An Outlook of Financial Inclusion with Mediating Effect of Direct Benefit Transfer in LPG Subsidy towards Actual Usage of Banking Technology

M.Bhuvana, S.Vasantha

Abstract: Objectives: RBI has defined financial inclusion as the process of facilitating financial services to the people from the weaker sections in the society at an affordable cost. This study empirically investigates the role of Information and Communication Technology to achieve financial inclusion in the district of Tirupur. This study took technology based financial inclusion in banking sector such as mobile banking, internet banking and Automated Teller Machine to know its frequency of usage among rural people in the district of Tirupur. Further study was conducted to identify the factors affecting the access and reasons for hesitation towards access. The study also identified the mediating effect of Direct Benefit Transfer in LPG Subsidy towards Actual Usage of Banking Technology.

Methods: The study has adopted Technological Acceptance Model (TAM) for building the conceptual model. Primary Data for the study has been collected from the rural villages of Tirupur District. The data has been analyzed through SPSS 21 and the proposed model has been empirically tested using Structural Equation Modeling (SEM) through AMOS 21.

Findings: From this study it is found that Automated Teller Machine is frequently used by 78.2% of the rural respondents. Direct Benefit Transfer in LPG Subsidy, to the rural people was found to be partially mediating the actual usage of banking technology by rural people. Through the Structural Equation Modeling it was found that there exists a cause and effect relationship between the study variables.

Novelty: Prior studies have focused on only banking technological acceptance among the customers. The present study has measured the actual usage of banking technology and also studied the effect of Direct Benefit Transfer in LPG Subsidy on it. This is the major contribution to the existing literature in the field of financial inclusion.

Keywords: Financial Inclusion, Actual Usage, Banking Services, Rural People, Direct Benefit Transfer in LPG Subsidy.

I. INTRODUCTION

The former governor of RBI Dr. C. Rangarajan, 2008 in the committee on financial inclusion has defined financial inclusion as the “activity of confirming access for financial services and timely credit at an affordable cost to the low income and weaker sections people in the society”. In order to confirm that the dispute of becoming the financial advisor for the common man and friend becomes an emerging

comfortable business for banks, there is no substitute to the adoption of ICT solutions on a very large range and scale. Technology facilitates the opportunity to develop a footstep for creating products that are highly associated with the need of the consumers. Hence there is a need to develop an enabling ecosystem that encourages and promotes innovation by investing the best technological platform for accessing banking services especially for the low income and illiterate people living in rural areas. The government has taken several initiatives for designing the banking technologies based on the requirements of the people in order to make money transaction in a transparent manner. Hence this study has done an investigation among the bank customers in rural areas of Tirupur district towards the actual usage of banking technology.

II. OBJECTIVES OF THE STUDY

2.1. To analyze the factors affecting the actual usage of banking technology among the rural people.

2.2. To ascertain the relationship between the study variables by using Structural Equation Modeling.

2.3. To examine the mediating effect of Direct Benefit Transfer on LPG Subsidy towards actual usage of banking technology in rural areas.

2.1. Factors affecting the actual usage of banking technology among the rural people

A) Perceived Usefulness

According to Davis et al. (1992), perceived usefulness refers to consumers’ perceptions regarding the outcome of the experience. Daniel K Maduku (2016) has done an investigation on the effect of Institutional trust towards acceptance of Internet banking services. The primary objective of the study is to investigate the usage behavior of the South African banking retail customers for accessing the internet banking services. The study has adopted the Technological Acceptance Model for constructing the research model. The research has targeted 390 retail banking customers in South Africa. The outcome of the study has highlighted that the proposed model has possessed high descriptive capabilities and it has extracted about 61 percentage of variance in intention of Internet Banking Usage. Alsultanny and Alotaibi (2015) have done a study on examining the factors that has an intention to use E-recruitment for the job seekers.

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Dr. M.Bhuvana, Assistant Professor, Department of Business Administration, Vels Institute of Science, Technology and Advanced Studies (VISTAS), Pallavaram, Chennai
Dr. S.Vasantha, (Corresponding Authors) Professor, Vels University, Department of Management Studies, Chennai

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The researchers have targeted nearly 356 job seekers as the respondents those who utilize E-recruitment. The study has found that perceived usefulness has statistically significant (r = 0.539) with the attitude of the respondents. Renny, Suryo and Hotniar (2013) have done a study on factors impacting the purchase intention of online airlines tickets. The researchers have targeted nearly 300 respondents for collecting the primary data for the study. For analyzing the primary data the study has utilized SEM analysis. The researcher has concluded that unwillingness of Indonesian customers for making online transaction is mainly due to the issues related with the security issues. Bhuvana and Vasantha (2016) has examined the factors such as perceived usefulness, perceived ease of use and perceived credibility towards the access of ICT by the people from rural areas. The study has been illustrated by the conceptual model to measure the effect of ICT on financial inclusion.

B) Perceived Ease of Use
Radner and Rothschild, 1975 has defined Perceived ease of use as the degree to which a person believes that using a particular system would be free of effort. Janelle Rose and Gerard Joseph Fogarty (2017) have done a study on the determinants that influences the adoption of self service banking technologies among the senior consumers. The study has tested the technological acceptance model for predicting the acceptance of senior consumers to accessing the self-service banking technologies. The data has been gathered from 208 senior consumers by capturing the variables from the TAM model. The researcher has done Path analysis for examining the gathered data. It is found that there is positive relationship with the beta value of 0.23 between perceived usefulness and attitude of the respondents for accessing self-service banking technologies. Surej P. John (2015) has examined the attitude of faculties towards adopting Information and communication Technology in the process of teaching for higher education. The researcher has done an investigation on the factors that influences the adoption of information and communication technology among the faculty members in colleges and universities in Thailand. The researcher has collected the primary data from nearly 261 full time lecturers in Thailand. The researcher has concluded with a suggestion by stating that Information and communication technology will enhance the performance and competences among the faculty members in universities for handling higher classes. Bhuvana and Vasantha (2017) have made an investigation on the determinants for mobile banking adoption in rural areas. The study has highlighted that Perceived Ease of Use is the most significant factor towards the actual usage of mobile banking services among the villages in Thoothukudi district.

C) Perceived Credibility
Perceived credibility is defined as the extent to which a person believes that the use of mobile banking will have no security or privacy issues (Wang et al, 2003). Sheikh Majedul Huq, et.al (2015) has analyzed the attitude of customers towards mobile advertising. The study has adopted descriptive type of research. The primary data for the study has been collected from the 130 respondents above the age of 14 years who access mobile phones in Bangladesh. The researchers has used multiple and factor analysis for examining the data collected from the respondents. The researchers has concluded the study by stating that suitable strategies and business decisions will definitely ensures the sustainable long term business development in the competitive world. Davoud Rezaei, Khosravani and Leila (2015) have done an investigation on the factors that influences the intention of the customers to use mobile banking services. The primary objective of the research study is to find out the impact of the attitude in relationship with the behavioral intention of the customers towards accessing mobile banking services. The researcher has targeted 385 respondents to collect the primary data for the study in Iran and SEM analysis has been adopted to examine the collected data. The researcher has adopted Technological Acceptance Model for building the research model.

D) Perceived Financial Cost
Perceived financial cost is defined as the extent to which a person believes that using mobile banking will cost money (Pin & Lin, 2005). Darmesh Krishanan, et.al (2016) has analyzed the consumers’ perceived interactivity towards Intension for accessing mobile banking services. The researchers has adopted TAM model for constructing the questionnaire. The study has identified the factors that influence the intention of customers for accessing mobile banking services in Malaysia. The researcher has adopted stratified sampling technique for collected the primary data. The researchers has suggested that mobile banking services is a good marketing game plan that act as an instrument for country’s economic growth. Davoud Rezaei, et.al (2015) has done an investigation on the factors that influences the intention of the customers to use mobile banking services. The primary objective of the research study is to find out the impact of the attitude in relationship with the behavioral intention of the customers towards accessing mobile banking services. The researcher has targeted 385 respondents to collect the primary data for the study in Iran and SEM analysis has been adopted to examine the collected data. The authors has suggested that banks should focus on designing the applications based on the requirements of the customers to make them convenient for accessing mobile banking services frequently.

E) Attitude
Fishbein and Ajzen (1975) has defined attitude as an individual’s positive and negative feelings about performing the target behaviour. Muhammed Mamman, Ahamad Faosiy Ogumbado and Abu Sufian Abu-Bakr (2016) have examined the factor that determines the behavioral intention of the customers for adopting Internet banking services in North Nigeria. The researchers have adopted the theory of planned behavior for constructing the research model. The researchers have suggested a mediator called Market maven between the overall factors and behavioral intention of the respondents towards accessing internet banking services in India. Irfan Bashir and Chendragiri Madhavaiah (2015) have done a study on consumer’s attitude and behavioral intention for accessing internet banking services in India.

The researcher has done an investigation on the factors that determines the usage of
mobile banking services in India. The authors have adopted Technological acceptance Model for constructing the model. The primary data for the study has been collected from 697 internet banking users in India. Bhuvana and Vasantha (2017) have done an investigation on cause and effect relationship among the study variables of cashless payment system. The researcher has highlighted that Attitude is the most dominating factor for adopting cashless payment system in Chennai.

F) Behavioral Intention
Behavioral Intention to use is defined as a measure of the likelihood that a person will adopt the application, whereas the Technological Acceptance Model uses actual usage to represent a self-report measure of time or frequency of adopting the application (Davis et al., 1989). Etienne Erasmus, Sebastiaan Rothmann and Chrizanne van Eeden (2015) have proposed a structured model for technological acceptance. The researchers have constructed the proposed model for the study by adopting the technological acceptance model. The researchers have targeted 720 employees of steel manufacturing company located in Gauteng for collecting the primary data for the study. The researchers have used Structural Equation Modeling for analyzing the primary data collected from the respondents. The outcome of the study has highlighted that there is a significant relationship between the study variables behavioral intention to use the system and actual usage of the system. Syed Jafar Naqvi (2012) has done an examination on adoption of mobile services in Oman. The researcher has adopted Technological Acceptance Model for constructing the research model. The researcher has adopted the survey method to collect the primary data from the respondents who access mobile services in Oman. The results of the study indicate that there is a significant relationship between the behavioral intention and actual usage of the respondents for accessing mobile services. Bhuvana and Vasantha (2017) has analysed the mediating effect of Business Correspondent Model between Attitude and Behavioral Intention of rural people towards accessing mobile banking services in rural areas. The study has found that Business Correspondent Model partially mediates between attitude and behavioral intention with the increase in the total value of 0.05 percent.

G) Actual Usage
Actual system use is a behavioral response, measured by the individual’s actions in real life. Davis (1993) states that “Frequency of use and amount of time spent using a target system are typical of the usage metrics”. Aykut Hamit Turan (2012) has done an investigation on Behavioral intention of the customers in Turkish towards Internet Shopping. The researcher has adopted two different models namely Technological Acceptance Model and Theory of Planned Behavior. The researcher has identified the factors that influence the usage of Internet Shopping among the customers in Turkish. Shumaila, Gordon and John (2010) have done a study customer behavior on adopting Internet banking technology. The researchers had adopted three different theories for constructing a research model namely Technological Acceptance Model, Theory of Planned Behavior and Theory of Reasoned Action. The researchers have targeted senior analyst of marketing section of business school for collecting the primary data. The researchers have done a multiple regression analysis for examining the primary data that has been collected from the respondents. The outcome of the study has found that there is a positive correlation between the study variables behavioral intention and actual usage of the internet banking technology with the beta value of 0.69.

H) Direct Benefit Transfer in LPG Subsidy
Direct Benefit Transfer is a major reform initiative launched by Government of India on 1st January, 2013 to re-engineer the existing cumbersome delivery processes using modern Information and Communication Technology (ICT). This programmes aims to transfer benefits directly into the bank/postal accounts, preferably Aadhaar seeded, of accurately targeted beneficiaries. In a nutshell, DBT intends to achieve:

- Electronic transfer of benefits, minimizing levels involved in benefit flow
- Reduced delay in payments
- Accurate targeting of the beneficiary
- Curbing pilferage and duplication

CEE (2015) has analyzed that the basic need for financial inclusion is facilitation of Direct benefit transfer of government subsidies to the beneficiaries. In April 2002, the government declared that subsidies for all petroleum based products would be phased out except for LPG and kerosene which the government pledged would see their subsidies phased out within a 3 to 5 year period. LPG and kerosene are very essential sources which are used as domestic cooking fuels by a large portion of the population in country. Also simultaneously in 2002, LPG subsidies will be paid out of the government funds as opposed to APM pools and subsidies were revised and raised by Rs. 67.75 per cylinder. Poongodi (2016) has stated that LPG is an environmental-friendly and clean fuel which has tremendous potential as replacement for traditional fuels like coal and firewood. As the traditional fuels are limited, the use of LPG as cooking fuel has become unavoidable for people in both cities and rural areas. It is an ideal fuel for modern kitchens today with its features like safety, reliability and convenience. Barnwal P.,(2015) has examined that in today's era, LPG is the most preferable cooking fuel in urban areas. More than 3 million LPG refill products would be purchased every day, which results in about one billion transactions a year. The author has used 23.2 million transactions that are carried out by about 4 million households in 509 districts.

2.1.1 Research Gap
- Many studies have been done on the challenges faced by the bank employees for facilitating banking services to rural people. More research studies have to be conducted to measure the extent of financial inclusion on the actual usage of banking services by the rural people through information and communication technology.
- The researchers has not concerned about which technology of banking services was accessed frequently by the people especially the rural respondents.
- The Direct benefit transfer of government subsidies has not taken into consideration in the past research studies for an empirical investigation
to measure the level of financial inclusion.

III. RESEARCH METHODOLOGY

The study has adopted structured questionnaire for examining the perception of bank customers in the rural villages of Tirupur district towards adopting banking technology. There are totally 50 items in the study. The Construct “DBT on LPG Subsidy” has been taken as a mediating variable in the study. This research study is descriptive in nature and has adopted “Convenience Sampling” Techniques.

3.1. Sampling Framework

The primary data for the research study has been collected from 500 bank customers in the rural villages of Tirupur district. Demographic profiles of the respondents are displayed in Table 1. The questionnaire of the study has been distributed among the rural customers of the bank by randomly selecting the group of respondents. Statistical Package of Social Sciences (SPSS) has been utilized for data analysis. To find the questionnaire validity reliability test has been done and its value found to be 0.89. Normality assumption of the data is indispensable before using SEM and the lack of normality will adversely affect the goodness-of-fit indices and standard error (Hair et al 2010). To find the relationship between the study variables SEM (Structural Equation Modeling) has been utilized.

### Table 1: Demographic Profile of the Respondents

| Variable          | Description       | Frequency | Percentage |
|-------------------|-------------------|-----------|------------|
| Gender            | Male              | 245       | 49.0       |
|                   | Female            | 255       | 51.0       |
| Age (Years)       | 18-25             | 150       | 30.0       |
|                   | 26-35             | 151       | 30.0       |
|                   | 36-45             | 113       | 22.0       |
|                   | 46-55             | 59        | 11.0       |
|                   | Above 55          | 27        | 5.0        |
| Marital Status    | Married           | 459       | 91.8       |
|                   | Unmarried         | 41        | 8.2        |
| Occupation        | Farmer            | 141       | 28.2       |
|                   | Job               | 265       | 53.0       |
|                   | Own Business      | 75        | 15.0       |
|                   | Land Labors       | 19        | 3.8        |
| Education         | Below SSLC        | 111       | 22.2       |
|                   | SSLC              | 127       | 25.4       |
|                   | HSS               | 144       | 28.8       |
|                   | Graduate          | 118       | 23.6       |
| Income            | Rs.25k to Rs.50k  | 278       | 55.6       |
|                   | Rs.50K to 1Lakh   | 186       | 37.2       |
|                   | Above Rs.1Lakh    | 36        | 7.2        |
| Did you receive Subsidy benefit in your account? | Yes | 500 | 100.0 |
| Technology Used for making Money Transactions | Mobile Banking | 54 | 10.8 |
|                   | Internet Bank     | 55        | 11.0       |
|                   | ATM               | 391       | 78.2       |
| Type of Bank      | Private Sector Bank | 56 | 11.2 |
|                   | Public Sector Bank | 428 | 85.6 |
|                   | Regional Rural Bank | 16 | 3.2 |

IV. DATA ANALYSIS AND RESULTS

**Hypothesis:**
The relationship between the variables is displayed in Table 2.

**H1:** ICT Adoption Factors is positively associated with Attitude

**Sub Hypothesis:**

**H2:** The Perceived Usefulness dimension influences the ICT Adoption Factors of Banking Services

**H3:** The Perceived Ease of Use dimension influences the ICT Adoption Factors of Banking Services

**H4:** The Perceived Financial Cost dimension influences the ICT Adoption Factors of Banking Services

**H5:** The Perceived Credibility dimension influences the ICT Adoption Factors of Banking Services

**H6:** Attitude is positively associated with Behavioral Intention
H3: Behavioral Intention is positively associated with DBT on LPG Subsidy
H4: DBT on LPG Subsidy is positively associated with Actual Usage

Table 2: Variables in the SEM (Structural Equation Model)

| Variables                      | Unstandardized Coefficient | Standardized Coefficient | S.E. | t Value | P Value | Result of Hypothesis |
|--------------------------------|-----------------------------|--------------------------|------|---------|---------|----------------------|
| Attitude                       |                             | ICT Adoption Factors     | 2.205| .255    | .061    | 4.17                | 0.000 | H1 is Supported      |
| DBT on LPG Subsidy             |                             | Attitude                 | 0.514| .352    | .035    | 10.1               | 0.000 | H3 is Supported      |
| Behavioral Intention           |                             | Attitude                 | 0.221| .389    | .042    | 9.24               | 0.000 | H2 is Supported      |
| Behavioral Intention           |                             | DBT on LPG Subsidy       | 0.872| .303    | .050    | 6.10               | 0.000 | H4 is Supported      |
| Perceived Financial Cost       |                             | ICT Adoption Factors     | 1.000| 1.000   | 0.000   |                    |       | Hc is Supported      |
| Perceived Credibility          |                             | ICT Adoption Factors     | 1.722| 1.007   | .060    | 16.9               | 0.000 | H4 is Supported      |
| Perceived Ease of Use          |                             | ICT Adoption Factors     | 1.350| .927    | .049    | 19.0               | 0.000 | Hb is Supported      |
| Perceived Usefulness           |                             | ICT Adoption Factors     | 1.834| 1.040   | .056    | 18.4               | 0.000 | Ha is Supported      |
| Actual Usage                   |                             | Behavioral Intention     | 1.612| .554    | .026    | 21.2               | 0.000 | H5 is Supported      |

The Table 2 explains the causal relationship among the ICT Adoption Factors on Attitude, Behavioral Intention and Actual Usage of Banking Technology with the Mediating Effect of DBT on LPG Subsidy. ICT Adoption factors have a positive influence on Attitude with an unstandardized coefficient value of 2.205. The estimated positive sign implies that such an effect is positive and the ICT Adoption Factors will increase by 2.205 times for every unit increase in attitude. Since p value is less than 0.05 the unstandardized coefficient...
value was found to be significant at 1 percentage level of significance.

- Attitude has a positive influence on Behavioral Intention with an unstandardized coefficient value of 0.221. The estimated positive sign implies that such an effect is positive and the ICT Adoption Factors will increase by 0.221 times for every unit increase in behavioral intention. Since p value is less than 0.05 the unstandardized coefficient value was found to be significant at 1 percentage level of significance.

- The Attitude has a positive influence on DBT in LPG Subsidy with an unstandardized coefficient value of 0.514. The estimated positive sign implies that such an effect is positive and the ICT Adoption Factors will increase by 0.514 times for every unit increase in DBT in LPG. Since p value is less than 0.05 the unstandardized coefficient value was found to be significant at 1 percentage level of significance.

- The DBT in LPG Subsidy has a positive influence on Behavioral Intention with the unstandardized coefficient value of 0.872. The estimated positive sign implies that such an effect is positive and the DBT in LPG Subsidy will increase by 0.872 times for every unit increase in Behavioral Intention.

Table 3: Model Fit Summary for Structural Equation Model:

| Goodness of Fit Statistics                | Value | Values for Good Fit |
|-----------------------------------------|-------|---------------------|
| Chi Square Value (CMIN)                 | 94.860|                     |
| P Value                                 | 0.06  | >0.05 (Hair et al., 1998) |
| Chi Square / Df (CMIN/Df)               | 2.790 | <5.00 (Hair et al., 1998) |
| Goodness of Fit Index (GFI)             | 0.998 | >0.90 (Hu and Bentler, 1999) |
| Root Mean Square Error of Approximation (RMSE) | 0.079 | <0.08 (Hair et al., 2006) |
| Adjusted Good of Fit Index (AGFI)       | 0.960 | >0.90 (Hair et al., 1998) |
| Comparative Fit Index (CFI)             | 0.977 | >0.90 (Hu and Bentler, 1999) |
| Normed Fit Index (NFI)                  | 0.903 | >0.90 ((Hu and Bentler, 1999) |

From the above table 3 it is found that the calculated P value is 0.06 which is greater than 0.05 therefore null hypothesis (H₀) is rejected and model has a good fit. Here GFI (Goodness of Fit Index) value and AGFI (Adjusted Goodness of Fit Index) value is greater than 0.9 which represent it is a good fit. The calculated CFI (Comparative Fit Index) value is 0.977 which means that it is a perfectly fit and also it is found that RMR 0.021 (Root Mean Square Residuals) and RMSEA 0.079 (Root Mean Square Error of Approximation) value is which is less than 0.08 which indicated it is perfectly fit. Wheaton (1987) and Hair et al (2006) has stated that value of Chi Square that is lesser than 5 is acceptable. The value determined in table describes the validity of the suggested model. This makes sure that the data set absolutely fits into the suggested model.

Mediation Analysis: Mediation is referred to be remained when the direct path associating the independent and dependent variable decreases or increases, when the indirect path among the mediators is constructed in the model (Baron and Kenny (1986)). Figure [5] displays the direct path of Attitude and Behavioral Intention without inclusion of the mediator “DBT in LPG Subsidy”. The Table (5.5) displays standardized beta value 0.488 and after including the mediating variable “DBT in LPG Subsidy”, the beta value modified to 0.383. The increase in the Total value of Behavioral intention from 0.24 to 0.29 in association with Attitude by the Mediator called DBT in LPG Subsidy.
The suggested Model has been accurately examined and the direct relationships between the study variables are ratified. The relationship between Attitude and Behavioral Intention to use banking technology is validated. Sobel test has been done to measure the direct and indirect effect of the study variables at two tail significance. The direct path beta coefficient between Behavioral Intention and Attitude is 0.488 and it is significant as shown in table (6). The Indirect path coefficient between DBT in LPG Subsidy and Attitude is 0.382 and it is significant as shown in Table (7). Thus the study has examined the mediating effect DBT in LPG Subsidy of between behavioral intention and Attitude. The increase in the Total value of Behavioral intention from 0.24 to 0.29 in association with Attitude is significant shown in table (8) and considered by the Mediator called DBT in LPG Subsidy. This shows that DBT in LPG Subsidy mediates the relationship between Behavioral Intention and Attitude of rural people to use banking Technology (Baron and Kenny (1986)).

V. DISCUSSION AND CONCLUSION

Under this scheme 100% households were connected to formal financial system and LPG beneficiaries who were also connected to bank and then LPG subsidies were transferred directly to their savings bank accounts. This was resulted in cutting off layers in between government and beneficiary and therefore cutting off corruption in there. This caused huge financial help to the weaker section of the country and hence their development thereafter. This is huge step towards economic development of country and will lead to reduce the financial gap between rich and poor in the country. LPG subsidies are big deal for those who live under poverty level as well as under lower middle class level. After looking at the scope of this scheme, huge efforts were put in by banks, government, ministry of finance to achieve the targets in just a year and also it is going to raise up the banking business of country as the banks will get commission for transferring subsidies each time to the beneficiaries and banks are also advised by government through RBI to raise their capacity of operations as all of a sudden banks need to deal with crores of additional transactions regarding subsidy schemes of government. Even after such efforts only 25% of the rural people utilize banking technology.

as far as this study is concerned. It is needed that the banking sectors must address the challenges and issues of people with low financial literacy by conducting campaigns. Banks instead of facilitating liquidity services, they could focus on developing innovative products that satisfies the need of the rural customers. Banks should visualize financial inclusion as a scope rather than social initiative or regulatory compulsion.

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