

# **DETERMINANTS OF PRIORITY SECTOR LENDING: EVIDENCE FROM BANK LENDING PATTERNS IN INDIA**

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## **ABSTRACT**

*Mandatory directed credit or priority sector lending (PSL) is part of the regulatory framework for commercial banks/ financial institutions in many countries, both developing and developed. However, compliance and lending effectiveness of such programs may be determined by a host of factors. This may be particularly so in developing countries, where availability of finance for the vulnerable sectors like agriculture, small businesses, weaker sections, is scarce. The present paper aims at examining the patterns of priority sector lending by banks, with a view to identifying the factors which determine this lending, and implementation challenges for lending by banks in such programs. The paper is based on an analysis of secondary data relating to priority sector lending (1998-2014) for eighty banks in India, and is supported by findings from the survey of ninety-seven lending officers of various banks. The results indicate gaps in patterns of the sectoral target compliance by different bank groups, along with the lending preferences and challenges faced by banks in such lending. It also identifies bank-specific characteristics like the nature of ownership, size, performance, etc., which have a significant impact on the priority sector lending patterns. Based on its findings, the paper offers policy suggestions for improving the effectiveness of priority sector lending program.*

**JEL:** G21, G34, O16

**KEYWORDS:** Banks, Directed Credit Program, Priority Sectors, Bank Ownership, Small Business Credit

## **INTRODUCTION**

**D**irected Credit Programs (DCP) have been adopted by many countries, including Japan, Philippines, Brazil, Nigeria, India, Nepal, China, Pakistan, USA, Korea, etc. as a tool to direct financial resources towards select sectors of the economy, which need special thrust for growth (Vittas and Wang 1991, Schwarz, 1992, and Kohli, 1997). Although the directed lending programs differ significantly in each country in terms of size, scope, strategy, focus, etc. (Vittas and Cho, 1995), the primary objective is to provide credit support to the priority sectors of each economy, so that the growth is sustainable and inclusive. The prominent priority sectors identified in most countries under the directed credit programs mainly include areas like agriculture (Brazil, Pakistan, India, Philippines, USA, etc.) and small-scale industry (Japan, Korea, India, USA, Philippines, etc.), both of which employ a large number of people, are geographically well spread across the entire nation and occupy small size owners (Shirota, Paulo and Meyer 1990, and RBI Paper, 2005). Since such programs are key tools of economic policy, and involve a huge amount of credit resources, it is important to monitor the performance and to ensure effectiveness of such programs. The experience with the impact of DCPs has been quite different in various countries. Some of the studies observe that while it has been more successful in countries like Japan and Korea, the same cannot be said about other countries where it was fraught with implementation issues (Calomiris and

Himmelberg, 1993, Stiglitz and Uy 1996, Llanto, Geron and Tang, 1996, Kohli, 1997, and Reztis, Tsiboukas and Tsoukalas, 2003).

There is a case for government intervention in credit markets in most developing countries like India, Mexico, and Philippines, etc. (Besley, 1994, and Berger and Udell, 2006) in view of market imperfections and structure of the banking system which is predominantly state-owned. Hence, this may bring in lending issues related to bank ownership, size, performance, lending efficiency and such others.

Unlike large corporate borrowers, most of the borrowers in priority areas (small-scale sector, agriculture, weaker sections, etc.) are by their very nature, small in size, may not have verifiable financial statements, sufficient or asset-based collaterals, and may be located in rural areas or small towns. This could lead to their higher probable risk of default if the lending banks' structures are not flexible to adapt to peculiar nature of such lending. Thus, it presents a set of challenges to many banks, especially large and state-owned (public sector banks) ones, which have fixed structures and who rely more on transaction based lending technologies. As against this, smaller banks or privately owned ones have a comparative advantage in relationship-based lending, which may be more suitable for priority sector type of lending. Therefore, it was seen that smaller banks are able to lend more to smaller firms (Peek and Rosengren, 1995, Cole, Goldberg and White 2004, Berger, Miller, Petersen, Rajan and Stein 2005, and Berger and Black, 2010). In terms of bank ownership, especially in developing countries with market imperfections, state-owned or public sector banks were found to lend more to state-owned and to larger firms (Banerjee and Duflo, 2004, and Berger, Klapper and Zaidi, 2006). Similarly, factors like probable higher risk of default by borrowers, lower risk absorbing capacity of lender, political interventions in lending, etc. have also been found to be important factors adversely impacting such lending (Banerjee and Duflo, 2003, Featherstone, Wilson, Kastens and Jones, 2007, Bhaumik and Piesse, 2008, Guha, 2009, and Cole, 2009). Thus, it is important to understand the determinants of this lending, challenges faced by banks, and structures, which will make it easier for them to lend to priority areas.

In India, post nationalization of banks in 1969, government through the Central Bank, i.e. the Reserve Bank of India (RBI), introduced directed credit program (DCP) termed as "Priority Sector Lending" (PSL). Under this program, the RBI stipulated that at least 40% of average net bank credit (ANBC) or of credit equivalent amount of off-Balance sheet exposures (OBE), whichever is higher, must be given to certain select sectors. These were the ones which were hitherto the neglected sectors of the economy like agriculture, small-scale enterprises, weaker sections, export credit, housing, education, etc. Within this, the targets for lending to agriculture and weaker sections were fixed at 18% and 10% respectively. The PSL guidelines have been in place in India for over 40 years now. A substantial sum of the banks' funds (40%) is diverted specifically to these areas, and is not available for lending to other areas. It is, therefore, important that they are actually put to good use to serve the national objectives, and not otherwise. Banks, however, have faced challenges in complying with the total PSL targets and sectoral targets (agriculture, weaker sections). It is seen that some banks may be inclined to lend to more lucrative areas in PSL, like housing, education, export credit, etc., which have had better creditworthiness and an urban focus (Roy, 2006, Rao, Das and Singh, 2006, Uppal, 2009, and Raman, 2013). Furthermore, some banks with specific characteristics may be better equipped to lend to smaller firms, and to PSL borrowers who have special features unlike those of a normal corporate. An understanding of the factors impacting PSL by banks may help to frame certain policy and structural recommendations for better implementation of the PSL guidelines.

The RBI Committees which have examined the PSL policy from time to time have analyzed some generic issues relating to it, and in a more qualitative manner. Academic literature within this field is also limited in terms of issues covered, or of the time period covered, or in confining methodology to either secondary analysis or primary survey. While secondary data analysis may highlight certain lending patterns, the reasons for them can be better explained by bank lending officers who face the ground realities. Therefore, a primary survey is necessitated to support the secondary data analysis. This is especially valid for PSL

since it is a special kind of lending with its own peculiarities, expectations and challenges. The present study, therefore, provides an updated analysis of the subject and uses both secondary and primary data to highlight certain lending patterns, challenges faced by banks, and factors impacting the effective execution of PSL program in India. Based on this, an attempt has been made to offer a few recommendations to policy makers in order to enable the PSL program to be more effective from a bank lending perspective. The rest of the paper is organized as follows. The next section is of "Literature Review," which provides a survey of some of the previous studies related to this subject. The section after that is of "Data and Methodology," which includes details on the secondary data used for the study, on how this data has been organized for analysis, various tools used for data analysis, and primary survey details. This is followed by the section on "Results and Discussion," which explains the different findings from the study in terms of the lending patterns, preferences and challenges faced by banks; bank group wise differences in PSL compliance; sector wise differences in PSL compliance; relationship of PSL to bank characteristics and; PSL guideline suggestions. The final section is of "Concluding Comments," which lists out the conclusions from the study, and policy recommendations emerging therefrom.

## **LITERATURE REVIEW**

The need for and positive impact of the directed credit program (DCP) on inclusive growth of a country, and on growth of different sectors, has been analyzed by various studies like those conducted by Eastwood and Kohli (1999), Burgess, Wong and Pande (2005), and Swamy (2011). Banks in India, are an important part of the financial system and lend substantially to various segments of the economy, even though informal sources of credit still remain the main competitor, especially in rural India (Satyasai, 2008, Devaraja, 2011, and NSS 70th Round, 2013). In his study, Pradhan (2013) states that although the share of informal credit out of total rural credit has fallen over the years from 92.8% in 1951 to 42.9% in 2002, it is still a prominent figure. Out of the balance 57.1% (which is institutional credit), co-operatives and commercial banks (including Regional Rural Banks) account for nearly 91%. Main reasons for the dependence of rural borrowers on informal sources of credit despite them being very expensive include, flexibility in repayment terms, provision of credit for non-professional reasons like marriage, litigation, etc., ease in taking credit, and availability of loans without collaterals.

Within the priority sector lending (PSL) areas, a structural shift has been noticed in lending patterns of banks over the years. While banks, overall, have met the total PSL targets, there seems to be in general, a preference to lend to sectors other than agriculture, small-scale industries (SSI) and weaker sections (which are the desired sectors from social welfare point of view), since the other priority sector areas are more lucrative and less risky (Roy, 2006, Rao, Das and Singh, 2006, Uppal, 2009, and Raman, 2013) The planning commission of Government of India, in its eleventh five-year plan document, has observed that "PSL to agriculture/ SSI has diluted in the last ten years by a shift in the focus to better creditworthy activities such as housing, transport, professional activities, etc."

Within the banking system, few types of banks may be better at PSL than the others. The impact of bank size on lending and the fact that smaller banks have a comparative advantage in lending to smaller borrower firms, has been explored by many studies. Smaller borrowers have less of verifiable financial records and more of soft information. Smaller banks seem to be at a comparative advantage in relationship-based lending by procuring and acting on such soft information, and hence are able to lend more to such smaller firms. Larger banks instead focus more on hard information, which is easier to communicate, and thus focus more on larger firms where transaction based lending technologies are easily applicable (Peek and Rosengren, 1995, and Berger, Miller, Petersen, Rajan and Stein, 2005). PSL comprising of small business sized firms, agriculture and weaker sections with mostly opaque financials and lesser collaterals, may not hence be very suitable for transaction based lending technologies, and rather may be more aligned to relationship-based lending. Given that the larger banks have a lower proportion of their loan assets to small

borrower firms, this could be partly explained by their need to avoid agency problems and inconsistency in lending processes, due to their large size.

Therefore, they employ standard criteria based more on quantitative assessment of financial records leading to a “cookie cutter” approach, as against smaller banks, which rely more on qualitative information and thus, character based lending, thereby having more flexibility in lending (Cole, Goldberg, and White, 2004). Berger and Udell (2006) go on to say that while the smaller banks have a comparative advantage in lending based on relationship or soft basis, but this could also include "judgment" lending. Herein, judgment of the lending officer based upon his experience and training, is used to assess and extend loans. Berger and Udell (2006) in their study assess the issue of credit availability to small and medium enterprises (SMEs) in a holistic manner, rather than in a narrow sense. Lending technologies, as defined in terms of procuring information, screening them, structuring loan contracts and monitoring mechanisms, are viewed as a conduit to enable varying government policies and financial structures to translate to credit availability to SMEs. The study underlines the importance of considering not only bank size, but also its nature of ownership and the lending environment to explain their varying lending technologies, and hence credit availability to smaller firms. This aspect is further explored in the study by Berger, Klapper, Peria and Zaidi (2006) which uses data from India, and states that in developing countries, relationship is quite important in bank lending since the legal and regulatory structure is not always strong and supportive for creditors, and financial systems are more fragile. Furthermore, such countries have more of state-owned, i.e. public sector banks, which are larger in size.

The study found that private sector banks have a comparative advantage in providing main relationship to opaque firms, while foreign and state-owned banks have such comparative advantage vis-à-vis foreign firms and state-owned firms respectively. Furthermore, nationalized banks are not as likely as State Bank of India (SBI) to act as the main banks for SMEs. Neither of the two categories of state-owned banks are providing main relationship in rural markets as well, in a disproportionate manner, thereby not serving their mandate of PSL as per RBI guidelines. Kumar and Francisco (2005) found that smaller firms have more difficulty in credit access and have more credit constraints, and state-owned banks are more likely to lend to larger firms. Thus, government intervention in ownership of banks may not be very favorable for lending to small and information ally opaque firms.

Impact of government ownership in banks on their lending behavior is supposed to have three alternative views: social, agency and political. Social view suggests that state-owned banks maximize social objectives as against private sector banks who are driven more by profitability. Agency view suggests that agency cost in state-owned banks is higher, leading to corruption and misallocation of resources. Since public sector banks have some non-measurable objectives (primarily social) to serve, their employees have lower incentives. They may, therefore, resort to other measures to promote personal benefits, leading to sub optimal allocation of financial resource and inefficiency. Political view suggests that state-owned banks serve as a conduit for supplying political patronage, and this impacts their lending behavior. It suggests that politicians have their personal objectives to serve (to gain or maintain voting support) by creating and maintaining public sector banks. The findings of the study by Sapienza (2002) mainly support the political view in most sections, as also the agency and social views in some others. This raises policy issues that government ownership in banks could distort resource allocation, and politicized financial allocation has a negative impact on productivity and growth.

The agency view has been supported by a few other studies. Banerjee and Duflo (2004, 2014) found that the small firms are credit constrained, and that the banks also find such lending profitable. In spite of this, banks are reluctant to increase the amount of lending and especially to new firms, mainly to avoid possible action against them for bad decisions (good performance anyway does not attract enough rewards). This may as well be peculiar to public sector banks. In another study, Banerjee, Cole, and Duflo (2003) attempted to understand the plausible reasons for under lending by banks, and found that the banks have inertia of

lending, and lend more based on past loan limits. The penalties for bad lending to loan officers are more than rewards for increased lending (inertia and fear of prosecution). Regression analysis showed the impact of vigilance activity on credit given by public sector banks, which fell by 3-5% on account of the same, during the study period (vigilance data had 72% of frauds related to credit extended illegally). Further, banks find it easier and more convenient to invest in risk-free government securities than to lend to borrowers, since it may involve a rather lengthy and cumbersome process of screening and monitoring them. Finally, such lending may not be perceived to be very profitable to banks on account of the high default rates. The importance in lending, of a suitable employees' performance appraisal systems, was also highlighted in the study by Cull and Xu (2000), wherein they found that banks have been more effective, than direct government transfers, in lending to state-owned enterprises in China, mainly because the incentives to lend to good-quality borrowers were built into the bank employees' performance appraisal systems. Bhaumik and Piesse (2008) in their study, attempt to understand the credit disbursement behavior of three types of banks (as distinguished by ownership), i.e. state-owned (public sector) banks, private sector banks and foreign banks, and found some differences across them. In general, size or geographical coverage (number of branches) was found to be a more important factor for private sector banks, while non-performing assets (NPAs) was a more significant factor for credit disbursement for public sector banks.

Featherstone, Wilson, Kastens, and Jones (2007), in their study explored the lender and borrower specific factors which impact bank lending to agriculture. Among other things, borrower's character, and his credit risk or the expected probability of default, were found to be significant factors impacting the loan amount. Loan officer characteristics, in terms of percent of time lenders spent on agricultural loans and number of years' experience as an agricultural loan officer, were also found to be significant. The study by Rao, Das and Singh (2006) on assessing the impact of certain bank variables on SSI lending found the bank size and NPAs to be negatively related to SSI lending by public sector banks. Ahmed (2010) in his paper found that quality of loans and performance of the credit delivery system as measured by credit-deposit (C/D) ratios emerged to be the two prime factors to have influenced the volume of PSL in the study area. The study by Beck, Kunt and Peria (2008) concludes that overall banks consider SME lending to be very profitable. However, macro-economic instabilities in developing countries and competition in developed countries were considered to be the main obstacles in SME lending. In another study to understand the impact of risk aversion behavior of banks in India on their lending, Bhaumik and Piesse (2008) found that persistence of past lending, treatment of NPAs, regulations regarding NPAs and second generation reforms, norms of PSL, all have an impact on bank lending by making them more risk averse. Thus, it seems that risk aversion of banks, and their worry over NPAs (risk of default) is a critical factor impacting their lending in general. This is likely to be more so for PSL, which is perceived to be riskier form of lending. The study also puts a question mark on efficacy of PSL by banks, but further states that this is a political decision.

The political view, including the issue of political pressures faced by public sector banks, acting as a major deterrent to their lending, has also been discussed in few other studies. Cole (2009) in his study, assesses the impact of elections on agricultural lending in India, to check for presence of political intervention. The study found that there is an increase (by 5-10%) in agricultural lending by public sector banks during election years. More lending is observed in districts where a margin of victory or loss is narrow for the ruling party, thus signifying the presence of tactical redistribution to achieve electoral or political goals. Further, loan defaults were found to be higher around election time, thereby indicating that these loans were made for political intentions. The cost of such lending was also found to be quite high, especially since this increased agricultural lending did not lead to increased agricultural output. Thus, government ownership of enterprises exposes their resources to misuse by government for their political motives, and therefore, leads to inefficiency. A similar finding is noted in the study by Guha (2009), which aimed to see if agricultural and SSI lending by banks is influenced by political motives. It was found that credit to these sectors rose before and during general election years and thus, had political cycles. Subramaniam and Subramaniam (2009) in their study, have also stated that the "loan melas" and system of lending in rural areas encouraged corruption and tendency to default among the borrowers.

Thus, banks which focus more on lending efficiency by lowering their NPAs, may find it difficult to lend more to PSL, where risk of default may be higher. It may, therefore, require more discipline, compliance attitude and risk absorption capacity in banks to be able to lend to priority areas. This is normally indicated by a bank's Capital Adequacy Ratio (CAR) which is its solvency measure and defines its risk. It is generally seen as a bank's ability to bear losses, strength of its stability, performance and as compliance of regulatory provisions (Posner, 2014, Ikpefan, 2013, and Huang, 2005). The study by Kolari, Berney and Ou (1996) found that small business credit had a positive impact on profitability of smaller banks, and that CAR and Return on Assets (RoA, a measure of profitability) are positively related. The study by Berger and Bouwman (2013) found that capital could help banks, especially smaller banks, improve their performance in terms of survival probability, profitability and market share. The performance itself of banks, may also be dependent upon nature of ownership. In the Indian context, private sector banks have mostly performed better than public sector banks. The privatization process in India, has helped improve their performance (Das, Nag and Ray, 2004, Ghosh, 2010, and Mishra et al., 2013).

Since regulatory and lending environments are important factors determining lending, few changes in policy guidelines and inclusion of new sectors may also encourage better PSL compliance. The study by Mohan (2006) puts into perspective, the need to lend beyond traditional avenues, given the changes in demand and supply pattern of agricultural products. Not just production, financing of other affiliated activities like diversification, value added (processing) services, technology, inputs, marketing, distribution and rural infrastructure are also important for agricultural lending objectives to succeed. National objectives as outlined in government policy documents (Approach to twelfth five-year plan, 2012-17), highlight areas of national priority. Therefore, including some of these areas in the PSL sector eligibility list, will help align PSL policy to national economic policy.

### Research Gap

Academic research within this area focuses on a range of issues in such lending in a specific context. This is either of target compliance or of relationship of lending to bank size or nature of bank ownership or its risk aversion or profitability, etc. They are not considered altogether as linked to each other. In addition, most of these studies are limited in terms of the time period covered. Further, latest or an updated study on some of these issues, is not available. Finally, very few of them use both secondary data analysis and primary survey to support each other, in the same study. The present study thus, aims to fill these gaps by 1.) Combining the related issues to understand the complete picture, rather than by taking them in isolation, 2.) Taking a sufficiently long time period for the study (from 1998 to 2014), 3.) Using the latest period (2014) to provide an updated study for the area, and 4.) Using both secondary and primary tools of analysis. Secondary data analysis is supplemented with qualitative analysis from the primary survey to arrive at conclusions and recommendations for strengthening the PSL program.

### Research Objective and Questions

The primary objective of this study is to examine the PSL patterns of banks and to assess whether any bank-specific characteristics have an impact on this lending. Thus, an attempt is made to examine whether the banks have, over the study period, complied with the PSL targets as per the RBI guidelines, and exhibited any patterns or preferences or faced any challenges. Possible reasons for the same are identified in terms of the factors impacting PSL. This helps us to offer policy recommendations in order to make this program more effective in its implementation. Accordingly, the research questions are 1.) What are the lending patterns, preferences and challenges faced by banks in PSL? 2.) Does the pattern and target compliance differ significantly across bank groups and sectors in PSL? 3.) What bank-specific characteristics influence PSL patterns? 4.) How can the PSL program be made more effective for lending by banks?

## DATA AND METHODOLOGY

The study is based on secondary data analysis and primary survey.

### Secondary Data

Banks dominate the Indian Financial System with 68.50% of the market share, in which the scheduled commercial banks have almost 93% market share. Within this, the public sector banks have nearly 72.70% of the share, followed by private sector banks (20.8%) and foreign banks (6.5%) (RBI Report: Trend and Progress of Banking in India, 2014). Secondary data was collected from banks as, 1.) For trend Analysis, total 80 banks: 28 public sector banks (SBI group plus nationalized banks), 20 private sector banks and 32 foreign banks, and 2.) For principal component analysis (PCA) and panel regression analysis, total 46 banks: 27 public sector banks (SBI group plus nationalized banks), 19 private sector banks and 18 foreign banks. Bank groups (public, private and foreign) have been classified in the study in terms of the nature of ownership, as per the RBI classification. Data for public sector banks is available in all the sectors of agriculture, weaker Sections, SSI and other PSL (total PSL minus agriculture minus SSI lending) including housing and education, from 1998 to 2014. For private sector banks, data for SSI sector lending and hence for other PSL sector, is not attainable. Rest of the data (total PSL, agriculture and weaker sections' lending) is available from 2001 to 2014. Data of foreign banks is present for total PSL only, and from 2005-2014.

The total PSL target for foreign banks during the study period is 32%, which is different from that of other banks (40%). Therefore, this group has been analyzed separately and is not included in analysis for total PSL. As per the RBI guidelines, PSL target is to be computed as percentage of Adjusted Net Bank credit (ANBC) or credit equivalent amount of Off-Balance Sheet Exposure, whichever is higher. In the present study, PSL has been used in terms of this percentage, and not in absolute amounts, since the nature of bank lending is better exhibited by such percentages. Entire data has been taken from various tables listed under the head, "Statistical Tables Relating to Banks in India," for each year of the study period. This appears on the website of Reserve bank of India (RBI), under the head of "Publications" (Annual).

### Secondary Data Analysis

Apart from tools like trend analysis, averages, growth rates, standard deviation, etc., certain additional tools have been used, 1.) ANOVA to test differences in target deviations across PSL sectors and bank groups, 2.) Principal Component Analysis (PCA) to reduce the number of variables and to combine them into meaningful bank characteristics, and 3.) Panel regression analysis to understand the impact on PSL, of bank characteristics as drawn from PCA above. Basis literature review, nine important variables (definitions derived from RBI Glossary) of a bank's performance were identified, and collated in a panel format for public sector banks (1999-2014), private and foreign banks (2005-2014). 1.) Deposits plus advances of the banks, i.e. volume of business, used as an indicator of bank size, 2.) Number of employees to denote employee strength, and also used as a measure of bank size, 3.) Total assets of the bank, used as a measure of its size, 4.) Total number of branches, i.e. branch strength and reach, and also used as a measure of bank size, 5.) Capital Adequacy Ratio (CAR): This is a ratio of capital to risk weighted assets, and is arrived at by dividing the capital of the bank with aggregated risk weighted assets for credit risk, market risk and operational risk. This is a measure of bank's solvency, risk absorption capacity and capital strength.

Statutory authorities encourage banks to maintain minimum CAR as per the norms, hence it also reflects compliance and discipline attitude of banks, 6.) Return on Assets (RoA) is a profitability ratio of the bank which indicates the net profit (net income) generated on total assets. It is computed by dividing net income by average total assets of the bank, 7.) Net interest margin (NIM) is the net interest income (difference between the interest income and the interest expenses) divided by average interest earning assets of the bank and is thus, an indicator of its profitability, 8.) Credit-Deposit ratio (C/D ratio) is computed by dividing

total credit extended by the bank, by its deposits, and is an indicator of its lending aggressiveness, and 9.) Net NPA (non-performing assets) ratio to total assets is a measure of credit default rate for the bank. Lower NPAs is an indicator of its lending efficiency. An asset, including a leased asset, becomes non-performing when it ceases to generate income for the bank.

Since each of these variables is expressed in a different unit, they were scaled for the sake of consistency by taking their deviations from mean and dividing the difference by their respective standard deviations. A correlation matrix of these variables indicated that many of these were highly correlated to each other and therefore, Principal Component Analysis (PCA) was used to correct this issue. This also helped to reduce the number of variables, so that meaningful inferences on bank characteristics can be drawn from the components suggested by PCA test results. Based on the factor loadings of each variable in a component and original scaled data of variables, factor scores for each component were computed and collated in the panel format. A regression analysis was then carried out on this data set, separately with fixed effects and random effects, and out of these, one was chosen based on Hausman test results. Since the result in most bank groups indicated that random effects is better for the data taken, Breusch and Pagan Lagrangian multiplier test for random effects, was conducted, which confirmed presence of heteroskedacity in data. So, cross-sectional time-series FGLS regression was run to correct this problem, and thereafter final results were obtained and analyzed. In the bank group (of foreign banks) where Hausman test confirmed that fixed effects model is a better model, it was re-run to remove heteroskedacity and the final results were then used for interpretation.

### Primary Survey

The empirical results from data analysis have been supplemented through survey results. It has been done by a structured questionnaire which had detailed questions catering to each of the research questions of the present study, in a similar sequence. The options under each question were devised mainly based on prior research studies, and policy suggestions were mainly based on national policy documents and prior research studies. A mix of ranking, rating and semantic scale questions was used based on research objectives of respective questions. Enough scope was left for open-ended questions to provide for issues, which may have been missed out otherwise. Responses to these open-ended questions, along with personal interviews of some of the respondents, were separately analyzed by creating their main themes, and then relating them to questionnaire findings. The questionnaire was filled in by 97 lending officers of various banks, most of them belonging to senior management roles. A validity test by expert opinion, and reliability test by Cronbach Alpha test ( $\alpha = 0.867$ ,  $n = 121$ ), were done, which positively confirmed these two aspects of the primary survey. Mean ranks/ scores, percentages, etc. were used as main tools of analysis.

## **RESULTS AND DISCUSSION**

In order to identify the determinants of PSL, the lending patterns, preferences and challenges faced by banks were analyzed. Differences in target compliance by banks across bank groups and sectors, were also analyzed.

### Lending Patterns, Preferences and Challenges Faced by Banks

At the outset, the trends in compliance by banks over a period of time, were examined. Figure 1 presents lending to total PSL, agriculture, weaker sections, SSI and other PSL by sample banks. Total PSL, agriculture and weaker sections is for all banks (public plus private), while SSI and other PSL are for public sector banks only. Public sector banks data is available from 1998-2014 while that of private sector banks is from 2001-2014. Weaker sections' data is present from 2001 to 2014. Data for lending to housing and education sectors is available for public sector banks from 1998-2014, but is missing from 2002-2007 in between this period.



Figure 1: Trends in PSL

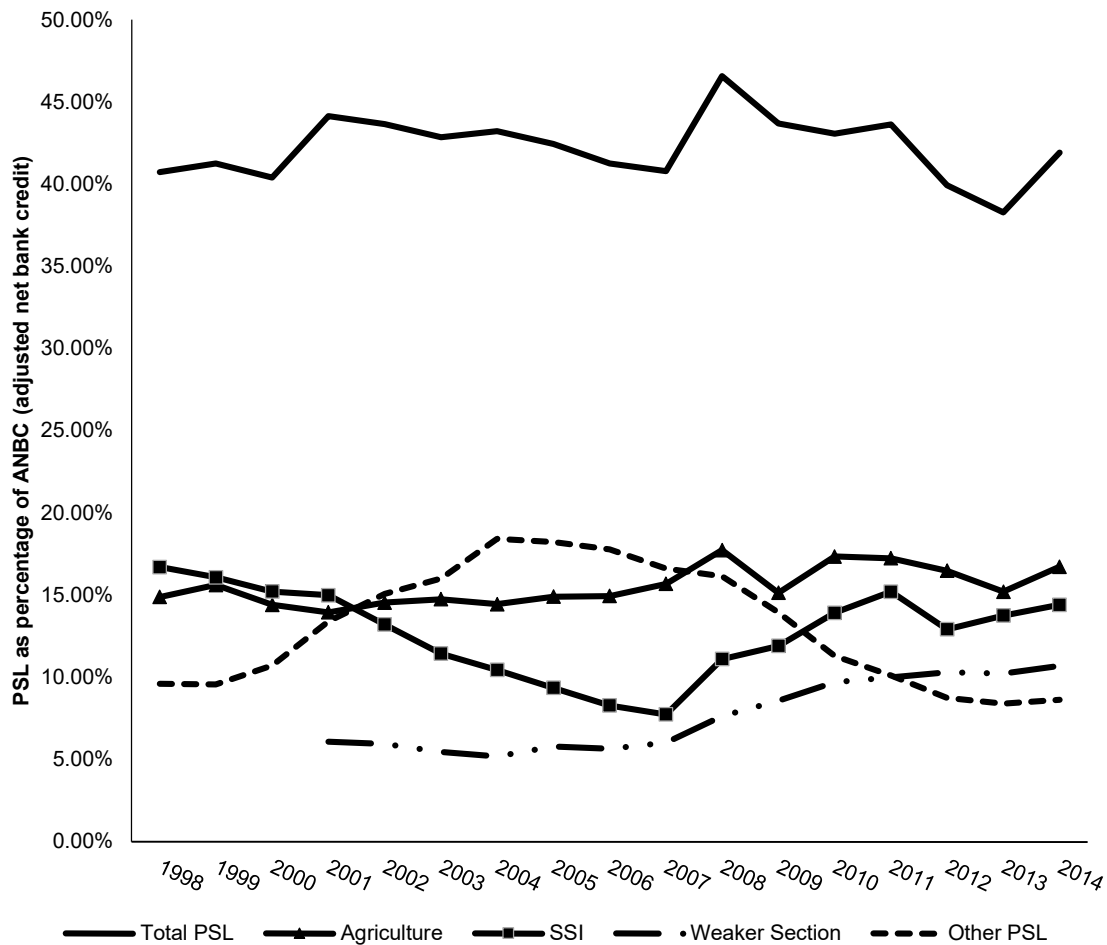


Figure 1 highlights trends in PSL (Total and sectoral) by sample banks, over the years during the study period.

Data relating to average PSL percentage of the study period, of various bank groups to different sectors in PSL, is presented in Table 1 below.

Thus, the average PSL (total) by banks is well above the target of 40% during the study period. However, the average lending to sectors of agriculture and weaker sections, is quite below their targets as defined in RBI guidelines (Table 1). Total PSL percentage received a boost in years 2001, 2008 and 2014 when the previous declining trend was corrected by an upswing. While in the year 2001, the increase was accompanied with an increase in mainly share of other PSL (Total PSL minus agriculture and SSI), in the year 2008, it showed an increase in share of agriculture, SSI and weaker section lending as well. As per the RBI Working Group Report (2015), a notable increase in agriculture share in PSL was seen during early 2000s when the Central Government initiated a Comprehensive Credit Policy for reviving the growth of agricultural credit. Similar revival signs were also noticed in SSI share of PSL, after the broadening of the definition of the SSI sector in the year 2006-07.

Table 1: PSL Target Compliance and Trends

Parameter	Total PSL	Agriculture	SSI	Weaker Section	Other PSL		
					Total	Housing	Education
Target as per RBI guidelines	40%	18%	none	10%	none	none	none
Average PSL	42.23%	15.53%	12.75%	7.663%	13.10%	5.982%	1.055%
Compounded annual Growth Rate (CAGR) in PSL percentage	0.1808%	0.7328%	-0.9204%	3.582%	-0.6745%	9.260%	16.80%
SBI Group	42.11%	16.58%	12.83%	9.452%	12.97%	6.075%	1.089%
Nationalized Banks	41.73%	15.63%	12.66%	8.268%	13.41%	5.889%	1.020%
Private Banks	43.28%	14.28%	N.A.	5.364%	N.A.	N.A.	N.A.
Foreign Banks	32.85%	No target	No Target	No Target	N.A.	N.A.	N.A.
	(target: 32%)		Target				

Table 1 presents data for average PSL, and its growth rate over the study period, for various bank groups, and to different sectors in PSL.

As for the sector al lending, percentage lending to other PSL category increased until 2004, but started declining thereafter. Its average for the entire study period is, however, quite substantial (13.10%). Out of this other PSL category, sector of “Housing” seems to be the preferred choice of banks taking over 45% of the share of lending to this sector (Table 1) and showing a high growth rate as well (9.26%). This is also substantiated by our primary survey findings where this sector has been ranked as number one in preference order of banks. Percentage lending to SSI sector, even though ranked in the survey as second most preferred sector for lending by banks, is showing a negative growth (-0.92%) over the study period. This may signify that banks may be facing challenges in lending here. The average percentage of lending to agriculture, has not met the target, and it also shows a paltry growth rate (0.73%), during the study period. Further, it ranks low in the preference order of banks, as per the survey findings. The least preferred sector is of weaker sections. The main reason for such a sector preference order by banks, is cited as, “Better value and quality of collaterals offered against loans in these sectors,” followed by, “Borrowers are located in urban areas, which are easier to reach and access,” and then, “Lower default rates in these sectors’ lending.”

Lending to weaker sections has been gradually increasing over the years and has finally managed to surpass its target of 10% since 2012 for some banks. The sustainability of this trend may, however, be uncertain, since banks are still concerned of lending efficiency (lowering default rates and having collaterals) mainly due to fixed lending processes of public sector banks and high risk of penalties for bank employees for higher default rates in loans extended by them. As per the survey, loans to weaker sections are given without sufficient collaterals and for objectives with little incremental income, which do not enable loan repayments, which discourages this kind of lending by banks. Instead, a more effective alternative as many of them suggested, is to use the micro finance system for this kind of lending which institutions are better equipped to handle the peculiar challenges of this kind of lending.

In general, the number-one challenge faced by banks in PSL emerged to be, “Higher probability of NPAs (default rate).” Sector ally as well, the greatest challenge in lending to SSI sector and weaker sections turned out to be, “Higher risk of default (NPAs),” followed by “Lower value of collateral offered against the loan.” The biggest challenge in lending to the agriculture sector is cited as, “Policy interventions by the government like a loan waiver, etc.,” followed by, “Higher risk of default (NPAs).” Thus, the main challenge faced by banks in most priority sectors, seems to be related to lending efficiency, in terms of probable high risk of credit default (NPAs) and lesser collaterals of loans given. The prominent reason in case of agriculture lending is government/political interference like loan waivers. This has also figured very frequently in qualitative comments/ recommendations of respondents, and is the topmost ranking policy suggestion of the survey as, “Lower political interference in decisions to grant loans or to waive off loans.”

As per our primary survey findings, almost 70% of the respondents feel that a good amount of importance is assigned to PSL in banks. However, in spite of this, it seems that adequate employees and resources are not deployed by banks to this area of lending. 42.1% of respondents have rated the level of deployment as inadequate, as against 39% who have rated it as adequate. Only 11.6% of the respondents have rated this at the highest level of adequacy. The main reason cited for inadequate resource deployment by banks was a shortage of bank staff in general. Further, the majority of respondents (55.7%) opined that banks prefer to lend to borrowers in urban areas rather than in the rural areas, as against 11.4% who opined that they did not. The main reason for such urban preference was cited as, “Easy access due to stronger network of urban branches,” followed by “Better-trained staff in urban branches.” The above responses thus, highlight the need for strengthening of branches by hiring and training of suitable staff for this particular sector, on account of its special needs and challenges.

Some of the private sector banks which have more flexible structures, and human resource (HR) policies have managed to do this and have therefore, been able to lend more to PSL. The number one ranked factor which may adversely affect the motivation of advances managers to focus on PSL, came up to be “Possibility of administrative action against advances managers in case of high defaults (NPAs) in PSL accounts.” This was followed by, “Not enough incentives built into employee performance appraisal system to increase lending to comply with targets.” This finding, along with an analysis of general recommendations and personal interviews, supports the fact that building the right culture and HR policy in banks, is important to boost their PSL. This is also the second most preferred ranking policy suggestion of the primary survey, as “Build in special awards and recognition for employees who perform effectively in PSL area in terms of lending more to smaller/ needy sections while minimizing risk of defaults.” Thus, the HR policy for PSL must be designed separately than for the other forms of bank lending, keeping its special features in mind.

### Bank Group Wise Differences in PSL Compliance

On an average, all bank groups (SBI group, nationalized banks, private sector banks and foreign banks) complied with the overall target of PSL over the study period and in fact, exceeded the same. This is evident from the data in table 2 below.

Table 2: Bank Groupwise PSL Compliance Details

	SBI Group	Nationalized Banks	Private Banks	Foreign Banks
<b>Target: Total PSL</b>	<b>40%</b>	<b>40%</b>	<b>40%</b>	<b>32%</b>
Average PSL	42.11%	41.73%	43.28%	32.85%
Average Standard deviation	4.389%	4.719%	7.538%	12.19%
CAGR in PSL percentage	-0.1986%	0.0860%	0.2821%	1.628%
Average Percentage of banks not complying target in a year	26.05%	26.75%	23.17%	55.66%
Average Percentage of non-compliant years of target by a bank	23.98%	28.53%	20.85%	56.79%

Table 2 presents details of PSL compliance for various bank groups over the study period.

However, ANOVA tests' results suggest that bank ownership type had a significant impact on such positive target deviations. These results are presented in Table 3 below. Private sector banks have significantly higher positive target deviations, followed by public sector banks and then followed by foreign banks. Further, as per the data in Table 2, private sector banks have also done significantly better than the public sector banks, with their higher average lending (43.28%), and a higher per annum growth rate (CAGR of 0.28%). They also have the lowest average percentage of banks not complying with the target in a year, as well as the lowest average percentage of non-compliant years of target for a bank during the study period. However, their standard deviation is higher (7.53%) than that of public sector banks. Foreign banks, even

though have met their targets on an average, have the highest standard deviation (12.19%). Moreover, they have the highest average percentage of banks not complying with the PSL target in a year, and the highest average percentage of non-compliant years of target for a bank. This indicates that there is a wide variation among different banks in this category in terms of their PSL target compliance.

Table 3: Impact of Bank Ownership Type on PSL Target Compliance

Average Total PSL Target Deviations		Impact of Bank Ownership on Total PSL Target Deviations	
Bank Group	Average Target Deviation (%)	Bank Groups Compared in ANOVA	ANOVA Result
SBI Group	2.201	All bank groups	F(3,902)= 6.159***, p= 0.0004
Nationalized Banks	2.211	Public, Private	F(1,647) = 14.64***, p=0.0001
Private	4.181	Private, Foreign	F(1,515) = 11.47***, p= 0.0008
Foreign	0.9488	Public, Foreign	F(1, 644) = 3.339*, p= 0.0681
		SBI Group, Nationalized	F(1, 387) = 0.000), p= 0.9830
Average Agriculture Target Deviations		Impact of Bank Ownership on Agriculture Lending Target deviations	
Bank Group	Average Target Deviation (%)	Bank Groups	ANOVA Result
SBI Group	-1.487	SBI Group, Nationalized, Private	F(2,709)= 11.08***, p= 0.0000
Nationalized Banks	-2.360	Public, Private	F(1, 710) = 17.99***, p= 0.0000
Private	-3.490	SBI Group, Nationalized	F(1,456) = 6.512**, p= 0.0110
Average Weaker Section Target Deviations		Impact of Bank Ownership on Weaker Section Lending Target Deviations	
Bank Group	Average Target Deviation (%)	Bank Groups	ANOVA Result
SBI Group	-0.6406	SBI Group, Nationalized, Private	F(2, 625) = 61.84***, p= 0.0000
Nationalized Banks	-1.732	Public, Private	F(1, 626) = 115.99***, p= 0.0000
Private	-4.658	SBI Group, Nationalized	F(1, 375) = 9.155***, p= 0.0027

(\*), (\*\*) and (\*\*\*) indicate significance at 10%, 5% and 1% levels, respectively. Table 3 presents the findings of ANOVA test for impact of bank ownership type on PSL target deviations. Target deviations of private sector banks (positive for total PSL, and negative for sectoral) are significantly higher than those of other bank groups. Thus, while they have done better in total PSL target compliance, they are lagging behind in sectoral target compliance.

### Sector Wise Differences in PSL Compliance

If we look at the sector wise target compliance, the picture is opposite. Table 4 presents ANOVA test findings relating to impact of sector type on target compliance. While banks exceeded the targets of total PSL, they have, in general (excluding foreign banks, which do not have these sectors' targets), not been able to comply with the targets of sectors in PSL, i.e. of agriculture (18%) and weaker section lending (10%). The sectoral target deviations are negative and are significantly lower than of total PSL. However, between the two sectors of agriculture and weaker sections, there is no significant difference in their negative target deviations. This suggests that the situation is equally challenging for banks with regard to the target compliance of both these sectors.

Within this, if we further analyze the position of various bank groups (Table 3), private sector banks, which were better than public sector banks in total PSL target compliance, are doing worse in the sectoral targets' compliance. Their negative target deviations in both these sectors are significantly higher than those of public sector banks. They also have a higher standard deviation here. However, they seem to be trying to come up to speed by displaying a higher CAGR over the study period, i.e. 4% in agriculture and 7.52% in weaker section lending. Within public sector banks' category, SBI group's negative sectoral target deviations are significantly lower than those of nationalized banks, which shows its better lending to these sectors. However, the biggest bank in this group, SBI, has a mean lending of total PSL of only 39.2% over

the study period which is lower than the 40% target. In fact, it has not been able to comply with this target in nearly 60% of the years during the study period.

Table 4: Impact of Sector Type on PSL Target Compliance

Average Target Deviations		Impact of Sector Type on Target Deviations: Anova Results	
Sector	Average Target Deviation (%)	Sectors Compared in ANOVA	ANOVA Result
Total PSL	3.022	Total PSL, Agriculture, Weaker Sections	F(2, 2012)= 281.76***, p= 0.0000
Agriculture lending	-2.864	Total PSL, Agriculture	F(1, 1385) = 378.77***, p= 0.0000
Weaker Section lending	-2.724	Total PSL, Weaker Sections Agriculture, Weaker Sections	F(1, 1289) = 355.31***, p= 0.0000 F(1, 1350 ) = 0.3511, p= 0.5536

(\*), (\*\*) and (\*\*\*) indicate significance at 10%, 5% and 1% levels, respectively. Table 4 presents findings of ANOVA test for impact of sector type on PSL. Target compliance for total PSL (positive target deviations) by banks was significantly better than for sectors, where the target deviations were negative. However, there was no significant difference between the negative target deviations of the two sectors of agriculture and weaker sections. This signifies that the situation was equally challenging for compliance by banks, in both these sectors of agriculture and weaker sections.

As against this, smaller banks like State Bank of Suarashtra, Nainital Bank and Lakshmi Vilas bank, have had full compliance in every single year of the study period. Thus, public sector banks are lending lesser percentage to PSL, as compared to private sector banks. Most of the public sector banks are larger in size, have fixed organization structures and human resource (HR) polices. They may thus, have lesser scope for relationship-based lending, which may be required for PSL. Political pressures and fear of prosecution for credit defaults amongst their employees may be higher, acting as other deterrents to such lending (where the probability of defaults may be higher). Private sector banks with more flexible structures, processes and approach to make PSL as a commercially viable business opportunity, are faring better in this regard. However, sect oral lending to agriculture and weaker sections is better for public sector banks, and within this, is best for the SBI group. This may be on account of their better rural reach or their higher commitment to social cause of PSL. Such a higher commitment could be on account of their government ownership, and also since some of them like SBI, were part of framing the original PSL guidelines.

Relationship of PSL to Bank Characteristics

The next part of the present research is to understand the reasons underlying the above trends in PSL by banks, in terms of the bank characteristics which may impact such lending patterns. This was done by relating this lending (PSL as percentage of ANBC) to bank characteristics through PCA and panel regression analysis. For the category of overall banks (public and private sector banks), the PCA test extracted three components, i.e. bank size, bank performance and lending efficiency, explaining nearly 73% of the total variance. The regression analysis showed a significant relation of first two of these components to PSL percentage. The findings are collated and presented in Table 5. The following regression equation was estimated to identify determinants of PSL percentage of banks:

$$PSL\ Percentage = \alpha + \beta_1 (Bank\ Size) + \beta_2 (Bank\ Performance) + \beta_3 (Lending\ Efficiency) \tag{1}$$

Generalized Least Squares estimates were obtained. The results are presented in Table 5. Bank Size: This factor comprises of variables like number of branches, number of employees, asset size and volume of business, and has a significant negative impact on PSL percentage ( $\beta_1 = -.02805$ ). This indicates that bank size is inversely related to PSL by banks. The smaller banks are lending more to PSL. This is in line with the findings from earlier studies, which show that the smaller banks that rely mainly on relationship banking, are able to lend more to smaller-sized borrowers like in SSI sector, agriculture, etc. These sectors may not have verifiable financial records. It may, therefore, be difficult for larger banks to lend to such borrowers, since these banks tend to rely more on transaction based lending technologies (Cole, Goldberg and White, 2004, Berger, Miller, Petersen, Rajan and Stein, 2005, and Uchida, Udell and Watanabe, 2008).

Some of the personal interviews conducted with small banks, which have a very healthy track record of PSL compliance, also confirms this trend. They have aligned their hiring and HR policies to suit the peculiar demands of PSL. Lending to SSIs, agriculture, etc. in rural/ small towns is better handled by local staff, i.e. officers recruited from that area itself, who are well versed with local conditions, culture and people. They may thus, be able to lend better and get timely repayments. So, instead of using staff from general pool, who may be reluctant to be posted in such areas and may also take time to understand and adapt to local conditions, this may be a better strategy for PSL.

Local staff may be preferred for hiring for PSL, even though these people may not be meeting some of the otherwise stringent professional requirements of bank's hiring policies. Aligning the HR policies to PSL also emerges as the main theme from the survey, and from its qualitative comments and recommendations. Bank performance: This comprises of variables of RoA, NIM and CAR (Table 5). This component has a positive significant relation with PSL percentage ( $\beta_2 = 0.10209$ ). So, higher the focus of the banks on profitability, earning efficiency of assets (NIM and RoA) and higher their risk absorption capacity and compliance attitude (CAR), higher is their PSL. Since PSL is considered by banks to be riskier form of lending, higher risk absorption capacity of banks helps them to lend more to PSL. Further, the reason why some of the private small banks are able to lend more to priority sector areas, is that they view PSL as a commercially viable business and profit-making opportunity, instead of seeing it merely as a social obligation. Since the beta coefficient of this factor is higher than that of bank size, it has a larger impact on PSL of banks. This may suggest that in India, banks, which are more disciplined in their approach by focusing on better performance, are lending more to PSL. This is also substantiated by the qualitative comments and recommendations of the survey where many respondents have cited attitude of the banks to comply with the RBI guidelines, emanating from top management's attitude and bank culture, as an important factor contributing to higher PSL by banks. Personal interviews with some senior bank officers (including a past chairman of SBI), have also concluded that the compliance attitude and culture of a bank are the most important factors, which could induce banks to lend more to the priority sector.

Lending efficiency: This component comprises of variables of C/D ratio (positive) and net NPA ratio (negative). While it is not a significant factor impacting PSL percentage in the overall banks group, it is showing very high negative and significant relationship for public sector banks' category, which forms a big component of total banks' category.

For the group of public sector banks (SBI group plus nationalized banks), the three components from PCA test are the same as for overall banks' category. These explain nearly 75% of the total variance. However, the regression results suggest that the last two components of bank performance and lending efficiency, have a significant impact on PSL percentage. Component of bank size is significant at the p-value of about 20% only. It is hence, not a very strongly impacting factor for this group of banks. The findings are summarized and presented in Table 6. The following regression equation was estimated to identify determinants of PSL percentage of public sector banks:

$$PSL \text{ Percentage} = \alpha + \beta_1 (\text{Bank Size}) + \beta_2 (\text{Bank Performance}) + \beta_3 (\text{Lending Efficiency}) \quad (2)$$

Generalized Least Squares estimates were obtained. The results are presented in Table 6. Bank performance has a positive significant relation with PSL percentage ( $\beta_2 = 0.1254$ ), thus signifying that public sector banks with higher profitability, more disciplined attitude and risk absorption capacity, lend more to priority sector. On the other hand, the component of lending efficiency has a negative significant relationship with PSL percentage ( $\beta_3 = -.17116$ ). This indicates that banks which have a higher focus on lending efficiency, by having higher C/D ratios combined with keeping lower NPAs, lend less to PSL. Since the beta coefficient of this factor of lending efficiency is higher than that of bank performance, it has a larger impact on PSL. Even in the survey findings, a good number of respondents have cited credit discipline of borrowers as a major factor impacting PSL. They opine that factors which reduce lending efficiency, like high probability

of credit default (NPAs), lower collaterals, financing for objectives/ projects, which are financially unviable, political interference in agriculture lending leading to high defaults, are all prominent challenges and factors which discourage banks from lending more to priority sector areas.

Table 5: Impact of Bank Characteristics on PSL: Overall Banks (Public and Private Sector)

Principal Component Analysis (PCA)			Panel Regression			
Variable	Bank Characteristic	Initial Eigen-values	Coefficient (β)	z Value	Probability Value P> z	
Deposits plus advances	Volume of Business					
Number of employees	Employee Strength	Bank Size (1)	3.542	-0.02801*** (0.0068)	-4.13	0.000
Total Assets	Advances					
Total number of branches	Branch strength					
Capital adequacy Ratio (CAR)	Risk absorption capacity	Bank Performance (2)	1.990	0.1021*** (0.0208)	4.91	0.000
Return on Assets (RoA)	Profitability					
Net Interest Margin (NIM)	Lending Aggressiveness	Lending Efficiency (3)	1.061	-0.0135 (0.0205)	-0.66	0.509
Credit-Deposit Ratio (C/D ratio)	Risk of credit default					
Net NPAs (non-performing assets) to total assets (negative in PCA)						
	Constant			-0.0586** (0.0263)	-2.23	0.026

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. PCA: Kaiser-Meyer-Olkin Measure of Sampling Adequacy: 0.6870; Bartlett's Test of Sphericity, Sig.: 0.000 Cross-sectional time-series FGLS regression. Number of obs= 549; number of groups= 46; wald chi2(3)= 72.99; Prob>chi2 = 0.0000 The values within the parentheses are standard errors. (\*), (\*\*) and (\*\*\*) indicate significance at 10%, 5% and 1% levels, respectively. Table 5 presents the results of tests of PCA and regression for the group of overall banks. The PCA test extracted three components representing bank characteristics of bank size, bank performance and lending efficiency. Out of these, the first two characteristics, i.e. of bank size and of bank performance, had a significant impact on PSL percentage of overall banks.

For the group of private sector banks, the PCA test extracted three components explaining 77% of the total variance, and the regression analysis shows a significant relation of PSL percentage with all three of these. Summary of the findings, is presented in Table 7. The following regression equation was estimated to identify determinants of PSL percentage of private sector banks:

$$PSL \text{ Percentage} = \alpha + \beta_1 (\text{Bank Size}) + \beta_2 (\text{Bank Performance}) + \beta_3 (\text{Lending Aggressiveness}) \quad (3)$$

Generalized Least Squares estimates were obtained. The results are presented in Table 7.

**Bank Size:** Here again, the relationship is negative and significant ( $\beta_2 = -0.0338$ ), signifying that the smaller banks are lending higher percentage to PSL.

**Bank performance:** This component here comprises of RoA (positive), CAR (positive) and NPA ratio (negative). It has a positive significant impact on PSL ( $\beta_2 = 0.1265$ ). So, banks with higher asset efficiency (higher RoA and lower NPAs), and with higher risk absorption capacity and compliance attitude (higher CAR), are able to lend more to PSL.

Table 6: Impact of Bank Characteristics on PSL: Public Sector Banks

Variable	Principal Component Analysis (PCA)		Panel Regression			
	Bank Characteristic		Initial Eigen-values	Coefficient (β)	z Value	Probability Value P> z
Deposits plus advances	Volume of Business	Bank Size	3.617	-0.0158 (0.0118)	-1.32	0.187
Number of employees	Employee Strength (1)					
Total Assets	Advances					
Total number of branches	Branch strength					
Capital adequacy Ratio (CAR)	Risk absorption capacity	Bank Performance (2)	2.029	0.1254*** (0.0287)	4.38	0.000
Return on Assets (RoA)	Profitability					
Net Interest Margin (NIM)						
Credit-Deposit Ratio (C/D ratio)	Lending Aggressiveness	Lending Efficiency (3)	1.128	-0.1712*** (0.0334)	-5.13	0.000
Net NPAs to total assets (negative in PCA)	Risk of credit default					
	Constant			-0.0442 (0.0416)	-1.06	0.288

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization PCA: Kaiser-Meyer-Olkin Measure of Sampling Adequacy: 0.6924; Bartlett's Test of Sphericity, Sig.: 0.000 Cross-sectional time-series FGLS regression. Number of obs= 389; number of groups= 27; wald chi2(3)= 47.16; Prob>chi2 = 0.0000 The values within the parentheses are standard errors. (\*), (\*\*) and (\*\*\*) indicate significance at 10%, 5% and 1% levels, respectively. Table 6 presents the results of tests of PCA and regression for the group of public sector banks. The PCA test extracted three components representing bank characteristics of bank size, bank performance and lending efficiency. Out of these, the last two characteristics, i.e. of bank performance and of lending efficiency, had a significant impact on PSL percentage of public sector banks.

**Lending aggressiveness:** The component has high loadings of C/D ratio (positive) and NIM (negative). This has a positive and significant relation with PSL percentage, ( $\beta_3 = 0.2638$ ). Thus, banks in the private sector which are more aggressive in terms of lending (higher percentage of deposits given as loans, combined with lower interest margins), tend to lend more to PSL. Since its beta coefficient is the highest, it has the highest impact on PSL, followed by bank performance and then by bank size.

For the group of foreign banks, the PCA test again extracted three components explaining 74% of the variance. The regression result, however, shows a significant relation to only one component, that of profitability. This factor here comprises of RoA and NIM. It has a significant negative impact on PSL percentage ( $\beta_2 = -.2431$ ). The other two factors of bank size and lending aggressiveness do not have a significant relation with PSL. Unlike in case overall and public bank groups, where profitability measures were combined with CAR to signify discipline attitude also, in the group of foreign banks, profitability stands out alone. Summary of the findings is presented in Table 8. The following regression equation was estimated to identify determinants of PSL percentage of foreign banks:

$$PSL \text{ Percentage} = \alpha + \beta_1 (\text{Bank Size}) + \beta_2 (\text{Bank Profitability}) + \beta_3 (\text{Lending Aggressiveness}) \quad (4)$$



Table 7: Impact of Bank Characteristics on PSL: Private Sector Banks

Principal Component Analysis (PCA)			Panel Regression			
Variable	Bank Characteristic		Initial Eigen-values	Coefficient (β)	z Value	Probability Value P> z
Deposits plus advances Number of employees Total Assets	Volume of Business	Bank Size (1)	4.144	-0.0338** (0.0151)	-2.24	0.025
	Employee Strength					
	Advances					
Total number of branches	Branch strength					
Capital adequacy Ratio (CAR)	Risk absorption capacity	Bank Performance (2)	1.771	0.1265*** (0.0308)	4.11	0.000
Return on Assets (RoA)	Profitability					
Net NPAs to total assets (negative in PCA)	Risk of Default					
Credit-Deposit Ratio (C/D ratio)	Lending Aggressiveness	Lending Aggressiveness (3)	1.040	0.2638*** (0.0489)	5.39	0.000
Net Interest Margin (NIM) (negative in PCA)	Risk of Default					
	Constant			-0.1475*** (0.0513)	-2.87	0.004

*Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. PCA: Kaiser-Meyer-Olkin Measure of Sampling Adequacy: 0.7239 ; Bartlett's Test of Sphericity, Sig.: 0.000 Cross-sectional time-series FGLS regression. Number of obs= 160; number of groups= 19; wald chi2(3)= 44.55; Prob>chi2 = 0.0000 The values within the parentheses are standard errors. (\*), (\*\*) and (\*\*\*) indicate significance at 10%, 5% and 1% levels, respectively. Table 7 presents the results of tests of PCA and regression for the group of private sector banks. The PCA test extracted three components representing bank characteristics of bank size, bank performance and lending aggressiveness. All these three characteristics had a significant impact on PSL percentage of private sector banks.*

Ordinary Least Squares estimates were obtained. The results are presented in Table 8 Thus, it seems that the foreign banks which focus more the profitability aspect, would lend less to PSL, which is perceived as a non-lucrative area of lending by banks in general. Unlike a few profitable private sector banks like Ratnakar bank, Nainital bank, etc., which have made PSL as a business proposition and view it as a profit-making opportunity, foreign banks do not seem to have done so. This could be because of their limitations in terms of branch reach or of knowledge of local culture, conditions and practices, or such other reason.

### PSL Guideline Suggestions

In the primary survey, almost 78% of respondents opined (as against 2.3% who did not) that the current RBI guidelines relating to PSL, are in alignment with the national objectives of fast, sustainable and inclusive growth and in ensuring equitable growth across all sectors of society. However, out of this, only 29% felt that this was to a “great extent.” This implies that there is a scope for making a few improvements here. The most favored general policy suggestions in the survey, included lowering political interventions in lending, and redefining employee policies to build in incentives for higher risk adjusted lending. Some of the new sector suggestions for inclusion in the PSL eligibility list, which received great support from the respondents, were, 1.) Projects for improving rural infrastructure in various areas like roads, transport facilities, rural electrification, housing, etc., 2.) Projects to build more hospitals and healthcare facilities (especially in rural areas), 3.) Green, environment friendly projects and bio diversity conservation projects, and 4.)

Table 8: Impact of Bank Characteristics on PSL: Foreign Banks

Variable	Principal Component Analysis (PCA)		Panel Regression			
	Bank Characteristic	Initial Eigen-values	Coefficient (β)	t Value	Probability Value P> t	
Deposits plus advances Number of employees Total Assets	Volume of Business	Bank Size (1)	4.171	0.0735 (0.0608)	1.21	0.244
	Employee Strength					
	Advances					
Total number of branches	Branch strength					
Capital adequacy Ratio (CAR) (negative in PCA)	Risk absorption capacity					
Return on Assets (RoA)	Profitability	Bank Profitability (2)	1.497	-0.2431*** (0.0498)	-4.87	0.000
Net Interest Margin (NIM)						
Credit-Deposit Ratio (C/D ratio)	Lending Aggressiveness	Lending Aggressiveness (3)	1.046	-0.1277 (0.1169)	-1.09	0.290
Net NPAs to total assets	Risk of Default					
	Constant			-0.0000* (0.0000)	-1.79	0.091

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. PCA: Kaiser-Meyer-Olkin Measure of Sampling Adequacy: 0.7348; Bartlett's Test of Sphericity, Sig.: 0.000 Fixed-effects (within) regression. Number of obs= 86. Number of groups= 18; F(3,17) = 71.37; Prob > F = 0.0000 The values within the parentheses are standard errors. (\*), (\*\*) and (\*\*\*) indicate significance at 10%, 5% and 1% levels, respectively. Table 8 presents the results of tests of PCA and regression for the group of foreign banks. The PCA test extracted three components representing bank characteristics of bank size, bank profitability and lending aggressiveness. Out of these, only the bank profitability characteristic had a significant and negative impact on PSL percentage of foreign banks.

Projects to build schools especially in rural areas. This will help boost the overall economic development of rural areas, where the majority of Indian population resides, in a holistic manner. It will thereby support the credit policy initiatives of banks, and make it an integral part of the broader national objective of balanced and inclusive growth. The intent and spirit of compliance for PSL, are present in most banks, and they in general align with its objectives. This is evident from the personal interviews of a few lending officers, as also from the fact that suggestions in the survey to reduce the PSL target from current 40% and agriculture target from 18%, received the lowest support. Relevant findings from the survey are presented in Table 9.

Table 9: Primary Survey Findings: Policy Suggestions for Better PSL Compliance

Suggestions for Policy Changes and Amendments in RBI Guidelines to Increase PSL Compliance					
Options	Mean Agreement Score	Rank	Percentage of Respondents		
			Disagree	Neutral	Agree
Lower political interference in decisions to grant loans or to waive off loans	4.453	1	5%	2%	93%
Build in special awards and recognition for employees who perform effectively in PSL area in terms of lending more to smaller/ needy sections while minimizing risk of defaults	4.035	2	6%	12%	83%
More awareness campaigns in banks to build positive culture of executing social responsibilities	4.023	3	8%	7%	85%
Widen the definition and add more sectors in PSL	4.000	4	6%	8%	86%
Reduce the total PSL target percentage from current 40% to lower levels	3.093	11 (second last rank)	45%	3%	51%
Reduce the sub target of agriculture from 18% to lower levels	2.651	12 (last rank)	59%	6%	35%
Suggestions for New Sectors/ Categories to be Added in the PSL Eligibility List to Ensure Better Adherence to National Objectives					
Options	Mean Agreement Score	Rank	Percentage of Respondents		
			Disagree	Neutral	Agree
Projects for improving rural infrastructure in various areas like roads, transport facilities rural electrification, housing etc.	4.232	1	7%	7%	86%
Projects to build more hospitals and healthcare facilities especially in rural areas	4.221	2	7%	2%	91%
Green, environment friendly projects and bio diversity conservation projects	4.209	3	5%	7%	88%
Projects to build schools especially in rural areas	4.174	4	5%	8%	87%

\* 86 respondents answered these questions, rest skipped them. Table 9 presents the primary survey findings for suggestions by respondents with respect to changes in PSL policy and guidelines to ensure more PSL target compliance, and to include new sectors in the PSL eligibility list to ensure better adherence to national objectives. Respondents were asked to assign an agreement score to each option, on a scale of 1 to 5 ("strongly disagree" to "agree"). Final ranks were assigned to options based on their respective mean agreement scores.

## CONCLUSIONS

The findings of the study suggest that banks in general, have complied with the total PSL targets, with private sector banks faring better in this regard. However, they all have been unable to comply with the sector al targets for agriculture and weaker section lending, with public sector banks being slightly better in this regard. As per the survey findings, a distinct preference was noticed among banks for lending in urban areas, and to select sectors in PSL, like housing and sectors other than agriculture and weaker sections. Urban preference was mainly because of ease of borrower access to stronger network of urban branches, and better-trained staff in them. Sect oral preference was driven by better collaterals and lower default rates. Some prior studies (Roy, 2006, Rao, Das and Singh, 2006, Uppal, 2009, and Raman, 2013) have also observed similar reasons for such preferences. Bank characteristics like the type of ownership, size and performance were found to be significant determinants of PSL. In general, bank size had a negative and significant impact on PSL. This is consistent with findings of some of the prior studies, which have found that larger banks and state-owned banks lend more to larger firms and state-owned firms. Smaller banks and private sector banks seem to have a comparative advantage in lending to smaller firms (Peek and Rosengren, 1995, Cole, Goldberg and White, 2004, Berger, Miller, Petersen, Rajan and Stein 2005, Berger,

Klapper, Peria and Zaidi, 2006, and Berger and Black, 2010). Bank performance, as measured by its higher financial strength (CAR), and higher profitability (RoA, NIM), had a positive and significant impact on PSL. Earlier studies have found a significant relationship between bank ownership and bank performance. It was observed that private sector banks have performed better than the public sector banks (Das, Nag and Ray, 2004, Ghosh, 2010, and Mishra et al., 2013). Further, most of the private sector banks in India are smaller in size than public sector banks. Therefore, higher PSL percentage by better performing banks is understandable, particularly in light of the fact that ownership and size were found to be significant determinants of PSL in our study. From the above, it can be concluded that smaller banks, or those banks with better performance, are likely to have greater proportion of their lending as PSL.

Among the public sector banks, greater emphasis on lending efficiency (as shown by higher C/D ratios and lower NPAs) was an important determinant impacting their PSL with a negative sign, and with the largest beta coefficient. This is further supported by the perceptions of the lending officers in the survey, which indicates that in this sector, probable high default rates, lower collaterals, and a politically damaged repayment culture, were considered to be prominent deterrents to PSL. These deterrents to lending have also been found significant by prior studies like of, Featherstone, Wilson, Kastens, and Jones (2007), Bhaumik and Piesse (2008), Cole (2009), Guha (2009), and Subramaniam and Subramaniam (2009). In the private banks' group, lending aggressiveness (as shown by high C/D ratio and low NIM) was found to be the most important determinant of PSL and with a positive sign. This signifies that private sector banks, which have a more aggressive approach to lending, have a higher PSL percentage. In the foreign banks' category, the only significant factor impacting the PSL, was of bank profitability. Contrary to the situation in other bank groups, this relation was found to be negative for foreign banks. This implies that the more profitable banks in this group are lending less to PSL. This may, perhaps be because in case of other bank groups, profitability was also combined with a risk measure of higher CAR or of lower NPAs, to signify bank performance. It was not profitability alone, and the combination of these, thus had a positive impact on PSL in the other bank groups.

While public sector banks have better social focus, they are also fraught with agency costs and political patronage issues, as was found by a few prior studies as well (Sapienza, 2002). Private sector banks have less of these constraints. Furthermore, with their sharper focus on profitability, they are able to better convert lending segments like of PSL, into profit-making opportunities. The efficiency of public sector banks in lending to small enterprises, has been found to be lower by a few prior studies as well (Berger, Miller, Petersen, Rajan and Stein, 2005, Kumar and Francisco, 2005, Berger, Klapper, Peria and Zaidi, 2006, and Berger and Udell, 2006).

### Policy Recommendations

Based on the findings from the study, a number of policy recommendations can be made for improving the effectiveness of PSL program. Some of the important suggestions which emerge from the findings are as follows. In view of the significance of bank size and nature of ownership in PSL, it may be worthwhile considering the idea of establishing public sector banks sponsored smaller-sized, separate entities, which are privately managed, for lending to priority areas within the PSL program. Similar suggestion has also been made in a few earlier studies (Berger, Miller, Petersen, Rajan and Stein, 2005). Lending to small and rural borrowers in PSL is more aligned for relationship lending. This requires flexibility in organization structures and policies to cater to the peculiar nature of PSL, where public sector banks may not have a comparative advantage. Smaller, private and distinct entities may be equipped to have greater flexibility in this regard. They may also be able to distance themselves from political interventions. Therefore, separate entities of banks (especially of public sector banks) may be established for PSL, to better serve its objectives. Further, while considering proposals for consolidation in Indian banking industry, the adverse impact of bank size on PSL may also be considered by the government (Peek and Rosengren 1995). In view of the significance of lending efficiency in determining PSL patterns, it is important to reorient the human

resource (HR) policies to make them favorable for PSL. Such redesigning of HR policies which takes into account the special characteristics of PSL, can be undertaken by the private sector banks on their own. However, for public sector banks (which constitute a major part of the banking system in most developing countries), this may require initiative/ approval of the government. It may be emphasized that there is an urgent need to redesign HR policies to ensure higher PSL. These policies may permit hiring of local staff, special training of staff, and separate performance review systems, which allow for higher genuine default rates and built in incentives for better risk adjusted performance of employees. This was also underlined in the opinions of the lending officers who were respondents in the survey. Similar suggestions have emerged from a few prior studies as well (Banerjee, Cole and Duflo, 2003).

The study provides empirical support to the argument that PSL is, and should be considered as a viable business proposition which can be lucrative for banks. This is supported by the positive relation found between bank performance and PSL. Therefore, a conducive culture in banks needs to be built, and appropriate strategies to be drawn to focus on PSL as a viable business proposition. It is, thus, evident that while banks have shown commitment to the social cause underlying the PSL program, they are facing a number of challenges in its implementation. It would help if banks’ top management, RBI and policy makers can make it easier for them to comply with the PSL targets by strengthening the PSL program. Such a strengthening can be done, both through policy changes and through process improvements in banks. This will help make this program more effective in contributing to the national efforts of achieving fast, balanced, sustainable and inclusive growth.

**APPENDIX**

Appendix A: Primary Survey Findings: Ranking Preferences

Issue	Options	Mean Rank	Rank	Percentage of Respondents Favoring the Option in This Rank
Challenges faced by banks in PSL (87)	Higher probability of NPAs (default rate)	7.586	1	46
	Higher cost in processing applications in view of smaller value of loan and limited understanding of borrower regarding banking requirements	6.391	2	18
Challenges faced by advances managers in PSL (86)	Possibility of administrative action against advances managers in case of high defaults (NPAs) in PSL accounts	5.174	1	31
	Not enough incentives built into employee performance appraisal system to increase lending to comply with targets	4.930	2	29
Reasons for inadequate allocation of resources to PSL in banks (69)	Shortage of bank staff in general	5.188	1	48
	Banks perceive PSL to be a non-lucrative area	4.870	2	32
Reasons for preference by banks to lend to borrowers in urban areas, rather than in rural areas (75)	Easy access due to stronger network of urban branches	5.267	1	36
	Better-trained staff in urban branches	4.627	2	29
Sectors in order of preference by banks to lend to, in PSL, as against the others (80)	Housing	6.688	1	48
	SSI (MSE)	5.700	2	19
	Export Credit	5.625	3	15
	Weaker Sections	2.788	7 (last)	45

Figure in parenthesis under each issue in “Issue” column represents number of respondents who answered that question, rest of them skipped answering that question. Appendix A presents the findings of the primary survey highlighting preferences of respondents for factor options as ranked by them in order of importance, under each issue listed in the first column. Final ranks were assigned to factor options based on their respective mean ranks.

## Appendix B: Primary Survey Findings: Agreement Scores

Issue	Options	Mean Agreement Score	Rank	Percentage of Respondents		
				Disagree	Neutral	Agree
Reasons for banks preferring some sub sectors over the others in priority sector area (88)	Better value and quality of collaterals offered against loans in these sectors	3.795	1	17%	8%	75%
	Borrowers are located in urban areas which are easier to reach and access	3.682	2	18%	11%	70%
	Lower default rates in these sectors' lending	3.648	3	25%	7%	68%
Challenges faced by banks in lending to agriculture sector (87)	Policy interventions by the government like loan waiver etc.	4.138	1	14%	8%	78%
	Higher risk of default (NPAs)	3.713	2	21%	10%	69%
Challenges faced by banks in lending to weaker sections (87)	Higher risk of default (NPAs)	4.172	1	11%	7%	82%
	Lower value of collateral offered against the loan	3.862	2	15%	9%	76%
Challenges faced by banks in lending to SSI sector (86)	Higher risk of default (NPAs)	3.256	1	36%	10%	53%
	Lower value of collateral offered against the loan	3.163	2	35%	20%	45%
Bank-specific characteristics which may influence its lending patterns, adversely impacting level of PSL by banks (86)	Lower credit efficiency/capability as reflected in higher NPAs	3.733	1	22%	8%	70%
	Nature of bank ownership structure: SBI group, nationalized, private or foreign	3.628	2	14%	7%	79%
	Lesser employee strength	3.360	3	33%	13%	55%

Figure in parenthesis under each issue in "Issue" column represents number of respondents who answered that question, rest of them skipped answering that question. Appendix B presents findings of the primary survey to highlight the top-ranked factor options for each issue listed in the first column. Final ranks were assigned to options based on their respective mean agreement scores. Respondents were asked to assign an agreement score to each option on a scale of 1 to 5 ("strongly disagree" to "strongly agree").

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