International Journal of Advanced Science and Technology
Vol. 29, No. 11s, (2020), pp. 1017-1038

Drivers of Bank Penetration: A Bankers' Perspective

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Abstract

Taking India as a case in point, the current study aims to identify the factors that drive bank penetration. The empirical setting of the study was 34 (22 public sector and 12 private sector) Indian banks. Data for the study were collected from senior bank officials (n=404) engaged in the development and/or implementation of strategies. Multivariate data analysis techniques were used for data analysis. A model identifying the drivers of bank penetration was developed and tested. Exploratory factor analysis revealed seven factors that drive bank penetration: supply side innovations, growth and profit objective, social responsibility, competition, demographic dividend, regulatory mandates, and cost effective solutions. Results of multiple regression analysis showed that all these factors except social responsibility were significant in the overall model. Implications of the study are discussed from a policy perspective. The value of this study lies in its ability to push the bank penetration agenda of the policy makers.

Keywords: *Bank, bank penetration, strategy, growth, unbanked*

Introduction

Off late, deep penetration strategy has become crucial to the overall marketing strategy of Indian banks. Bank penetration has become an important component of the mainstream thinking of Indian bankers, and most Indian banks have made headline market penetration commitments in the last few years. Indian banks are chasing ambitious targets and adopting a well-resourced approach to achieve market penetration (Singh & Singh, 2016).

India is the seat of the largest unbanked population in the world (CRISIL, 2015). Patterns of deposits and loans indicate that deposit and credit penetration in India are restricted (CRISIL, 2015). In fact, credit penetration in India is the lowest in the world (Bank for International Settlements, 2016). While regulators view these facts with concern, banks recognize opportunities in them (Bank for International Settlements, 2016). Banks are reaching out to the unbanked and under banked with a bouquet of innovative and attractive offerings (KPMG, 2015).

Due to the recent focus on bank penetration, provision of banking services has gathered pace in India. Bank penetration in terms of ATM penetration, bank branch networks, and penetration of plastic money has tremendously improved in the last few years (Jakki, 2016). 2015 and 2016 saw a significant increase in digital bank penetration. Bank account penetration increased from 35 percent in 2011 to 53 percent in 2014. In absolute numbers, this increase translates to 180 million new account holders (The Indian Express, 2015).

The sheer enormity of the increase in bank penetration in India makes its drivers an episode worthy of examination. This study adopts an interesting approach and captures the drivers of bank penetration from the viewpoint of senior bank employees engaged in the development and execution of strategies. This study categorically aims to (1) identify the factors that drive bank penetration, and (2) assess the impact of these factors on bank penetration.

The case of India is particularly suited to the study of drivers of bank penetration because in the recent past India has experienced significant bank penetration. It might be the right time to document what motivates Indian banks to pursue this strategy. The study is also important because despite the increase in bank penetration, India is still characterized by an overall low level of bank penetration, and a strong latent demand for banking services (CRISIL, 2015; Ernst and Young (EY), 2015). Consequently, the government and central bank are rigorously seeking deeper penetration of banking services. Within the context, the results of this study are likely to have considerable policy implications. The evidence provided by this study is likely to push the bank penetration agenda of the policymakers. Lastly, this study also adds to the developing literature on bank penetration in emerging economies. Bank penetration in emerging economies has captured the interest of all stakeholders, and literature is

replete with call for further research in this area (Singh, Singh, & Sandhu, 2017a; 2017b). This study answers this call for further research and compliments and builds upon the already existing evidence.

From a methodological perspective, the study is robust. First, the universe of the study was carefully defined. Only senior bank employees were approached for data collection. The intent was to ensure familiarity of respondent with design/implementation of strategies. Second, substantial rural representation was ensured in the sample. The problem of non-availability of banking services is acute in the rural areas (Kodan, Garg, & Kaidan, 2011; Dupas, Green, Keats, & Robinson, 2012; Karlan, 2014). The mandates provided by the government call for rural bank penetration. Therefore, it was considered necessary to include the perspectives of bank employees deputed with rural bank branches.

The rest of the paper is structured as follows. The next section elaborates the related theory and previous research. Subsequent sections describe the methodology, data, hypotheses and results. The article ends with a discussion of the policy implications and limitations of the study.

Operational Definition and Previous Research

This section presents the related theory and a critical review of the research that sheds light on the drivers of bank penetration. The operational definition of bank penetration as relevant to this study is also provided in this section. This section serves a two-fold purpose. First, it explains and orients the dependent variable of the study, that is, bank penetration. Second, it helps shortlist the variables that form the basis of the questionnaire.

Market penetration is the most popular marketing strategy adopted by banks around the world (Meidan, 1983). Traditionally, bank penetration was recognized as a growth strategy aimed at increasing the usage rate of bank branches and services by acquiring new customers from the existing market, or by brining in more business from the existing customers (Meidan, 1983; Varadarajan & Berry, 1983). As competition in the banking industry reached new heights, more and more banks sought growth and increase in market share by cross selling to existing customers (Philp, Haynes, & Helms, 1992). Banks pursued penetration by introducing numerous ancillary products and services. This was viewed as a cost-effective and efficient strategy since access to the segment in question had already been established (Philp *et al.*, 1992). Critics have underscored the flip side of this policy. Though acknowledging the positive association between cross selling and bank growth, scholars fear that a heavy focus on this strategy would place more stress on peripheral activities rather than the actual purpose of a bank (Howley & Savage, 1980).

The term bank penetration has different connotations in banking literature. Howley and Savage (1980) suggest that bank penetration also includes transmission of banking services to the unbanked population. They further indicate that bank penetration is the percentage of adult population that has a bank account. Howley and Savage (1980) opine that there are two ways in which growth and profitability can be achieved through bank penetration. The first source is cross selling to existing customers. The second source is targeting the previously unbanked population and the ignored niches, especially the youth (Howley & Savage, 1980). Allen *et al.* (2012) use the term bank penetration to refer to the extent to which the population of a country has access to banking services. In the recent Indian context, Kumar and Mishra (2011) use the words banking penetration and banking outreach interchangeably and measure it as a function of number of deposit and credit accounts. Singh and Singh (2016) establish increase in number of account holders, bank branches, aggregate deposits, and ATMs as the most important measures of bank penetration. Most policy documents and news articles estimate bank penetration in terms of increase in number of ATMs, debit and credit cards, bank branches, percentage of households with access to banking services etc. (Jakki, 2016). In current literature, number of ATMs is accepted as the new proxy for bank penetration ("Banking Penetration a Major Challenge in India", 2016). Sharma (2016) uses two measures to estimate bank penetration: number of deposit and credit accounts, and demography of bank branches and ATMs. Some literature also measures bank penetration in terms of geographical expansion of banking services, especially in the previously unbanked/under-banked rural areas (Vinayak, 2017).

The sense in which the term bank penetration is used in recent literature, especially in the Indian context, indicates that this strategy has characteristics of both growth and competitive strategies. Indian banks are seeking penetration by infiltrating virgin markets, opening new accounts, devising alternative low cost channels of service delivery and exhibiting greater efficiency in handling the business of

individual clients (Singh & Singh, 2016). Therefore, the question is: what is bank penetration? Keeping in mind the way the term is used in current literature, the author has chosen to define it as *expanding the reach and range of banking services.* However, just like every other definition, the precincts of this definition are indistinct. Bank penetration as understood and practiced by Indian banks overlaps with numerous other marketing strategies.

Many social and economic changes have facilitated bank penetration. First, the ever-increasing population and integration of the population into the workforce has steadily increased the demand for banking services (EY, 2015). Second, demand for banking services has also increased because of a greater willingness to borrow money. Removal of traditional taboos associated with taking loans and a greater confidence in ability to repay loans has facilitated this change (Howley & Savage, 1980). Third, improved literacy rate and economic affluence have driven bank penetration (Marin & Schwabe, 2013). Fourth, changing perception of risks associated with banking has proliferated the adoption of the banking habit (Capgemini Consulting, 2017). These demographic and perceptual changes have created new opportunities for banks. Banks are exploiting these opportunities through geographical expansion and new customer acquisition (EY, 2015).

Further, innovation in the form of new product development and alternative channels of delivery has also improved the reach and range of banking services (EY, 2015). Banks are seeking higher market shares through the development of customer-focused new products and partnerships with non-banks (EY, 2015). Banks are also extensively leveraging technology to pursue market penetration (Singh *et al.,* 2017a). Use of technology has helped explore the otherwise expensive new avenues of growth in a cost-effective manner (Chukumba, Oyewole, & Prabhakar, 2007). Interface with technology is the foremost strategic choice that has enabled bank penetration in the inclusive economies (Karlan, 2014). It may be of interest to point out that while both public and private banks in India are seeking to penetrate new markets, the strategies that they are using are significantly different. Public sector banks are seeking new market entry by augmenting the physical infrastructure and private sector banks are relying more on technology and innovation (Singh *et al.,* 2017b).

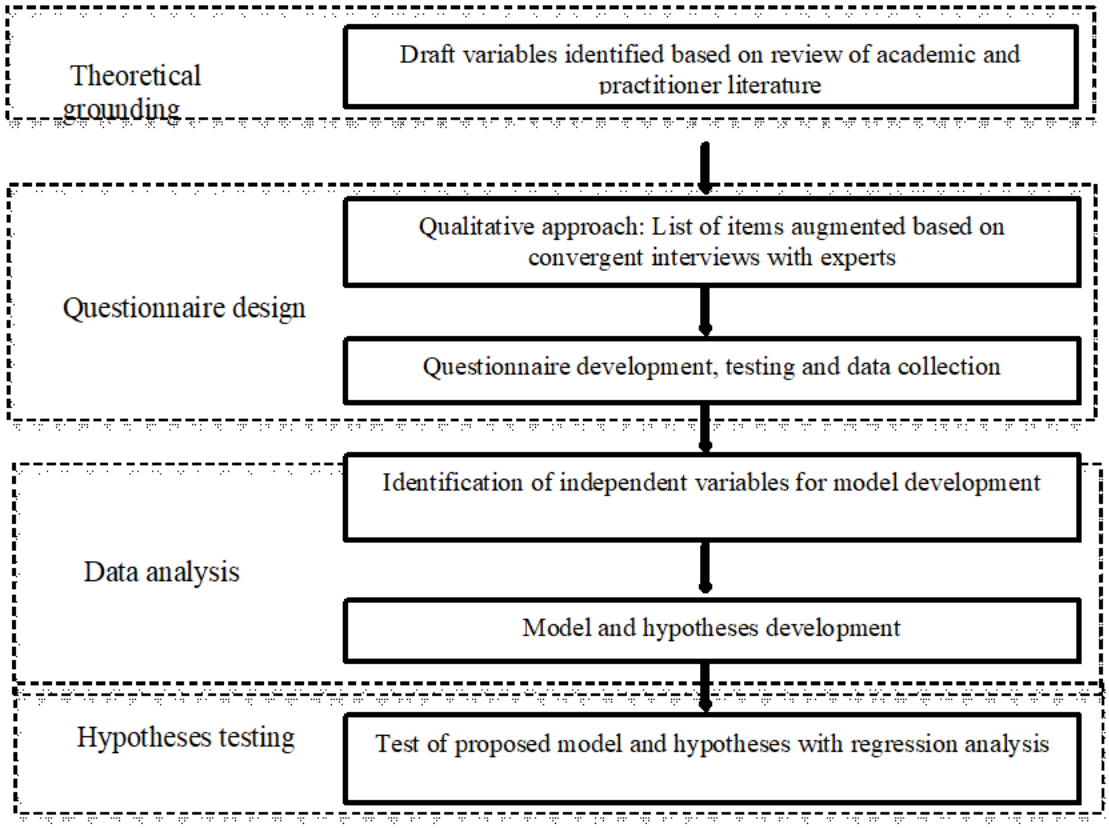
Some research also establishes a link between bank competition and bank penetration (Beck, Demirguc-Kunt, & Maksimovic, 2004; Beck, Demirguc-Kunt, & Martinez Peria, 2008). Evidence is available that suggests a robust positive correlation between the two constructs (Marin & Schwabe, 2013). Increase in bank competition causes banks to deepen the access to banking services. In the words of Marin and Schwabe (2013, p. 9): 'competition affects banks' decisions to install branches, ATMs and POS terminals'. These measures impact bank penetration (Marin & Schwabe, 2013).

Extant literature suggests a correlation between bank penetration and inclusive growth (Sharma, 2016). Bank penetration is recognized as a precondition for social and economic development (Sandhu & Singh, 2016). Access to formal banking has the potential to uplift masses by creating economic opportunities that reduce poverty and promote social equality (Burgess & Pande, 2005; Burgess, Pande, & Wong, 2005). The welfare effects of bank penetration at the individual level include access to cheap credit, insulation from financial shocks and better management of resources (Burgess, Pande, & Wong, 2005; Arora & Meenu, 2012; Sandhu & Singh, 2016). At the macro level, bank penetration helps reduce the size of the shadow economy and transfer resources to the deficit units leading to balanced and sustained development (Kumar & Mishra, 2011; Bansal & Behal, 2013; EY, 2015). The developmental gains of bank penetration explain why it is rigorously pursued as a policy agenda in a developing economy such as India (Singh & Sandhu, 2016). However, empirical verification is required to assess if this social motive aspires banks to seek penetration.

Methodology

Details of the methodology used are presented in this section (refer to figure 1). This section consists of three subsections: questionnaire development, sample, and respondent demographics.

Figure 1. Study Methodology



Source: Author's study

Questionnaire Development

Attributes that formed the basis of the research instrument were identified through a broad review of academic and practitioner literature, as well as interviews conducted with senior bank officials. In all, eight interviews were conducted. The interviewees were employed as presidents/vice-presidents/assistant vice-presidents/zonal mangers/chief managers with different public and private sector Indian banks. Use of interviews is suggested to identify concerns and variables in under-researched and emerging areas (Rao & Perry, 2003), such as the present area of bank penetration in an emerging economy.

Detailed review of available literature ensured face and content validity of the questionnaire. The qualitative approach made the questionnaire context specific. The final questionnaire constituted 26 unduplicated variables anchored on a five point likert scale. Table 1 exhibits the scale items.

Table 1. List of Study Variables

1.	Cheap technology solutions
2.	Profit motive
3.	Acquire additional volume growth
4.	Alleviate poverty and financial exclusion
5.	Increase market share
6.	Economies of scale
7.	Social welfare
8.	Dominant market presence
9.	Increased demand for banking services
10.	Improve customer service
11.	Serve the underserved/unbanked

12.	Universalize access to banking services
13.	Distribution channel innovations beyond traditional banking
14.	Product and service innovations
15.	Survival concerns in the face of attractive banking terms offered by competitors
16.	Greater willingness to borrow money
17.	Equitable distribution of resources
18.	Increased industry competition
19.	Self-service banking (Internet banking, ATM, mobile banking etc.)
20.	Reduced dependence on branch banking
21.	Increase in employment and personal affluence
22.	Increase in aggregate savings
23.	Targets provided by government
24.	Emerging digital ecosystem
25.	Regulatory and policy focus
26.	Increase in literacy rate

Source: Author's study

Sample

To ensure rational responses, only senior bank employees engaged in the development and/or implementation of strategies were approached for data collection. It was the author's understanding that they would be familiar with bank strategies and ideally suited to provide information on the drives of bank penetration. Further, a conscious attempt was made to ensure substantial rural representation in the sample. This was done to capture the perspectives of the bank employees deputed in rural areas where the problem of non-availability of banking services is gargantuan.

100 questionnaires were conveniently distributed to senior employees of two public sector (State Bank of India, and Punjab and Sind Bank) and two private sector banks (HDFC Bank and ICICI Bank) to test the questionnaire. Out of these 100 questionnaires, only 39 usable were obtained. On the basis of this pilot survey, the wordings of two variables used in the questionnaire were changed. On the whole, the questionnaire was found to be error free.

After the pilot survey, 1250 questionnaires were distributed to senior officials of various public and private sector Indian banks. The sampling technique used was convenience sampling. Out of the 1250 questionnaires distributed, only 493 questionnaires were returned. Thus, the survey had a response rate of 39.44 percent. The respondents of the study were senior bank employees. It was difficult to approach them. This explains the low response rate of the survey.

Out of the 493 questionnaires returned, usable questionnaires were identified with the help of missing value analysis (Little & Rubin, 1987). This treatment recommends exclusion of questionnaires with over 25 percent missing values (Graham, Hofer, & Mackinnon, 1996). Based on this treatment, 89 data records were excluded from the data set. The final analysis was conducted based on 404 responses. The final sample included responses from employees of 34 Indian banks. 22 out of these 34 banks were public sector banks, and the rest were private sector banks. Details of the sample, including a bank-wise break up are exhibited in table 2. Designations of the respondents include president, vice-president, assistant vice-president, general manager, deputy general manager, assistant general manager, zonal manger, chief manager, senior manager etc. It may be noted that employees below the level of a manager were not approached for data collection.

Table 2. Details of the Sample

Number of questionnaires distributed	1250
Number of usable responses after data cleaning	404
Number of usable responses from officials employed with public sector banks	239
Number of usable responses from officials employed with private sector banks	165

Number of usable responses from officials deputed with rural bank branches	109
Number of usable responses from officials deputed with semi-urban bank branches	94
Number of usable responses from officials deputed with urban and metropolitan bank branches	201
Bank-Wise Details of Sample	
Bank Name	**Number of Responses**
Public Sector Banks	
Allahabad Bank	5
Andhra Bank	13
Bank of Baroda	3
Bank of India	1
Bank of Maharashtra	2
Canara Bank	13
Central Bank of India	15
Corporation Bank	2
IDBI Bank	8
Indian Bank	2
Indian Overseas Bank	3
Oriental Bank of Commerce	10
Punjab and Sind Bank	79
Punjab National Bank	28
State Bank of India*	24
State Bank of Hyderabad*	1
State Bank of Patiala*	13
Syndicate Bank	2
UCO Bank	7
Union Bank of India	2
United Bank of India	2
Vijaya Bank	4
Private Sector Banks	
Axis Bank	18
City Union Bank	1
Federal Bank	7
HDFC Bank	58
ICICI Bank	18
IndusInd Bank	13
ING Vysya Bank	2**
J and K Bank	6
Karnataka Bank	4
Kotak Mahindra Bank	16**
South Indian Bank	2
Yes Bank	20

*State Bank of Hyderabad and State Bank of Patiala have now merged with State Bank of India
**ING Vysya Bank has now merged with Kotak Mahindra Bank
Source: Author's study

Further, a robust check for non-response bias was conducted. Non-response bias is the difference in the responses of the respondents and non-respondents (Lambert & Harrington, 1990). The 404 usable questionnaires were divided into two groups. Group one consisted of questionnaires returned without a reminder (n=318) and group two consisted of questionnaires returned after a reminder was sent (n=86). 15 variables used in the questionnaire were randomly subjected to *t*-test. No significant difference (at 5 percent significance level) across the two groups was found. It is safe to say that in the present study non-response bias is not a matter of concern.

Respondent Demographics

Table 3 exhibits the demographics of the respondents. Two variables, that is, gender and age were used to capture respondent demographics. 75.50 percent of the sample constituted male respondents and the rest 24.50 percent constituted female respondents. The age of the respondents was classified into four categories: under 30 years, 31-40 years, 41-50 years, and over 51 years. Age categories were adopted from Sarros, Pirola-Merlo and Baker (2012). 27.48 percent of the respondents were under 30 years in age, 21.78 percent respondents were between 31 and 40 years in age, 14.11 percent respondents were between 41 and 50 years in age, and the age of 36.63 percent respondents was over 51 years.

Table 3. Respondent Demographics

Variable	Classification of variable	Frequency	Percentage (%)
Gender	Male	305	75.50
	Female	99	24.50
Age	Under 30 years	111	27.48
	31 – 40 years	88	21.78
	41 – 50 years	57	14.11
	Over 51 years	148	36.63

Source: Author's study

Data Analysis

This section presents the data analysis. This section is divided into three sections: data reduction, model development and model test.

Data Reduction

The collected data were reduced with the help of factor analysis. This was done with a view to extract fewer variables out of the initial 26 variables used in the questionnaire. The aim was to subject the fewer extracted variables to further treatment.

Before proceeding with factor analysis, it was assessed if it was appropriate to use the technique in the present case. For this, the KMO (Kaiser Meyer Oklin) and Bartlett's test, and the correlation matrix were used. The results of the KMO and Bartlett's test are displayed in table 4. This test assesses the suitability of data for structure detection. KMO is a measure of sampling adequacy for each separate variable and the overall data (Dziuban & Shirkey, 1974). A cut-off value of 0.5 is recommended (Yong & Pearce, 2013). In the present case the value of KMO is 0.849. This implies good partial correlation in the data and suggests that reliable factors can be extracted (Che Rusuli, Tasmin, Takala, & Norazlin, 2013). The Bartlett's test of sphericity assesses the presence of correlations among variables (Hair, Black, Babin, Anderson & Tatham, 2006). Sufficient correlation between variables ensures that representative factors can be produced from the data (Hair *et al.*, 2006). As can be seen from table 4, the Bartlett's test of sphericity is significant (p=0.000). Therefore, patterned relationships exist in the data that make it suitable for subjection to factor analysis (Yong & Pearce, 2013). Further, the correlation matrix is exhibited in table 5. The correlation matrix reveals sufficient correlations between variables to proceed with factor analysis.

Table 4. KMO and Bartlett's Test

Kaiser Meyer Oklin measure of sampling adequacy	0.849	
Bartlett's test of sphericity	Approx. χ^2	6062.748
	df	325
	Sig.	0.000

Source: Author's study

Table 5. Correlation Matrix

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15
V1	1														
V2	0.374**	1													
V3	0.316**	0.491**	1												
V4	0.339**	0.506**	0.633**	1											
V5	0.250**	0.645**	0.720**	0.671**	1										
V6	0.263**	0.608**	0.647**	0.683**	0.789**	1									
V7	0.219**	0.593**	0.603**	0.632**	0.747**	0.878**	1								
V8	0.148**	0.535**	0.422**	0.344**	0.543**	0.624**	0.644**	1							
V9	0.162**	0.488**	0.485**	0.448**	0.611**	0.638**	0.677**	0.642**	1						
V10	0.116*	0.303**	0.181**	0.401**	0.319**	0.494**	0.550**	0.414**	0.562**	1					
V11	-0.084	-0.073	-0.056	-0.008	-0.121*	0.172**	0.262**	0.222**	0.210**	0.347**	1				
V12	-0.141**	-0.164**	-0.224**	0.017	-0.254**	-0.039	0.004	-0.136**	-0.081	0.290**	0.572**	1			
V13	0.010	0.094	0.185**	0.282**	0.192**	0.284**	0.359**	0.099*	0.091	0.288**	0.377**	0.573**	1		
V14	0.005	0.181**	-0.085	0.221**	0.051	0.264**	0.329**	0.222**	0.204**	0.543**	0.336**	0.602**	0.473**	1	
V15	0.062	0.242**	0.312**	0.302**	0.320**	0.547**	0.502**	0.400**	0.310**	0.313**	0.473**	0.352**	0.493**	0.397**	1

V16	0.296**	0.439**	0.415**	0.422**	0.515**	0.437**	0.390**	0.488**	0.439**	0.292**	-0.150**	-0.265**	-0.008	0.084	0.261**
V17	0.056	-0.023	0.142**	0.096	0.055	0.095	0.110*	0.057	0.018	0.048	0.104*	0.223**	0.355**	0.211**	0.347**
V18	0.128*	0.046	0.275**	0.172**	0.159**	0.271**	0.264**	0.116*	0.117*	0.068	0.116*	0.069	0.213**	0.066	0.325**
V19	0.153**	0.425**	0.311**	0.339**	0.451**	0.361**	0.335**	0.289**	0.207**	0.092	-0.115*	-0.078	0.168**	0.048	0.189**
V20	0.024	0.244**	0.119*	0.184**	0.276**	0.256**	0.251**	0.212**	0.163**	0.168**	0.026	-0.004	0.073	0.154**	0.092
V21	-0.074	-0.018	-0.176**	-0.123*	-0.109*	-0.022	0.022	0.094	-0.143**	0.024	0.382**	0.311**	0.236**	0.265**	0.320**
V22	0.155**	0.010	0.280**	0.253**	0.185**	0.284**	0.248**	0.097	0.018	0.017	0.242**	0.213**	0.468**	0.123**	0.486**
V23	0.033	-0.062	-0.181**	-0.031	-0.179**	-0.176**	-0.159**	-0.152**	-0.278**	0.037	0.033	0.270**	0.111*	0.263**	0.006
V24	0.083	0.012	-0.074	0.049	-0.088	-0.083	-0.071	-0.039	-0.127*	0.117*	0.034	0.121*	0.020	0.162**	-0.038
V25	0.037	0.098*	0.101*	0.050	0.155**	0.071	0.036	0.098*	-0.038	-0.010	-0.115*	-0.149**	0.008	-0.012	-0.057
V26	-0.091	-0.151**	-0.194**	-0.126*	-0.232**	-0.172**	-0.183**	-0.108*	-0.196**	-0.062	0.085	0.047	-0.077	0.019	-0.043

**Correlation is significant at the 0.01 level
* Correlation is significant at the 0.05 level

V16	V17	V18	V19	V20	V21	V22	V23	V24	V25	V26
1										
0.267**	1									
0.259**	0.543**	1								
0.301**	0.100*	0.098*	1							
0.118*	-0.027	0.046	0.431**	1						
-0.069	0.125*	0.039	0.118*	0.272**	1					
0.157**	0.494**	0.392**	0.194**	0.090	0.350**	1				

-0.087	0.008	-0.093	-0.005	0.074	0.243**	-0.014	1			
0.032	0.033	-0.031	0.057	0.149**	0.260**	0.037	0.505**	1		
0.009	-0.069	-0.094	0.184**	0.171**	0.052	0.009	0.322**	0.228**	1	
-0.142**	-0.056	-0.050	-0.018	0.024	0.252**	-0.043	0.426**	0.391**	0.189**	1

**Correlation is significant at the 0.01 level
* Correlation is significant at the 0.05 level

After ensuring factorability of the data, it was subjected to factor analysis. Principal component method with Varimax rotation was employed. Factors with eigen values over 1.0 and variables which distinctly loaded on a particular factor with loadings over 0.5 were retained (Malhotra, 2008). At this stage, three variables were dropped since they did not qualify this criterion. In all, seven factors accounting for a cumulative variance of 70.95 percent were extracted. Factors were named based on the variables loaded on them. Care was taken to ensure nomological validity. The results of factor analysis are exhibited in table 6. For rotated component matrix refer to annexure 1.

Cronbach's coefficient α was used to establish the reliability of the factors. A cut-off value of 0.7 is recommended (Cronbach, 1951; Nunnally & Bernstein, 1967). In the present case, this value worked out to 0.812. This value establishes adequate reliability of the factors.

Output of factor analysis reveals that the most important factor that drives bank penetration is supply side innovations, followed by growth and profit objective, social responsibility, competition, demographic dividend, regulatory mandates and cost-effective solutions. These seven factors are subjected to further analysis in the next sub-section.

Table 6. Factor Analysis: Drivers of Bank Penetration

Factor	Eigen value	Cumulative variance (%)	Variables	Loadings
Factor 1 – Supply side innovations	7.065	27.17	Self-service banking (Internet banking, ATM, mobile banking etc.)	0.901
			Emerging digital ecosystem	0.894
			Distribution channel innovations beyond traditional banking	0.827
			Product and service innovations	0.693
			Reduced dependence on branch banking	0.572
Factor 2 – Growth and profit objective	3.655	41.23	Increase market share	0.830
			Acquire additional volume growth	0.656
			Profit motive	0.620
			Dominant market presence	0.616
Factor 3 – Social responsibility	2.284	50.01	Universalize access to banking services	0.644
			Serve the underserved/unbanked	0.652
			Alleviate poverty and social exclusion	0.583
			Social welfare	0.530
Factor 4 – Competition	1.961	57.56	Improve customer service	0.741
			Survival concerns in the face of attractive banking terms offered by competitors	0.727
			Increased industry competition	0.506
Factor 5 – Demographic dividend	1.315	62.61	Increase in employment and personal affluence	0.715
			Increased demand for banking services	0.600
			Increase in aggregate savings	0.593
	1.150	67.04	Regulatory and policy focus	0.562

Factor 6 – Regulatory mandates			Targets provided by government	0.512
Factor 7 – Cost effective solutions	1.016	70.95	Cheap technology solutions	0.573
			Economies of scale	0.506

Source: Author's study

Model Development

A multivariate regression model was developed to assess the impact of the seven factors extracted from factor analysis on bank penetration. The seven variables extracted from factor analysis, that is, supply side innovations, growth and profit objective, social responsibility, competition, demographic dividend, regulatory mandates, and cost effective solutions were assumed to be the independent predictors and bank penetration was assumed to be the dependent variable. To arrive at factor scores, the scores of all the variables loaded on particular factors were averaged (Comrey & Lee, 1992; DiStefano, Zhu, & Mindrila, 2009). For model refer to table 7. Presuming that the seven independent predictors impacted bank penetration, the set of hypotheses exhibited in table 8 were proposed.

Table 7. Model Development

Dependent variable	Bank penetration
Independent variables	Supply side innovations, Growth and profit objective, Social responsibility, Competition, Demographic dividend, Regulatory mandates, and Cost effective solutions
$Y = a + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7$, where……....(equation 1) Y = the dependent variable (bank penetration), X_1 to X_7 = the seven independent variables extracted from factor analysis (Supply side innovations, Growth and profit objective, Social responsibility, Competition, Demographic dividend, Regulatory mandates, and Cost effective solutions), a = the constant, and β_1 to β_7 = slope coefficients	

Source: Author's study

Table 8. Hypotheses

Null hypotheses	Alternate hypotheses
H_{01}: There is no significant impact of supply side innovations on bank penetration.	H_1: There is a significant impact of supply side innovations on bank penetration.
H_{02}: There is no significant impact of growth and profit objective on bank penetration.	H_2: There is a significant impact of growth and profit objective on bank penetration.
H_{03}: There is no significant impact of social responsibility on bank penetration.	H_3: There is a significant impact of social responsibility on bank penetration.
H_{04}: There is no significant impact of competition on bank penetration.	H_4: There is a significant impact of competition on bank penetration.
H_{05}: There is no significant impact of demographic dividend on bank penetration.	H_5: There is a significant impact of demographic dividend on bank penetration.
H_{06}: There is no significant impact of regulatory mandates on bank penetration.	H_6: There is a significant impact of regulatory mandates on bank penetration.
H_{07}: There is no significant impact of cost effective solutions on bank penetration.	H_7: There is a significant impact of cost effective solutions on bank penetration.

Source: Author's study

Model Test

Multiple regression analysis was used to test the developed model. Before the application of this technique, the appropriateness of its use in the present case was established. First, normal distribution of variables was ensured with the help of normal probability plot of regression standardized residual. Second, absence of multicollinearity among the predictor variables was established with the help of correlation matrix and by examining the values of the VIF (Variance Inflation Factor) of predictor variables. Multicollinearity is a situation in which the correlation between the independent variables is high enough to reduce the accuracy of regression analysis. If the pair-wise correlations between different pairs of predictor variables are greater than 0.75, or VIFs of variables exceed 10, then multicollinearity maybe a matter of concern (Kishton & Widaman, 1994; Gujarati, 2008). In the present case, the pair-wise correlation coefficients are less than 0.75 in all cases (refer to table 9). Also, VIFs in case each are less than 10 (refer to table 10). This provides evidence of discriminant validity and suggests absence of multicollinearity in the data. Third, the assumption of independent errors or autocorrelation was tested with the help of the Durbin-Watson statistic. A value of close to 2 is recommended (Gujarati, 2008). In the present case, the vale of the Durbin-Watson statistic is 1.772. This value indicates that the assumption is almost satisfied. All the above diagnostics suggest that the model is valid and reliable, and use of regression analysis is appropriate in the present case.

The output of regression analysis is displayed in tables 10-12. As can be seen from table 12, the overall model is significant (F=99.175, p=0.000). This establishes a significant correlation between the dependent variable and the independent variables. The value of R^2 shows that the independent variables explain 63.7 percent of the variation in the dependent variable. Table 10 shows that the coefficients of six factors, that is, supply side innovations, growth and profit objective, competition, demographic dividend, regulatory mandates, and cost effective solutions are positive and significant at 95 percent confidence level. As such, H_{01}, H_{02}, H_{04}, H_{05}, H_{06} and H_{07} are rejected. The coefficient of the third factor, social responsibility, is not significant. As such H_{03} is accepted. Based on this analysis equation 1 takes the shape of equation 2.

It may be of interest to note that an examination of the standardized β values of the six significant factors suggests that at the absolute level, demographic dividend has the maximum impact on bank penetration. In the hierarchy of impact, demographic dividend is followed by competition, supply side innovations, regulatory mandates, growth and profit objective, and cost effective solutions.

Table 9. Pearson's Correlation

	F1	F2	F3	F4	F5	F6	F7	Y
F1	1							
F2	0.336**	1						
F3	0.116*	0.066	1					
F4	0.222**	0.222**	0.116*	1				
F5	-0.008	0.221**	0.172**	0.344**	1			
F6	0.473**	0.397**	0.325**	0.400**	0.302**	1		
F7	0.347**	0.543**	0.068	0.414**	0.401**	0.313**	1	
Y	-0.121*	0.051	0.159**	0.543**	0.671**	0.320**	0.319**	1
**Correlation is significant at the 0.01 level * Correlation is significant at the 0.05 level								

Source: Author's study

Table 10. Results of Multiple Regression Analysis

Factors	Unstandardized coefficients		Standardized coefficients	t	Significance (*p* value)	VIF
	B	SE	β			
Supply side innovations	0.388	0.054	0.264	7.133	*0.000**	1.493
Growth and profit objective	0.219	0.046	0.184	4.787	*0.000**	1.574
Social responsibility	-0.013	0.061	-0.007	-.211	0.833	1.136

Competition	0.409	0.041	0.353	9.896	*0.000**	1.387
Demographic dividend	0.553	0.041	0.484	13.518	*0.000**	1.400
Regulatory mandates	0.250	0.053	0.193	4.753	*0.000**	1.801
Cost effective solutions	0.142	0.054	0.108	2.615	*0.009**	1.864
*Significant at 5 per cent level of significance; intercept (constant) = 0.595; R^2=0.637; adjusted R^2=0.630						

Source: Author's study

Table 11. Model Summary

Model	R^2	Adjusted R^2	SE of the estimate
1	0.637	0.630	0.96432

Source: Author's study

Table 12. ANOVA for Regression

Sources of variation	Sum of squares	df	Mean square	F	Significance
Regression	645.566	7	92.224	99.175	0.000
Residual	368.243	393	0.930		
Total	1013.809	403			

Source: Author's study

$Y = a + \beta_1X_1 + \beta_2X_2 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7$…….....(equation 2)

Y= 0.595 + 0.338 + 0.219 + 0.409 + 0.553 + 0.250 + 0.142, where

Y = bank penetration,

a = the constant,

X_1 = supply side innovations

X_2 = growth and profit objective

X_4 = competition

X_5 = demographic dividend

X_6 = regulatory mandates, and

X_7 = cost effective solutions

Each of the six significant factors is discussed separately in the following part of this sub-section.

Factor 1 – Supply side innovations

Many supply side innovations such as technology enabled service delivery; digital withdrawals, transfers and payments; distribution partnerships; and customer driven products facilitate bank penetration. All these innovations leverage the potential of digital channels. Fortunately, data on many macroeconomic variables such as growth rate of e-commerce, penetration of Internet, adoption of mobile phones etc. indicate that the prerequisites for digital bank penetration are in place in India (KPMG, 2015). As such banks are rolling out digital offerings and reducing reliance on physical contact with customers. The promise held by digital channels has made self-service banking popular in India and positively impacted bank penetration (PwC, 2012). Enforcing the other measures of digital bank penetration as outlined in the 'Digital India' campaign of the Government of India can further increase bank penetration. India may also take cues from other supply side innovations such as use of next gen technologies, biometric apps, image-based banking etc. that have internationally facilitated bank penetration.

Factor 2 – Growth and profit objective

The objectives of growth and profitability encourage banks to adopt market penetration strategy. This finding is in synchronization with existing literature. Available banking literature suggests that the

revolutionary changes witnessed by the banking industry have forced banks to identify profitability and growth as strategic objectives (Carey, 1989; Singh & Sandhu, 2016), and market penetration is the most frequent response to these strategic objectives (Meidan, 1983). In the advanced countries growth through a penetration strategy has proven to be a profitable strategy (Philp *et al.*, 1992). Banks commonly use this strategy to increase and sustain high growth rates in competitive markets (Philp *et al.*, 1992).

Factor 4 – Competition

Competitive pressures drive bank penetration. An increase in the number of banks in the market causes the profit of individual banks to decline (Marin & Schwabe, 2013). The ever-increasing number of players in the Indian banking industry is squeezing the profits of individual banks. Banks are seeking fresh avenues of growth through market penetration. This study replicates the work of previous researchers in the Indian context and confirms the previously established positive correlation between bank competition and bank penetration (Beck *et al.*, 2004; Beck *et al.*, 2008; Marin & Schwabe, 2013).

Factor 5 – Demographic dividend

Demand side changes are a significant driver of bank penetration. As more and more people get integrated into the workforce, economic affluence and savings rise. These macroeconomic changes increase the demand for banking services. Banks respond by penetrating previously unbanked and under banked demographic niches and geographical territories (EY, 2015). Banks are continually reorienting themselves to the new customers and developing specialized products to cater to their specific needs.

Factor 6 – Regulatory mandates

Bank literature documents government participation and regulation as a crucial covariant of bank penetration (Marin & Schwabe, 2013). The evidence provided by the current study also suggests the same.

In India, bank penetration is pursued as a policy agenda. Under the grandiose Prime Minister's People's Wealth Program, the government has envisaged 100 percent bank penetration. The government has created a regulatory and policy framework that facilitates bank penetration. Some of the recent initiatives of the government that deserve a mention in this context are increasing the number of rural bank branches, reducing the cost and documentary complications associated with opening accounts, introduction of the no frills account, payments banks, financial literacy campaigns etc. All these initiatives along with the ambitious targets provided by the government to the banks are driving bank penetration.

Factor 7 – Cost effective solutions

Earlier banks considered market penetration as a high cost strategy. Seeking bank penetration with the help of traditional banking models made this strategy uneconomical and hence financially unviable. However, technology solutions have substituted the need for physical infrastructure and the cost of bank penetration has reduced significantly (KPMG, 2015). As the cost of availing banking services reduces dramatically, banks respond by significantly increasing their penetration rates, especially in emerging economies such as India (EY, 2015).

The reduced cost of bank penetration not only helps drive bank penetration, but also provides a competitive advantage to banks. There exists an inverse correlation between the extent of market penetration and the cost of delivering services (Meyer & Tran, 2006). Bank penetration helps achieve economies of scale, reduces cost of service delivery and provides an edge over the competition.

Discussion

This study captured the drivers of bank penetration from the perspective of bank employees. The study found seven factors that impact bank penetration: supply side innovations, growth and profit objective, social responsibility, competition, demographic dividend, regulatory mandates, and cost effective solutions. In the overall model, all these factors except social responsibility were statistically significant at 95 percent confidence level. Figure 2 exhibits the findings of the study

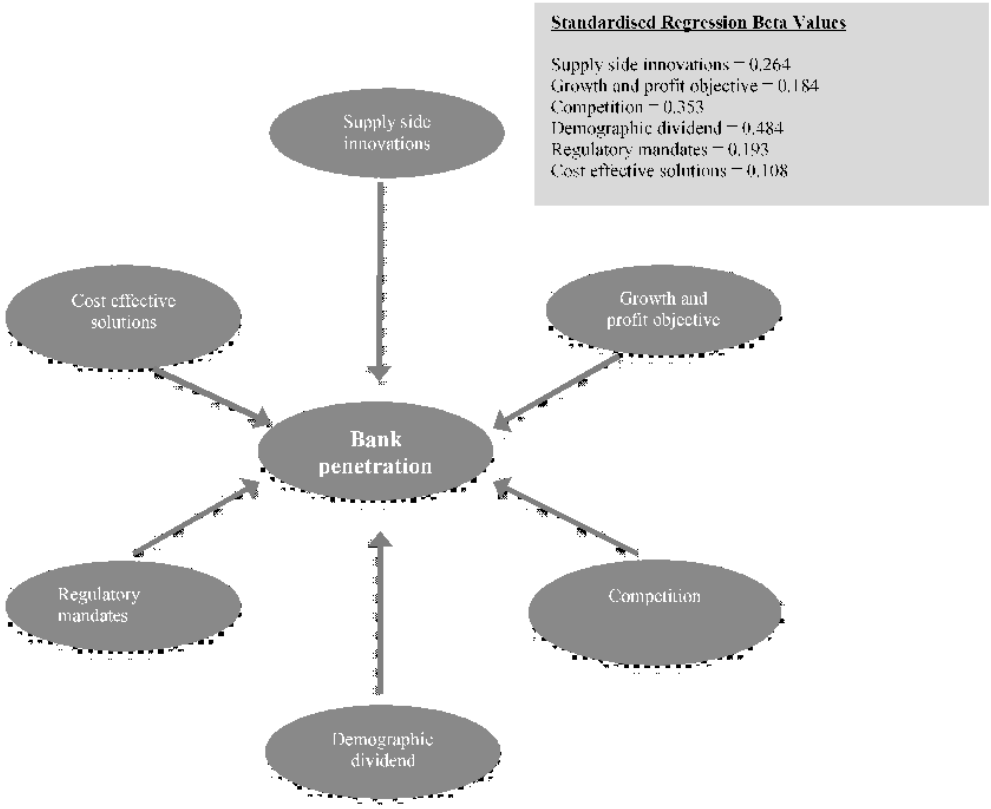


Figure 2. Proposed Model: Drivers of Bank Penetration

Though not specifically documented as drivers of bank penetration, previous literature recognizes a link between each of the above six significant factors and bank penetration (Howley & Savage, 1980; Meidan, 1983; Beck *et al.*, 2004; Beck *et al.*, 2008; PwC, 2012; Marin & Schwabe, 2013; EY, 2015). Therefore, it can be said that in its essence this study is a confirmatory study, and its value lies in its ability to document different drivers of bank penetration in the same study. Further, as indicated by the regression (β) weights, this study also depicts the relative impact of each significant factor on bank penetration. This qualifies as another contribution of the current study.

The findings of this study have definite policy implications. From a policy viewpoint, four things are relevant. First, growth and profit motive is a significant driver of bank penetration. Growth opportunities are typically concentrated in developed districts (Allen *et al.*, 2012). Demand for banking services, another significant driver of bank penetration is also the highest in these districts (Allen *et al.*, 2012). Therefore, banks are likely to deepen their penetration in developed geographical pockets, defeating the government's agenda of providing banking services to the rural underserved/unbanked population of the country. On the other hand, if under regulatory mandates (another significant driver of bank penetration), banks do penetrate rural markets/districts will poor growth potential; it is likely to harm their commercial interests. Considering the continuously deteriorating asset quality, liquidity and profitability of Indian banks (Pattnaik & Rattanani, 2017), the government needs to proceed with caution and rethink its lack of focus on growth of banks (Pattnaik & Rattanani, 2017). Second, regulatory mandates significantly impact bank penetration. With the regulatory focus on bank penetration, India has witnessed a surge in bank account penetration. However, it is estimated that over

40 percent of the new accounts opened are dormant (The Indian Express, 2015). This indicates that Indian banks are not making genuine efforts at market penetration; rather they are just chasing numbers to fulfill regulatory requirements. Experts believe that the objective of any bank penetration program is to ensure availability of formal banking to all (Karlan, 2014). However, the fear is that government policies aimed at bank penetration in India are misdirected and trying to generate demand for banking services through incentives. Once these incentives are withdrawn, banking may not offer any convenience to the poor population of the country. Thus, the current penetration strategies of the government may not be sustainable in the long run. This is another policy area that needs a rethink. Third, bank competition and bank penetration are positively correlated. Therefore, it is important to institute policies that directly address competition in the banking industry. Evidence is available that suggests that such policies tend to be cheap, easy to deploy and show quick results (Marin & Schwabe, 2013). Use of bank correspondents and mobile banking are particularly effective in increasing competition in the banking industry (Marin & Schwabe, 2013). While both these channels are used to deliver banking services in India, their impact is limited because of restricted competition in these channels. Market based policies that address these alternate channels of service delivery and favor new technologies can reduce barriers to entry and foster competition (Assuncao, 2013). Such policies can become an important tool in the government's quest for bank penetration. Fourth, in the recent past many researchers have attempted to examine the link between social responsibility and provision of banking services in India (Mukherjee, 2012; Dhingra & Mittal, 2014; Pushpam, Karthi, & Daisy, 2015). The research undertaken by these researchers suggests that in the Indian banking industry, the expenditure head of CSR is unregulated (Mukherjee, 2012). CSR expenditures by banks are driven by the vested marketing interests of banks (Mukherjee, 2012) and do not significantly contribute towards government's agenda of bank penetration (Dhingra & Mittal, 2014). Past researchers have emphasized the need for government participation in this space (Mukherjee, 2012). The current study too did not find a significant link between social responsibility and bank penetration. Planned participation of the government through policies that address social responsibility of banks may encourage banks to seek market penetration as a social agenda.

The study suffers from some limitations. First, by exhibiting only within country evidence, the possibility of cross-country comparisons is forfeited. The structure and nature of emerging economies is very different from the advanced economies. There is considerable difference in the extent of bank penetration, policy and regulatory environment, and opportunities for further bank penetration offered by emerging and advanced economies (EY, 2015). Hence, the results of this study may not be entirely generalizable in the context of advanced economies. Second, the data for the study was primarily collected from Northern Indian states: Punjab, Himachal Pradesh, Haryana, Delhi, Jammu and Kashmir, and the union territory of Chandigarh. Therefore, the data sample was not nationally representative. Third, this study suffers from all the inherent drawbacks of convenience sampling. Nonetheless, this study has definite policy implications and can help push the government's agenda of bank penetration.

Many issues remain unaddressed and provide scope for future research. Future researchers may examine the difference in the drivers of bank penetration for public and private sector banks. From a policy perspective, they may also examine how specific drivers of bank penetration can be activated to further bank penetration.

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Annexure 1. Rotated Component Matrix

	Component						
	1	2	3	4	5	6	7
V1							0.573
V2		0.620					
V3		0.656					
V4			0.583				
V5		0.830					
V6							0.506
V7			0.530				
V8		0.616					
V9					0.600		
V10				0.741			
V11			0.652				
V12			0.644				
V13	0.827						
V14	0.693						
V15				0.727			
V16							
V17							
V18				0.506			
V19	0.901						
V20	0.572						
V21					0.715		
V22					0.593		
V23						0.512	
V24	0.894						
V25						0.562	
V26							

Source: Data Analysis using SPSS