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Understanding and predicting antecedents of mobile shopping adoption: a developing country perspective

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1. Introduction:

The growing penetration of smartphones and improved internet connectivity has opened new vistas for the mobile shopping industry worldwide. The consumer's inclination is shifting towards mobile shopping services due to the added advantages offered by mobile devices over wired devices such as mobility, personalization, flexibility and convenience (Shin and Shim, 2002; Wu et al.,2004; Gilbert and Han, 2005, Wong et al., 2012, Wong et al., 2015). These added advantages of mobile devices for online shopping has enabled consumers to browse, search and compare prices on various online sites simultaneously while they are on the move (Yang and Kim, 2012). Mobile phones are no longer considered as a mere tool to connect. Its functionality has gone far beyond the initial one to one communication to a host of other applications (Wong et al., 2012; Musa et al., 2016). This transition in the mobile phone usage behavior has given businesses and marketers, looking for ways to expand their market reach, an opportunity to connect with the earlier untapped market. As a result, organizations are now making significant investments in writing mobile applications and in developing innovative payment gateways to provide a seamless mobile shopping experience to the consumers.

In recent times mobile shopping has gained popularity and has deeply penetrated into the lives of modern consumers. Mobile devices are being increasingly used for ordering, searching, comparing and making payments for various goods and services online (Hung et al., 2012). Mobile shopping may be defined as "any monetary transactions related to purchase of goods or services through internet-enabled mobile phones or over the wireless telecommunication network" (Wong et al., 2012, p.25). It might be considered as a subset of the broad mobile commerce spectrum. Mobile commerce may be defined as "any transaction with a monetary value- either direct or indirect- that is conducted over a wireless telecommunication network" (Barnes, 2002, p.92).

With the evolution and spread of mobile infrastructure along with the decreasing prices of smartphones and mobile Internet data packs, mobile shopping as a phenomenon is gaining popularity amongst the consumers' worldwide (Euro monitor Research, 2013). To take advantage of this growing popularity of mobile shopping as well as of online shopping amongst the consumers, retailers are making huge investments in this industry. Marketers worldwide are encouraging consumers to shop through mobile devices. A large number of mobile applications have been offered for the shoppers to provide a safer shopping experience. Despite the strong potential and efforts, the consumers' response is still lukewarm towards the use of mobile devices for online shopping purpose (Lu and Su, 2009; Wong et al., 2012).

The reluctance in the consumers' intention to shop online via mobile devices shows that there exist certain factors hindering its adoption. Therefore, identification and analysis of such factors shall be quite helpful for organizations in framing appropriate strategic framework leading to the higher adoption of mobile shopping. Most of the research studies conducted in this area so far focused on the technical perspective of mobile shopping ecosystem. Very limited number of studies has examined the behavioral dimensions in adoption and actual

usage of mobile shopping. The present study fills this gap and proposes a comprehensive model to identify key predictors of mobile shopping adoption intention and actual usage. Also, it analyzes the differences regarding demographic variables like age and gender as moderating variables in the proposed model.

The study is divided into four parts. In the first part, a thorough literature review was undertaken to identify the factors having an influence on consumers' mobile shopping adoption behavior; the second part proposes a framework for the study. In the third part, a detailed empirical analysis is done to validate the framework. The last and the fourth part discuss the conclusion, implications, and limitations of the study.

2. Literature Review:

2.1. Mobile shopping and Technology Adoption:

The numerous advantages offered by mobile technology such as mobility, ubiquity, convenience, flexibility, and personalization, enables it to provide new and advanced shopping services that can meet the needs which were previously unmet by the traditional retail channels including electronic medium. Mobile internet technology is capable of providing electronic shopping services in a different way. Mobile shopping, in general, can be described as an advanced service that enables customers to search or buy goods and services via mobile devices anywhere, anytime. (Hung et al., 2012; Lu and Su, 2009; Yang and Kim, 2012). It may be defined as "any monetary transactions related to purchases of goods or services through internet-enabled mobile phones or over the wireless telecommunication network"(Wong et al., 2012). However, this might be a myopic viewpoint towards mobile shopping. A more comprehensive description of mobile shopping would consider it to be a service that "empowers shoppers with the ability to gather information on the spot from multiple sources, check on product availability, special offers and alter their selection at any point along the path to purchase"(Lai et al., 2012). It provides personal assistance to customers in optimizing their shopping experience in a brick and mortar shop environment (Yang, 2010). Given the numerous advantages of mobile shopping, there exist certain challenges which the mobile shopping environment faces. These challenges may vary from problems of narrow bandwidth, network connectivity issues, limited display, power-back-up, memory size to the time constraints in which mobile transactions are undertaken. These new capabilities and challenges often affect users' mobile shopping experience. Several researchers in the domain of information technology have explored various dimensions or factors affecting a new system or technology adoption by way of proposing technology acceptance frameworks. Notable among them are Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975), Technology Acceptance Model (TAM) (Davis, 1989), Technology-Organization and Environment framework (TOE) (Tornatzky and Fleischer, 1990), Theory of planned behaviour (TPB) (Ajzen, 1991), Diffusion of Innovation (DOI) (Rogers, 1995) and Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003). Most of these theories have used the underlying principles from the field of psychology, marketing and IT to understand the adoption intention of various IT/IS at

individual and firm level. Table1 gives an overview of some notable studies in the area of technology adoption and usage intention.

<Table 1to be inserted here>

2.2. Age and Gender as Moderating Variables:

Previous literature has reflected the role of demographic characteristics of users such as age and gender in determining acceptance rate of a new technology or system (Morris and Venkatesh, 2000; Venkatesh et al., 2003; Morris et al., 2005; Beigne et al., 2007). Demographics are considered to be important while analyzing IT adoption, especially gender and age (Zmud, 1979). It is believed that younger generation is more receptive and is more exposed to the new Internet-related technology and systems. As a result younger individual has an increased experience of using the internet and technology-related medium for their daily tasks as compared to the older individuals (McMillan and Morrison, 2006). Older individuals tend to display higher degrees of computer anxiety, resulting in resistance to adopting new information technology (Celik, 2016).Lack of experience with the medium among the older users has often been discussed as a major hindrance while understanding and evaluating the advantages of the internet as a new shopping channel (Trocchia and Janda,2000). On the other hand, young individuals are more innovative and are ready to accept innovations quickly (Woods, 2013). Previous researchers have also observed the relevance of age in explaining online shopping behaviour (Zhang, 2009). Hence, Age is believed to be a relevant moderating factor affecting mobile shopping adoption intention including the dimensions of experience with the technology as well as personal innovativeness. However, most researchers have discussed the role of personal Innovativeness as an independent variable affecting new technology adoption intention (Pagani,2004; Aldás-Manzano et al., 2009; Kuo and Yen, 2009; Lee et al. 2012; Lu, 2014). Thus, for the purpose of this research Personal Innovativeness is taken to be an Independent variable rather than a moderating factor.

The difference in technology adoption behaviour may also relate to the gender roles prevailing in the society which assumes men to be more task-oriented (Lynott and McCanless, 2000). Previous researchers have discussed the difference between male and female usage of Information Technology (Gefen et al., 2003; Hew et al., 2015). It has been observed that men in comparison to women prefer more to use new IT products (Venkatesh and Morris, 2001).Thus, gender might be another relevant demographic factor moderating the relationship between independent factors and mobile shopping behavioral intention.

3. Theoretical framework and hypotheses development:

Marketing literature, over the years, has recognized the inconsistencies in the adoption pattern of various IT/IS across the world, which is hard to explain with a single, individual model (Madan and Yadav, 2016). Such a difference in adoption pattern is attributed mainly to

factors such as government policy, industry lead, market environment and the like (Gong and Li, 2008; Alshamaila et.al, 2013). In this backdrop, the present study uses basic framework of existing models and extends it by integrating Perceived Regulatory Support (PRS) and Promotional Benefits (PB) as two new variables to address the requirement and inherent characteristics of mobile shopping ecosystem. It also examines the moderating effect of age and gender on the proposed relationships. The independent variables considered here are Hedonic Motivation, Perceived Risk, Cost, Facilitating Conditions, Personal Innovativeness, Perceived Critical Mass, Perceived Regulatory Support, and Promotional Benefits.

3.1. Hedonic Motivation(HM)

The degree of enjoyment offered by shopping over mobile phones is an additional benefit which might motivate consumers to adopt it. This factor is considered to be an important determinant of PEOU in TAM 3 with the name of Perceived Enjoyment. It defined Perceived Enjoyment as the extent to which "*the activity of using a specific system is perceived to be enjoyable in its own right, aside from any performance consequences resulting from system use*" (Venkatesh, 2000). It was also considered as a major factor influencing BI in UTAUT 2. UTAUT 2 defined Hedonic Motivation "*as the fun or pleasure derived from using a technology*." Other then these models, many researchers have also given significance to this factor in determining adoption intention of technologies similar to mobile shopping. (Wen et al., 2011; Yang and Kim, 2012; Zhang et.al, 2012; Chong, 2013; Chen and Flore, 2017; El-Masri and Tarhini, 2017). Hence, it is proposed that:

H1: Higher the Hedonic Motivation, higher is the Behavioral Intention to shop over mobile devices.

3.2. Perceived Critical Mass (PCM)

It has been found by earlier researchers that once the number of participants in a particular system or network reaches a good number, the users' intention of adopting and using it also increases (Lin and Lu, 2007). Perceived Critical Mass may be defined as the degree to which an individual believes that a particular technology or a system would be used by mass of people (Hsu and Lin, 2016). Factors similar to this construct (such as Social Influence, Subjective Norms) have been considered by various earlier researchers to determine usage intention of similar technologies related to the internet, e-commerce, mobile commerce and the like (Hsu and Lu, 2004; Cheng et al., 2012, Chong et.al, 2012; "Chris" Yang et al., 2012; Gao and Bai, 2014; Hsu and Lin, 2016; El-Masri and Tarhini, 2017). In the mobile shopping context, the number of people in an individual's referent group using mobile devices for online shopping might have an influence on his intention to use it. Hence, this study proposes that:

H2: Higher the Perceived Critical Mass, higher is the Behavioral Intention to shop over mobile devices.

3.3. Perceived risk (PR)

The biggest challenge in inducing consumers to shop over mobile devices is to lower the degree of security/ privacy risk and increase the level of trust in the mobile shopping sites perceived by them while making a transaction using a mobile device over a mobile network. Important personal information is usually stored on users' mobile phones, and therefore security and privacy risks involved in mobile transactions can be quite high (Chong, 2013). Mobile shopping sometimes involves undertaking financial transaction over mobile devices, which is perceived to be risky by the users. Numerous researchers have considered this factor to have a significant influence on adoption intention of mobile based technologies (Kleijnen et.al, 2004; Islam et al., 2011; Zhang et.al., 2012; Chong et.al., 2012; Gong et al., 2013).

Another major challenge in mobile shopping success is to improve the level of trust amongst the consumers towards mobile shopping sites as well as towards the quality and efficiency of technology they utilize. It may refer to the extent to which consumers perceive that mobile shopping sites can be trusted on security and privacy policies followed by them, the technology utilized as well as the provision of an uninterrupted and easy mobile shopping experience to the users. A lower degree of trust amongst the consumers might influence their decision towards shopping over mobile devices. Trust was considered to be an important factor in determining adoption intention for similar technologies by other researchers as well (Wen et al., 2011; Chong et.al, 2012; Zhang et.al, 2012; Hung et al., 2012; Chong 2013; Gao and Bai, 2014; Pham and Ho, 2014, Kaur and Quereshi, 2015).

Due to a close association between perceived risk and users' trust, many earlier researchers have studied the relationship of these two factors as one variable with the overall behavioral intention (Turban et.al., 2000; Chong et.al., 2012; Akroush and Al-Debei, 2015; Al-Debei, 2015). For the purpose of this study as well, risk and trust are combined to form one variable i.e. Perceived Risk.

Hence, it is proposed that:

H3: Lower the degree of Perceived Risk, higher is the Behavioral Intention to shop over mobile devices.

3.4. Facilitating Conditions (FC)

Facilitating conditions include all the resources and physical environment required for effective adoption and usage of any product, service or technology. Lack of required resources and environmental conditions might have a negative influence on consumers' decision to adopt mobile shopping services. FC refers to the degree to which an individual believes that the required technical infrastructure exists to support the use of the technology (Venkatesh et.al, 2003). Technology adoption models such as TAM3, UTAUT and UTAUT 2 have also considered FC to be significant in determining adoption intention of similar technologies. It has also been considered by many earlier researchers to be a major factor influencing adoption of technologies such as the internet, mobile commerce, mobile banking, mobile applications and the like, in a significant way (Yang, 2010; Amoroso and Magnier-Watanabe, 2012; Chong, 2013; Hew et al., 2015; El-Masri and Tarhini, 2017). Hence, it is proposed that:

H4: Higher the availability of Facilitating Conditions, higher is the Behavioral Intention to shop over mobile devices.

3.5. Perceived Regulatory Support (PRS)

The formal organization of regulatory agencies such as legislatures, government agencies, and trade unions, plays a very significant role in creating and shaping up of the normative rules prevailing in the society, which, in turn, influence the behavior as well as decision making of individuals and organizations (Zhu, 2009). The presence of a formal regulatory framework plays an indispensable role in enhancing the consumers' confidence in any new technology or system. Due to the impersonal and anonymous nature of mobile shopping transactions, the consumers are bound to get suspicious and doubtful about the success of a transaction performed. The contracting parties may not necessarily know each other while negotiating an agreement. Hence, a clear and transparent regulatory framework is essential to safeguard the interest of parties involved in the case of any dispute arising at any stage during the process.

Perceived Regulatory support may be defined as the degree to which consumers believe in the prevailing regulatory framework's capability to safeguard their interests, in the case of any dispute arising at any stage, while performing a mobile wallet transaction (Madan and Yadav, 2016). Constructs similar to PRS are frequently considered in consumer behavior literature from the consumers' perspective (Haque et al., 2009; Alqahtani et al., 2012; AlGhamdi et al., 2013; Madan and Yadav, 2016). However, the study, as well as empirical testing of the relationship between PRS and mobile shopping adoption intention, has not been undertaken much till now. Hence, it is proposed that

H5: Higher the Perceived regulatory support higher is the Behavioral Intention to shop over mobile devices.

3.6. Promotional Benefits (PB)

The adoption of a new technology or system is also affected by perceived benefits it offers to the users. It is especially true in the case of consumer-based technology adoption such as mobile shopping as against most of the existing technology adoption studies which have been primarily conducted in an organizational context. PB may include various kinds of benefits such as app download cash reward, coupon codes, cash discounts, loyalty points and other freebies which are being offered by companies involved in providing mobile wallet services. These promotional benefits in the form of promotional codes or coupon codes enhance the overall shopping experience of the consumers and thus, work well with both new as well as returning customers (Bigcommerce.com, 2015). A recent report reveals that more than 50% of online consumers in the UK change their purchase decision on the basis of the offers and promotions made (Rapid Campaign Report, 2015; Brooks, 2015). US consumers also showed a similar inclination towards promotions and offers in a survey conducted in 2014 (Brooks,

2015).The promotional benefits offered by mobile shopping sites might prove to be an important motivator influencing consumers' decision to shop over mobile devices. It is an important purchase benefit perceived by customers that pursue them to purchase the products online (Arora et al., 2017). It is, therefore, proposed that:

H6: Higher the Promotional benefit, higher is the consumers' Behavioral Intention to shop over mobile devices.

3.7. Cost (C)

While shopping over a mobile device, consumers have to bear certain types of costs such as equipment cost, access cost, conversion cost and transaction cost. These costs associated with mobile shopping might come out to be over and above the cost of internet shopping (Kuo and Yen, 2009). Therefore, the cost of using mobile devices for shopping is relatively higher than that of internet shopping via wired devices. It is one factor that can have a down slowing effect on the development rate of mobile based shopping (Tsu Wei et al., 2009). Although the cost of transacting over mobile devices might be affordable to consumers, in general, the consumers' perception of its worth with respect to its cost will have an influence over their decision to avail mobile shopping services (Chong et al. 2012). Also, the cost or price of an innovation adoption had been identified as a significant factor that may constrain its adoption decision (Khalifa and Shen, 2008; Kuo and Yen, 2009; Revels et al., 2010; "Chris" Yang et al., 2012; Wong et al., 2015)

H7: Lower the Cost, higher is the consumers' Behavioral Intention to shop over mobile devices

3.8. Personal Innovativeness (PI)

Personal innovativeness may be defined as the degree to which an individual is interested in trying out a new thing, a new concept or an innovative product or service (Rogers, 1995). Since mobile shopping is a relatively new concept, its adoption might be influenced by the degree of interest consumers have in trying new concept or technology. Consumers who have a greater inclination towards innovative ideas have a greater chance to seek new ideas actively and perceives lesser danger (Joseph and Vyas,1984; Lee et al. 2012). Higher personal innovativeness exhibits the willingness of individuals to experiment with new technology. Understanding Consumer innovativeness and its relevance in influencing new product adoption behavior is important to minimize the risk of failure associated with new product or technology (Chao et al., 2013). Previous studies also report that personal innovativeness has a positive influence on adoption of mobile related technologies (Pagani,2004; Aldás-Manzano et al., 2009; Kuo and Yen, 2009; Lee et al. 2012; Lu, 2014; Chen and Flore,2017).

H8: Higher the Perceived Innovativeness, higher is the consumers' Behavioral Intention to shop over mobile devices.

3.9. Behavioral Intention (BI)

A behavioral intention refers to the measure or degree of the intensity of an individual's intention of performing a specific behavior (Fishbein and Ajzen, 1975). Various factors such as Hedonic Motivation, Perceived Risk, Cost, Facilitating conditions and the like have been considered to influence Behavioral intentions towards technology adoption which further determines the actual adoption or use of that technology (Yang et.al., 2012; Chong et.al, 2012; Zhang et.al, 2012; Chong 2013; Hanafizadeh et. al, 2014).Hence, BI is taken as a dependent variable which further determines mobile shopping actual adoption.

H9: Higher the Behavioral Intention to shop over mobile devices, higher is the consumers'Actual Adoption of mobile shopping.

3.10. Moderating Variables:

The literature has abundant evidence to prove association of consumers' demographics such as age and gender with their online shopping behavior (Zhou et al., 2007; Liebermann and Stashevsky, 2009; Gong et al., 2013). UTAUT 2 has also considered that age, gender, and experience moderates the effect of independent factors such as FC, HM, Price value, etc. on the Behavioral Intention to adopt new technology in the consumer context (Venkatesh et al., 2012). Hence, an attempt has been made to study the role played by consumer demographics such as age and gender in the mobile shopping context as well. Age and gender are proposed to moderate the effect of identified independent variables on the Behavioral Intention to shop over mobile devices and the effect of BI on its Actual Use.

H10a*:* Age moderates the effect of HM, PCM, PR, FC, PRS, PB, C & PI on the Behavioral Intention to shop over mobile devices.

H10b: Age moderates the effect of BI on the Actual use of mobile shopping.

H11a*:* Gender moderates the effect of HM, PCM, PR, FC, PRS, PB, C & PI on the Behavioral Intention to shop over mobile devices.

H11b: Gender moderates the effect of BI on the Actual use of mobile shopping.

3.11. Research Framework:

Figure 1. proposes the relationship of the identified six independent variables and the two new variables i.e. PRS and PB with the dependent variable mobile shopping Behavioral Intention, which further determines the Actual use of mobile shopping by the consumers. The eight independent variables proposed are Hedonic Motivation (HM), Facilitating Conditions (FC), Perceived Risk (PR), Perceived Critical Mass (PCM), Perceived Regulatory Support (PRS), Promotional Benefits (PB), Cost (C), and Personal Innovativeness (PI). Further, it is also proposed that age and gender of the respondents will have a moderating effect on the

relationships projected in Figure1. In the process of literature review, no major inter-relationships were found between the eight independent variables considered (Khalifa and Shen, 2008; Venkatesh et al., 2012; Ingham et al., 2015; Wong et al., 2015; Hew et al., 2015). Hence, Figure 1 does not propose any inter-relationship amongst the independent variables. The validation of the proposed relationships between the independent and dependent variables is taken care of in the following section.

<Figure 1 to be inserted here>

4. Research Methodology:

4.1. Participants:

The study was conducted on a sample comprising of students as well as working professionals of Delhi NCR (National Capital Region), who have entered into a mobile shopping transaction at least once during the last six months. The Delhi NCR population was considered to be appropriate for capturing varied consumer behaviour, since, it comprises of the individuals coming from all Indian cities and thus can be considered cosmopolitan in nature (Yadav et al., 2016; Madan and Yadav, 2016; Tiruwa et al., 2016). Students and working professionals were chosen to form the sample for this study because this bracket of the population comprises of individuals who actively undertake mobile shopping transactions in India.

4.2. Constructs Measurements:

The proposed research framework included eight independent and two dependent variables measured on a multi-item scale. Three or four statements were used to measure each variable. Each statement was further rated on a five-point Likert scale ranging from 1 (highly disagree) to 5 (highly agree). The statements included in the scale were identified based on the review of relevant literature.

4.3. Research Instrument:

An online survey questionnaire was created to collect information from respondents for this study. The questionnaire comprised of two parts, the first part, collected information about the demographic profile of the respondents. The information on the identified items was collected in the second part of the questionnaire. To refine the survey instrument, a pilot study was conducted. Responses for the pilot study were collected from over 30 respondents comprising of few IT professionals, faculty members, and fellow researchers having an interest in this domain along with the others. On the basis of the results of the pilot study, few items were dropped, and few were changed to enhance the appropriateness and comprehensiveness of the questionnaire for the study. The final questionnaire included 33 items to measure eight independent variables as well as two dependent variables.

4.4. Sampling:

A proper sampling frame is generally not available in the study of research problems similar to the one dealt in this research; therefore, non-probabilistic sampling technique was employed for the purpose of this study. Such an act is in line with other studies conducted to understand the IT/IS adoption during recent past (Pham and Ho, 2014, Amoroso and Watanabe, 2012, Chong, 2012). A total 304 usable responses contribute the sample of the study.

5. Data Analysis and Results:

The data collected was empirically tested with the help of Structural Equation Modelling (SEM) Technique via SPSS AMOS. The reliability and the validity of the data were ensured, and after that Confirmatory Factor Analysis was conducted to test the measurement model. The model's overall goodness of fit was assessed against common model fit measures, and *p*-values were observed from the structural model. Finally, moderating effect of Age and Gender was analyzed through Multi-group analysis technique under SEM.

5.1. Demographic Profile

Table 2 below presents the demographic profile of the respondents. It is observed from the table that male respondents constituted around 60 percent of the sample. Almost, 77 percent (appx.) of the respondents were below the age of 30 years, and only 23 percent (appx.) respondents were of the age 30 years and above. Collectively, the average family monthly income of 76 per cent respondents was over and above INR 75,000.

<Table 2 to be inserted here>

5.2. Validity and Reliability of constructs

The Table 3 below shows the results of reliability and validity test of the measurement model. The study tested two types of validities namely: Convergent Validity & Discriminant Validity along with the Reliability of the constructs.

<Table 3 to be inserted here>

It can be observed from Table 3 that alpha values are ranging from 0.779 to 0.910, which are greater than the widely accepted range of 0.7, therefore demonstrating Reliability of data. Average Variance Extracted (AVE) is also more than 0.5 (ranging from 0.545 to 0.762) which further ensures Convergent Validity (Hair et al., 2006). The Discriminant Validity was confirmed with the help of AVE, MSV & ASV values. It can be observed that ASV values are coming out to be greater than MSV & ASV for each factor, thereby ensuring Discriminant Validity (Hair et al., 2006).

5.3. Measurement Model

Confirmatory Factor Analysis was conducted in AMOS to test the measurement model. Five common model fit measures were used to assess the model's overall goodness of fit. The five model fit measures were: the ratio of X^2 to degrees-of-freedom (d.f.), comparative fit index (CFI), goodness-of-fit index (GFI), normalized fit index (NFI) and root mean square error of approximation (RMSEA).

The Table 4 below demonstrated the model fit measures. The value of the goodness-of-fit index (GFI) more than or equal to 0.9 shows a good enough fit. (Baumgartner and Hombur, 1996) Comparative fit index (CFI) and normalized fit index (NFI) values greater than 0.9 are widely accepted to demonstrate a good model fit. (Hu and Bentler, 1999) Since the values of CFI, GFI and NFI are coming out to be almost 0.9 or more than 0.9, it can be said that the measurement model observed a good fit with the data collected. Root mean square error of approximation (RMSEA), another measure used to assess goodness of fit of the proposed model is less than 0.1which further confirms the fitness of the model (Hu and Bentler, 1999) C-min/df value is less than five which again demonstrate a better model fit. (Ullman, 2001; Schumacker and Lomax, 2004)

<Table 4 to be inserted here>

5.4. Structural Model

After confirming reliability & validity of the measurement model and assessing the model fit measures, a Structural Model was constructed in AMOS (see Fig 2.) and following output was generated:

<Figure 2 to be inserted here>

The *p*-values for each construct are shown in Table 5; it can be observed that *p*-values are coming out to be less than 0.05 for all the factors other than Perceived Regulatory Support (PRS), further supporting our hypothesis ***H1, H2, H3, H4, H6, H7, H8*** and rejecting hypothesis ***H5.*** It can also be observed that BI significantly influences the Actual Adoption of mobile shopping by consumers, thereby supporting hypothesis ***H9***.

<Table 5 to be inserted here>

Moreover, according to the β values, HM (β= 0.33) and PB (β= 0.33) are appearing to be the strongest predictors of mobile shopping Behavioral Intention in this study, followed by PI (β=0.27), PR (β=-0.25), C (β=-0.21), PCM (β=0.19) and FC (β=0.17).

5.5. *Moderating Effect of Age and Gender*:

Since the respondents considered for this study belonged to different age group, and gender, the study of the moderating effect of such demographics on the proposed relationships was considered to be important. For the purpose of investigating the group differences in the results due to the moderating effect of gender and age on, Multi-group analysis technique

under SEM was used. The data was divided into sub-groups according to the difference in age and gender. The results confirmed group differences in the results for each subgroup.

5.5.1. Age:

The respondents were divided into two sub-groups by the age group to which they belong. The first group comprised of the data collected from respondents who were less than the age of 30 years. The second group included responses from respondents belonging to the age group of 30 years and above. Table 6 shows the *p*-values obtained for the proposed relationships across two age-groups.

<Table 6 to be inserted here>

From Table 6, it can be observed that Perceived Regulatory Support was found to be an insignificant factor across all the age groups. Hence, PRS was trimmed off from the model before going for further analysis. After analysis of chi-square differences, the model was found to be different across age groups. Further, the path by path analysis was done to understand the moderating effect of age on each path. Table 7 shows the chi-square threshold for conducting path analysis and Table 8 shows the results of path analysis.

<Table 7 to be inserted here>

<Table 8 to be inserted here>

From the Table 8, it can be observed that Age moderated the relationship of independent variables namely Perceived Critical Mass and Personal Innovativeness with the dependent variable i.e. Behaviour Intention with a confidence interval of 90%. Further, the relationship between Facilitating Conditions and Behaviour Intention is found to be moderated by Age with a confidence interval of 95%.

5.5.2. Gender:

The respondents were divided into groups on the basis of Gender. Table 9 shows the *p*-values obtained for the proposed relationships across Gender groups.

<Table 9 to be inserted here>

From Table 9, it can be observed that Perceived Regulatory Support was found to be an insignificant factor for both Genders. Hence, PRS was trimmed off from the model before going for further analysis.

After analyzing the chi-square differences, the groups were not found to be different at the model level, but there were differences at the path level. Table 10 shows the chi-square threshold for conducting path analysis and Table 11 shows the results of path analysis.

<Table 10 to be inserted here>

<Table 11 to be inserted here>

From the Table 8, it can be observed that Gender moderated the relationship of independent variable i.e. Hedonic Motivation with the dependent variable i.e. Behaviour Intention with a confidence interval of 95%. Further, the relationship between Behaviour Intention and Actual Use is also found to be moderated by Gender with a confidence interval of 95%.

6. Discussion and Conclusion:

The results indicate a significant relationship between independent factors HM, PCM, PR, FC, PB, C, PI with the dependent variable BI to adopt mobile shopping. The Independent variable PRS was observed to be statistically insignificant in determining BI. Further, BI to adopt mobile shopping was found to be a strong predictor of its actual use by consumers.

Hedonic aspects of mobile shopping measured by the variable Hedonic Motivation was found to be a significant and the most critical predictor for the consumers' Behavioral Intention to adopt it. It was found to be a significant factor across all the age groups and for both the gender. However, Gender moderated its relationship with Behavioral Intention. This outcome is consistent with the findings of the earlier researches which have shown a positive and direct relationship of HM with BI to adopt new technology (Venkatesh et al., 2003; Wen et al., 2011; Venkatesh et al., 2012; Yang and Kim, 2012; Zhang et.al, 2012; Chong, 2013). The results indicate that the degree of enjoyment perceived by the consumers while shopping over a mobile device has a strong motivational effect on the consumers' behavior.

Perceived Critical Mass, i.e. the number of participants or the mass of people amongst an individual's referent group, that he expects, will be using mobile shopping services also has a significant role in determining his BI to adopt mobile shopping. Earlier researchers have also established this relationship between PCM and new technology/ system adoption (Hsu and Lu, 2004; Lin and Lu, 2007). However, the relationship between PCM and BI was found to be moderated by Age. The reason for such outcome might be the fact that after a certain age an individual's decisions are not much affected by the decisions and behavior of his referent group.

The degree of security/ privacy risk and the level of trust in the mobile shopping sites perceived by the consumers also affects consumers' BI to adopt a new technology/ system (Islam et al., 2011; Wen et al., 2011; Zhang et.al., 2012; Chong et.al., 2012; Gong et al., 2013). Thus, the result of this study indicating a significant relationship between PR and BI to adopt mobile shopping is in line with the earlier studies conducted in the area of new technology adoption. Mobile shopping involves undertaking financial transaction as well as the exchange of important personal information over mobile devices, which is perceived to be risky by the users. Hence, it is important to reduce the risk perceived by consumers while shopping over mobile devices to increase its adoption rate.

Facilitating conditions i.e. the resources and infrastructure required for easy adoption of mobile shopping such as an internet enabled smart phone, an uninterrupted internet connection, necessary knowledge, etc. was also found to be a critical factor in determining BI for mobile shopping. This result is consistent with the results of earlier studies conducted in the area of new technology adoption (Yang, 2010; Amoroso and Magnier-Watanabe, 2012; Chong, 2013; Hew et al., 2015). While studying the moderating effect of demographics on the relationship of FC with the dependent variable BI it was found that the relationship was moderated by Age factor. Individuals who belong to older age group may require a greater degree of assistance and facilitation for utilizing mobile shopping services.

Promotional Benefits (PB) was found to be another significant factor determining BI to adopt mobile shopping. Mobile shopping sites offer a range of promotional benefits to the consumers in the form of discount coupon codes, loyalty points, cash rewards and the like, which positively influences the consumers' behavior intention towards mobile shopping.

Shopping over mobile devices requires consumers to bear some costs such as equipment cost, access cost, conversion cost and transaction cost. The consumers' perception of its worth with respect to its cost will have an influence over their decision to avail mobile shopping services (Chong et al. 2012). The results of the present study also indicate a similar relationship between the cost and BI to adopt mobile shopping. Consistent with the earlier studies (Khalifa and Shen, 2008; Kuo and Yen, 2009; Revels et al., 2010; Wong et al., 2015), the results show that lower the degree of cost consumers perceive to incur while shopping over mobile devices, higher is the Behavioral Intention to adopt it.

The analysis observed that another significant predictor to the BI to adopt mobile shopping was Personal Innovativeness (PI). This observation was in line with the previous researches (Pagani,2004; Aldás-Manzano et al., 2009; Kuo and Yen, 2009; Lu, 2014). Mobile shopping is a relatively new concept, and therefore an individual's inclination towards a new and innovative concept or technology will have a strong impact on the consumers' adoption behavior. However, the relationship between PI and BI was found to be moderated by Age factor.

Lastly, Perceived Regulatory Support (PRS) which was found to be significant in determining Behavioral Intention to adopt mobile wallet services (Madan and Yadav, 2016), was found to be an insignificant factor in the results of the present study conducted in the context of mobile shopping across all age groups and Gender. Mobile shopping includes a wide range of activities such as browsing, comparing and purchasing a variety of goods and services over mobile devices. It does not always involve a financial transaction to be undertaken over a mobile device. This might be one of the reasons, that the consumers do not give much weight to this factor.

7. Limitations and Future Scope:

The data was collected using an online survey form which was circulated through e-mails. Out of the many emails sent, only 304 responses were found to be appropriate and formed the sample for the analysis. Due to the absence of a proper sampling frame, judgment, convenience, and snowball sampling techniques were used to collect the data. Only Eight independent factors were considered in this study which might influence the Behavioral Intention to adopt mobile shopping. However, there might be many other factors relating to new technology adoption, which should be included in future research to conduct a more comprehensive study.

The present study provides a consumers' perspective on important factors affecting mobile shopping adoption behaviour. Hence, the results observed are of advantage to various participants in mobile shopping ecosystem including service providers, mobile application developers, marketers and regulatory authorities. Mobile shopping applications and services can be developed keeping in mind the significant role played by the discussed factors in its adoption by consumers. The constructs and the framework proposed in this study will provide a base to future researchers, academicians, and service providers for conducting advanced empirical studies in the mobile shopping adoption domain. Further, additional variables can be included in future studies to analyze mobile shopping adoption behaviour of consumers in a more significant manner.

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Table 1: Important research studies in the area of technology adoption and usage intention

Author(s)/ Year	*Variables Used*	*Key findings*
1. Fishbein and Ajzen (1975)	**Independent Variable:** Attitude towards behavior and Subjective Norms. **Dependent Variable:** Behavioral Intention (BI)	Attitude, as well as Subjective Norms, were found to be significant factors in determining Behavioral Intention.
2. Davis (1989)	**Independent Factors:** Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) **Dependent Variable:** User Acceptance	Both PU & PEOU are significant factors in determining User Acceptance. PU has a stronger impact than PEOU. PEOU acts as a causal antecedent to PU.
3. Venkatesh and Davis (2000)	**Independent Variables:** Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Social Influence (SI), Cognitive Instrumental Processes (CIP) **Dependent Variable:** Usage Intention	SI & CIP were found to be significantly affecting usage intention along with PU & PEOU. TAM 2 explained almost 60% of variance in usage intention
4. Venkatesh and Bala (2008)	**Independent Variables:** Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Social Influence (SI), Cognitive Instrumental Processes (CIP), Facilitating Conditions, Individual Differences, System Characteristics **Dependent variable:** Behavioral Intention (BI) and Use Behavior	All the determinants of PEOU were found to be significant. Overall TAM3 was able to explain up to 53% variance in Behavioral Intention (BI)
5. Ajzen (1991)	**Independent Variables:** Attitude, Subjective Norms, and Perceived Behavioral Control **Dependent Variable:** Behavioral Intention (BI) and Actual Performance.	Perceived Behavioral Control has a direct impact on both BI as well as the actual performance of Behavior.
6. Venkatesh et.al. (2003)	**Independent Variables:** Performance Expectancy, Social Influence, Facilitating Conditions and Effort Expectancy	Performance Expectancy, Social Influence, and Effort Expectancy were significant in predicting BI. Facilitating Condition was insignificant in predicting BI but

	Dependent Variable: Behavioral Intention (BI) and Actual Usage	was significant in predicting actual usage along with BI. UTAUT was able to account for 70% variance in usage intention.
7. Venkatesh et.al. (2012)	**Independent Variables:** Facilitating Conditions (FC), Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Price Value (PV) Hedonic Motivation (HM) and Habit (H) **Dependent Variable:** Behavioral Intention (BI) and Actual Usage	FC, PE, EE, SI, PV, HM and H all were significant in predicting BI. Habit had a direct influence on usage along with BI. UTAUT 2 was able to explain 74% variance in intention.
8. Wu and Wang (2005)	**Independent Variables:** Perceived Usefulness, Perceived Ease of Use, Cost, Perceived Risk and Compatibility **Dependent Variable:** Behavior Intention to use mobile commerce and Actual use	Perceived Usefulness, Cost, Perceived Risk and Compatibility were found to be significant in determining Behavior Intention to use mobile commerce, which was further significant in determining its Actual use. Perceived Ease of Use was found to be insignificant.
9. Khalifa and Shen (2008)	**Independent Variables:** Perceived Usefulness, Ease of Use, Self-Efficacy, Subjective Norms **Dependent Variable:** Intention to Adopt	Perceived Usefulness, Self-Efficacy, Subjective Norms significant influence on Intention to Adopt were found to be significant factors. Ease of Use has an insignificant influence but a significant indirect influence as it significantly influences Perceived Usefulness.
10. Lu and Su (2009)	**Independent Variables:** Enjoyment, Ease of Access, Usefulness, Compatibility, Mobile Skilfulness, Anxiety **Dependent Variable:** Mobile Shopping Intention	Ease of Access was insignificant in determining Mobile Shopping Intention; Anxiety had a negative relationship with Mobile Shopping Intention. Mobile Skilfulness had a negative influence on Anxiety.
11. Aldás-	**Independent Variables:**	Affinity, Compatibility,

Manzano, Ruiz-Mafé and Sanz-Blas (2009)	Ease of Use, Usefulness, Attitude, Innovativeness, Affinity, Compatibility **Dependent Variables:** M-shopping Intention, M-shopping Patronage	Innovativeness has a positive and direct influence on m-shopping intention. PU was found to be significant in determining Attitude but insignificant in determining m-shopping intention directly. Ease of use is also critical to m-shopping intention.
12. Riquelme and Rios (2010)	**Independent Variables:** Risk, Subjective Norms, Perceived Usefulness, Perceived Ease of Use and Relative Advantage **Dependent Variable:** Mobile Banking Adoption	Overall model accounted for 68.6% variance in adoption. All factors were found to be significant in determining mobile banking adoption.
13. Sreenivasan and Noor (2010)	**Independent Variables:** Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Trust, Privacy, Location and Purchasing Power **Dependent Variable:** Mobile commerce acceptance & Usage Intention	Utilitarian and hedonic performance expectancy, social and facilitating conditions were critical determinants of US consumers' intentions to use mobile shopping services.
14. Yang (2010)	**Independent Variables:** Utilitarian Performance Expectancy, Hedonic Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Attitude **Dependent Variable:** Behavioral Intention	Effort expectancy was found to be a driving factor affecting utilitarian and hedonic performance Expectancy. Hedonic or entertainment aspect of mobile shopping services was the most critical driver of US consumers' intentions to use mobile shopping services
15. Islam et.al. (2011)	**Independent Variables:** Awareness and knowledge, convenience, pricing and cost, security and privacy, rich and fast information, and perceived usefulness. **Moderating Variable:** Self-efficacy **Dependent Variable:** mobile commerce adoption	Pricing and cost, rich and fast information, and security and privacy were significant predictors of the adoption of mobile commerce. Self-efficacy was found to be a moderating factor.

16. Wen, Prybutok and Xu (2011)	**Independent Variables:** Perceived Ease of Use, Perceived Usefulness, Trust, Enjoyment, Satisfaction, Confirmation. **Dependent Variable:** Online Repurchase Intention	Other than Trust all other factors had a significant relationship with online repurchase intention.
17. Yang (2012)	**Independent Variables:** Perceived Ease of Use, Perceived Usefulness, Subjective Norms, Perceived Behavior Control **Moderating Variables:** Self-Efficacy, Innovation, Level of Experience use **Dependent Variable:** Intention to use	Perceived enjoyment was the strongest determinant of attitude toward mobile shopping adoption. Consumers differ in levels of technology traits in mobile shopping adoption behavior.
18. Wong et al. (2012)	**Independent Variables:** Perceived Usefulness, Perceived Ease of Use, Subjective Norms, Personal Innovativeness, and Perceived Risk **Dependent Variable:** Intention to adopt m-shopping	Perceived Usefulness, Perceived Ease of Use, and Subjective Norms were found to be significant. Whereas, Personal Innovativeness and Perceived Risk were found to be insignificant.
19. Zhu, Zhao, and Lv (2012)	**Independent Variables:** General perceptions: Perceived usefulness, perceived ease of use Sacrifice perceptions: Perceived price, perceived security Psychographics: Perceived enjoyment, need for uniqueness Applicability Network: context compatibility, use experience Social influence: Social influence Demographics: Gender, age, income **Dependent Variables:** Adoption Intention of 3G value added services	The impact of Perceived Usefulness, Perceived Price, Context Compatibility, Perceived Enjoyment on behavior Intention was different between men and women. The effect of Perceived Enjoyment on Perceived Usefulness was Significant for men but not for women.
20. Zhang et.al. (2012)	**Independent Variables:** Perceived Usefulness, Perceived	All the factors were significant in determining BI other then

	Ease of Use, Perceived Enjoyment, Innovativeness, Compatibility, Perceived Behavioral Control, Subjective Norms, Perceived Cost, Perceived Risk and Attitude **Dependent Variable:** Behavioral Intention (BI)	Innovativeness. Culture has a moderating effect on m-commerce adoption.
21. Chong et.al. (2012)	**Independent Variables:** Trust, Cost, Variety of Services, Social Influence, Perceived Usefulness, Perceived Ease of Use and Trialability **Dependent Variable:** Mobile Commerce Adoption Intention	Trust, Cost, Variety of Services and Social Influence were important factors in predicting mobile commerce adoption intention in the Malaysian market. Whereas, Trust, cost, and Social influence were important to the Chinese consumers in mobile commerce adoption.
22. Akturan and Tezcan (2012)	**Independent Variable:** Perceived Usefulness, Perceived Ease of Use, Perceived Benefits and Perceived Risk, Attitude towards use of mobile banking **Dependent Variable:** Behavior Intention to use and Actual System Use	Perceived Usefulness, Perceived Risk, and perceived Benefits directly affect attitudes towards mobile banking, and attitude was the major determinant of mobile banking adoption intention.
23. Amoroso and Watanabe (2012)	**Independent Variable:** Perceived Usefulness, Perceived Ease of Use, Facilitating Conditions, Social Influence, Attitude, Perceived Security, Trust, Perceived Value, Perceived Risk and Attractiveness of Alternatives **Dependent Variables:** Behavioral Intention to use mobile wallet	All the considered factors had a considerable role in successful adoption in the case of Mobile Suica.
24. Chong (2013)	**Independent Variables:** Trust, Performance Expectancy, Effort Expectancy, Perceived Enjoyment, Social Influence, Perceived Value, Personal Innovativeness and Facilitating Conditions	*Multiple Regression Analysis:* PV was most significant followed by PE, SI, EE, Perceived Enjoyment, and Personal Innovativeness. Trust and FC were insignificant. *NN analysis:* Perceived Value is the most significant factor

	Dependent Variable: Mobile commerce adoption	influencing m-commerce adoption, followed by PE, SI, Trust, EE, Perceived Enjoyment, Personal innovativeness and FC.
25. Chong (2013)	**Independent Variables:** Perceived usefulness, perceived ease of use, Perceived Enjoyment, Trust, Variety of Services, cost and Network Influence. **Dependent Variable:** Mobile Commerce Adoption Intention	*SEM Analysis:* All factors other than Perceived Ease of Use were significant predictors. *NN Analysis:* Cost, as well as Perceived Ease of Use, was not found to be important in predicting m-commerce adoption intention.
26. Dash et.al. (2014)	**Independent Variables:** Relative Advantage, Trialability, Attitude, Mimetic force, Observability and Compatibility **Dependent Variable:** Attitude towards mobile banking Adoption	Compatibility, Trialability, and Mimetic force were the important predictors for attitude towards adoption of mobile banking
27. Hanafizadeh et. al. (2014)	**Independent Variables:** perceived usefulness, perceived ease of use, need for interaction, perceived risk, perceived cost, compatibility with lifestyle, perceived credibility, and trust **Dependent Variable:** Intention to use mobile banking.	Adaptation with lifestyle and trust were found to be the most significant factors.
28. Akroush and Al-Debei (2015)	**Independent Variables:** Perceived Benefits, electronic word of mouth (e-WOM), Perceived web quality, Trust **Dependent Variable** Online shopping attitude	Trust and perceived benefits were key predictors of consumer attitudes toward online shopping. 28% of the variation in online shopping attitudes was caused by perceived benefits and trust
29. June Lu (2014)	**Independent Variables:** Social influence, Personal innovation in IT, Perceived Usefulness, Perceived Ease of use **Dependent Variable:** M-commerce continuation intention	Personal innovativeness and perceived usefulness, the determinants of initial adoption, remain as strong determinants of user continuance intention
30. Ingham,	**Independent Variables:**	Trust, Risk, Perceived Usefulness,

Cadeiux and Berrada (2015)	Trust, Risk, Perceived Usefulness, Perceived Ease of Use, Enjoyment, Attitude **Dependent Variables:** Behavior Intention to shop online	Perceived Ease of Use, Enjoyment were significant in determining attitude. Trust, Risk, Perceived Usefulness, Enjoyment, Attitude were significant in determining Behavior Intention to shop online.
31. Wong et al. (2015)	**Independent Variables:** Perceived Ease of Use, Perceived Usefulness, Compatibility, Perceived Enjoyment, Perceived Cost **Control Variable:** Experience **Dependent Variable:** Intention to Adopt Mobile Shopping	Perceived Ease of Use, Perceived Usefulness, Compatibility had a significant relationship with Intention to adopt Mobile Shopping. Whereas, Perceived Enjoyment, Perceived Cost were found to be insignificant.
32. Hew et al. (2015)	**Independent Variables:** Performance Expectancy, Effort Expectancy, Price Value, Hedonic Motivation, Facilitating Conditions, Habits, Social Influence **Moderating Variables:** Gender, Education Level **Dependent Variable:** Behavior Intention to use mobile apps	Other than Price value and Social Influence all the variables were found to have a significant relationship with the Behavior Intention to use mobile apps.
33. Lim et al. (2016)	**Independent Variables:** Subjective Norms, Perceived Usefulness **Mediating Variable:** Purchase Intention **Dependent Variable:** Online Shopping Behavior	Subjective norm and perceived usefulness had a significant positive influence on online purchase Intention but subjective norm had an insignificant influence on shopping behavior in a negative way. Perceived Usefulness also insignificantly influences online shopping behavior. Purchase intention had a significant positive influence on online

		shopping behavior.
34. Madan and Yadav (2016)	**Independent Variables:** Performance expectancy, effort expectancy, social influence, facilitating conditions, perceived risk, perceived value, Perceived Regulatory Support, and Promotional Benefits **Dependent Variable:** Behavioral Intention to Adopt mobile wallet.	Performance expectancy, social influence, facilitating conditions, perceived risk, perceived value, Perceived Regulatory Support, as well as Promotional Benefits, were found to be significant factors in predicting behavioral intentions to adopt mobile wallet solutions. The impact of effort expectancy was found to be statistically insignificant.

Table 2: Demographic Analysis

Sample Characteristics	Frequency (n=304)	Percent (%)
Age:		
Less than 30 years	233	76.6
30- 45 Years	46	15.1
Above 45 Years	25	8.2
Gender:		
Male	183	60.2
Female	121	39.8
Family Income per month:		
Less than Rs. 75,000	71	23.4
Rs. 75001 to Rs. 1,50,000	78	25.7
Above Rs. 1,50,000	155	51

Table 3: Reliability & Validity

Factors	Cronbach's Alpha	Average Variance Extracted (AVE)	Maximum shared squared variance (MSV)	Average shared squared variance (ASV)
HM	0.862	0.683	0.370	0.173
PCM	0.853	0.583	0.194	0.105
PR	0.866	0.621	0.339	0.148
FC	0.807	0.586	0.256	0.133
PRS	0.779	0.708	0.242	0.136
PB	0.893	0.762	0.360	0.162
C	0.910	0.545	0.135	0.029
PI	0.904	0.738	0.272	0.131
BI	0.903	0.760	0.490	0.251
AA	0.794	0.564	0.490	0.217

Table 4: Overall fit indices for Measurement Model

Model Elements	**Values**
C-Min	802.58
Degrees of freedom (d.f.)	448
C-Min / d.f.	1.791
Root Mean Square Error of Approximation (RMSEA)	0.51
Comparative Fit Index (CFI)	.942
Normalised Fit Index (NFI)	.878
Goodness-of-fit Index (GFI)	.866

Table 5: Structural Results

Hypotheses	**Standardized Regression Weights**	***p*-value**	**Remarks**
H1(HM-→BI)	.33	>.001	Supported
H2 (PCM-→BI)	.19	>.001	Supported
H3 (PR-→BI)	-.25	>.001	Supported
H4 (FC-→BI)	.17	.002	Supported
H5 (PRS-→BI)	.02	.715	Not Supported
H6 (PB-→BI)	.33	>.001	Supported
H7 (C-→BI)	-.21	>.001	Supported
H8 (PI-→BI)	.27	>.001	Supported
H9 (BI-→AA)	.65	>.001	Supported

Table 6: *p*-values for different Age groups

Proposed Hypotheses	Less than 30 years			30 years and above		
	Estimate	*p*-value	*t*-value	Estimate	*p*-value	*t*-value
BI ← PRS	0.074	0.169	1.376	-0.008	0.859	0.178
BI ← PR	-0.19	***	4.403	-0.128	0.002	3.079
BI ← PCM	0.16	***	3.358	0.005	0.922	0.092
BI ← HM	0.218	***	4.837	0.223	***	3.331
BI ← FC	0.087	0.125	1.533	0.398	***	4.431
BI ← C	-0.136	***	3.322	-0.115	0.005	2.803
BI ← PI	0.21	***	4.878	0.016	0.76	0.306
BI ← PB	0.25	***	4.966	0.22	0.003	3.010
AU ← BI	0.756	***	7.805	0.625	0.002	3.050

Table 7: Chi-square Thresholds to check path by path differences along different Age groups

Chi-square Thresholds		df	*p*-value
90% Confidence	2077.36	975	
Difference	2.71	1	0.100
95% Confidence	2078.49	975	
Difference	3.84	1	0.050
99% Confidence	2081.29	975	
Difference	6.63	1	0.010

Table 8: Path by Path Analysis to check Moderating Effect of Age

Proposed Relationship	**Chi-square**	**Result**
PR →BI	2075.809	No difference
PCM →BI	2078.346	90% confidence
HM →BI	2074.655	No difference
FC →BI	2081.201	95% confidence
C →BI	2074.667	No difference
PI →BI	2077.65	90% confidence
PB →BI	2074.775	No difference
BI → AU	2075.041	No difference

Table 9: Moderating Effect of Gender

Proposed Hypotheses	Males			Females		
	Estimate	*p*-value	*t*-value	Estimate	*p*-value	*t*-value
BI←PRS	0.019	0.674	0.420	0.023	0.769	0.294
BI←PR	0.185	***	4.958	-0.072	0.301	1.034
BI←PCM	0.116	0.029	2.190	0.13	0.017	2.383
BI←HM	0.176	***	3.986	0.382	***	4.628
BI←FC	0.194	0.002	3.106	0.068	0.376	0.886
BI←C	0.143	***	3.810	-0.069	0.214	1.243
BI←PI	0.217	***	4.376	0.146	0.008	2.644
BI←PB	0.27	***	4.743	0.36	***	5.015
AU←BI	0.836	***	6.881	0.52	***	4.359

Table 10: Chi-square Thresholds to check path by path differences along Gender groups

Chi-square Thresholds		df	*p*-value
90% Confidence	2050.26	975	
Difference	2.71	1	0.100
95% Confidence	2051.40	975	
Difference	3.84	1	0.050
99% Confidence	2054.19	975	
Difference	6.63	1	0.010

Table 11: Path by Path Analysis to check Moderating Effect of Gender

Proposed Relationship	**Chi-square**	**Result**
PR →BI	2048.941	No difference
PCM →BI	2047.595	No difference
HM →BI	2051.526	95% confidence
FC →BI	2048.545	No difference
C →BI	2048.806	No difference
PI →BI	2048.124	No difference
PB →BI	2048.288	No difference
BI → AU	2052.396	95% confidence