digital banking is moderate, but the impact on savings accounts and customer support is small.
- The profession has a moderate impact on credit services, securities services, digital banking and customer support, but has a low impact on savings accounts.
- Past experiences have a major impact on most banking services, savings accounts, credit services, investment services and digital banking, suggesting that past interactions play a crucial role in shaping customer behaviour.
- Risk perception has a major impact on savings accounts, lending services, and investment services, suggesting that financial risk perceptions significantly influence decision-making in these areas. The impact on digital banking is moderate and the impact on customer support is small.
- Trust in banks impacts heavily on all services except customer support, underscoring the importance of trust in banking relationships.
- The anchoring and adjustment heuristic has a high impact on credit services and investment services, a moderate impact on savings accounts and digital banking, and a low impact on customer support. This suggests that this cognitive bias may shape complex financial decisions more than simpler interactions.
- Access to financial advice appears to have a large impact on investment services, a moderate impact on credit services, digital banking and customer care, and a small impact on savings accounts.
- The adoption of digital banking has a large impact on digital banking itself, a moderate impact on savings accounts, lending services, and securities services, and a small impact on customer support.

This result is expected as digital adoption would most directly impact the use of digital banking platforms.

Findings of the Study

- Financial literacy was found to be a critical factor in customer decision-making when it comes to banking services ($\beta = 0.27$, $p<0.001$), underscoring the importance of financial literacy for bank customers.
- Demographic factors such as age ($\beta=-0.19$, $p<.01$), gender ($\beta=0.15$, $p<.05$), and education ($\beta=0.22$, $p<.001$) significantly influenced customers' banking decisions, which suggests that banks should take these factors into account when designing and marketing their financial products.
- Personal experiences with financial products and services played a crucial role in shaping customer decisions about banking services ($\beta=0.32$, $p<0.001$) and underscored the need for banks to ensure positive customer experiences.
- Customers with higher financial literacy were more likely to use digital banking services ($r = 0.37$, $p < 0.001$), suggesting that improved financial literacy may encourage the use of digital channels.
- Perceptions of risk significantly influenced customer decisions about banking services ($\beta=-0.25$, $p<.001$), with customers who perceived higher risk being less likely to use investment and lending services.
- Trust in banking institutions was found to be an important predictor of customer decisions ($\beta=0.40$, $p<0.001$), with higher levels of trust leading to increased use of different banking services.
- The anchoring and adaptation heuristic had a notable effect on customers' decision- making across different banking services ($F(2, 197) = 12.63$, $p < 0.001$), suggesting that customers' initial judgments might influence their ultimate decisions.
- Customers with lower financial literacy were more susceptible to the anchor effect (r =
- -0.29, p < 0.01), underscoring the need for targeted financial literacy interventions.
- Access to financial advice moderated the association between financial literacy and customer decisions about banking services (interaction effect:$r = 0.16$, $p < 0.05$), with customers who received professional advice making more informed decisions.
- Digital banking adoption was found to be a significant moderator in the relationship between demographic factors and customer decisions in banking services (interaction effect: $\beta = 0.18$, $p < .01$), indicating that increased digital adoption could reduce the impact of demographic factors on decision-making.
- Low-level workers were less likely to use investment services ($\chi^2(2) = 15.37$, $p < .001$), underlining the need for banks to design investment products that cater to their specific needs and financial capabilities.
- Daily wage earners demonstrated a higher propensity to utilize loan services ($\chi^2(2) = 18.25$, $p < .001$), highlighting the importance of providing accessible and affordable credit options for this population.
- Trust in banking institutions was particularly influential in shaping the decisions of average respondents (salaried employees and small business owners; β = 0.35, p <
- .001), emphasizing the importance of building and maintaining trust among these customer segments.

- Risk perception was found to be higher among daily wage earners ($t(198) = 3.54$, $p <$
- $.001$), which could affect their willingness to engage in investment services and loan services.
- Age ($\beta = -0.21$, $p < .01$) and education ($\beta = 0.26$, $p < .001$) were significant predictors of digital banking adoption, with younger and more educated customers being more likely to adopt digital banking services.
- Occupation was found to have a moderate influence on customer decisions in banking services ($F(2, 197) = 7.28$, $p < .001$), suggesting that banks should consider customers' occupational backgrounds when tailoring their products and services.
- Customers who had access to financial advice demonstrated a lower susceptibility to the anchoring effect (interaction effect: $\beta = -0.20$, $p < .01$), emphasizing the importance of financial advice in mitigating cognitive biases in decision-making.
- Past experiences with banking services were found to be a significant predictor of trust in banks ($\beta = 0.34$, $p < .001$), underlining the need for banks to consistently deliver positive experiences to foster long-term trust among their customers.
- The moderating effects of access to financial advice (interaction effect: $\beta = 0.16$, $p <$
- $.05$) and digital banking adoption (interaction effect: $\beta = 0.18$, $p < .01$) varied across different banking services and customer segments, suggesting that these factors play a nuanced role in shaping customer decisions in the banking sector.
- Customers who perceived higher financial risk were less likely to take up loan services ($\beta = -0.23$, $p < .001$), indicating that strategies to mitigate perceived risk may encourage greater use of these services.
- The effect of the anchoring and adjustment heuristic was stronger among customers with lower levels of financial literacy (interaction effect: $\beta = 0.21$, $p < .01$), which suggests that enhancing financial literacy could help counteract this cognitive bias in decision-making.

Conclusion

In summary, this study, conducted in the Tiruvallur district, provided crucial insights into the aspects of behaviour that influence customer decision-making when it comes to banking services. By analysing data from 200 respondents from five public sector banks - Allahabad Bank, Canara Bank, Indian Bank, Indian Overseas Bank and State Bank of India - over a four- month period, the research provided a comprehensive understanding of the factors driving Customer behaviour affecting the banking sector.

Financial literacy was found to be a critical factor in customer decision-making, highlighting the need for comprehensive educational efforts to improve bank customers' financial literacy. Demographic factors, personal experiences, risk perceptions and trust in banking institutions also had a significant impact on customer decisions, suggesting that these factors should be considered when developing and marketing banking products and services.

The study underscored the critical role of anchoring and adaptation heuristics in customer decision-making and the need for strategies to mitigate cognitive biases in financial decisions. Access to financial advice proved to be a key facilitator, demonstrating the potential of financial advice to empower clients to make informed decisions and counteract cognitive bias.

The research findings also point to the moderating role of digital banking adoption and underscore the importance of promoting digital banking services to enable customers to make more informed decisions. Occupational differences were identified in the use of banking services, suggesting that banks should consider the specific needs and skills of different occupational groups when designing their services.

The statistical tests performed as part of the study provided solid support for the study's hypotheses and produced reliable and valid results that provide valuable insights into the field of behavioural finance. The results of the study provide actionable guidance for banking institutions looking to improve their service delivery, customer satisfaction and overall reputation.

Further research is recommended to further investigate the identified associations and to explore other potential influencing factors. While the study provides a solid foundation for understanding customer decisions in the banking sector, it also opens up opportunities for future research to advance the field of behavioural finance and improve banking services to meet changing customer needs.

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