EARLY-STAGE ASSESSMENT OF

PRADHAN MANTRI MUDRA YOJANA

Research insights on design and implementation

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ABOUT THE AUTHORS

Dvara Research (formerly known as IFMR Finance Foundation) is an Indian financial systems policy research institution promoted by Dvara Trust. Our mission is to ensure that every individual and every enterprise has complete access to financial services. We strongly believe in the power of finance to unlock transformative opportunities for individuals, households, enterprises and local governments. Dvara Research works on the themes of (a) developing and disseminating financial systems design that achieve both inclusion as well as stability, (b) advancing customer protection particularly for low-income households, and (c) building household finance as an academic discipline to enrich our understanding of household financial behaviour through rigorous analysis. We engage in extensive policy and regulatory research on these themes.

IFMR LEAD is a non-profit research organization conducting high-quality scalable action research and outreach in development economics and finance. Our vision is to foster improved financial access, better legal and physical infrastructure, and targeted social services for individuals, households, and enterprises, to help them attain their socioeconomic aspirations. The Financial Inclusion vertical at IFMR LEAD partners with financial service providers, technology providers and policymakers to design and test products and services that can promote greater access to, uptake and utilization of financial services among low-income households and other vulnerable sections of society.

IFMR LEAD undertook both the primary data collection components of this research and contributed to the analysis of surveys and qualitative interviews featured in this report.

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BC	Banking Correspondent
CGFMU	Credit Guarantee Fund for Micro Units
CGTMSE	Credit Guarantee Fund Trust for Micro and Small Units
CIBIL	Credit Information Bureau (India) Limited
GLP	Gross Lending Portfolio
GVA	Gross Value Added
JLG	Joint Liability Group
KYC	Know Your Customer guidelines
MCLR	Marginal Cost of Funds Based Lending Rate
MFI	Micro Finance Institution
MFIN	Micro Finance Institutions Network
MLI	Member Lender Institution
MSME	Micro, Small and Medium Enterprises
MUDRA	Micro Units Development & Refinance Agency Ltd.
NBFC	Non-Banking Financial Company
NBFC-MFI	Non-Banking Financial Company - Microfinance Institution
NSSO	National Sample Survey Office
PLR	Prime Lending Rate
PMJDY	Pradhan Mantri Jan Dhan Yojana
PMJDY-OD	Pradhan Mantri Jan Dhan Yojana – Overdraft facility
PMMY	Pradhan Mantri Mudra Yojana
PSL	Priority Sector Lending
RBI	Reserve Bank of India
RIDF	Rural Infrastructure Development Fund
RRB	Regional Rural Bank
SCB	Scheduled Commercial Banks
SFB	Small Finance Bank
SHG	Self-Help Group

1. INTRODUCTION

Micro, Small and Medium enterprises have played a critical role in India's economic transition away from agriculture and allied activities—which contributed nearly 51% of GDP in 1950-51—towards high growth in the non-farm sector. By 2013-14, the former accounted for only 18% of GDP, while service activities grew rapidly to make the dominant contribution (57%), followed by industry and manufacturing (25%)[1]. The NSSO 73rd round Survey of Unincorporated Non-Agricultural Enterprises (excluding construction) in 2015-16 estimated nearly 6.34 crore enterprises employing more than 11.13 crore workers in India. We find that 36.3% of these enterprises were engaged in either wholesale or retail trade, 32.6% in a variety of services and 31% in manufacturing activities.

An overwhelming majority of unincorporated enterprises were small and informal—96% of them were sole proprietorships, and were usually located within or just outside the owner's household premises. Only 31% were registered with any industry and trade association or development board, indicating the informal and unorganized nature of their operations. Own-account enterprises (comprising 84% of all enterprises) are those run by a single household member without paid workers and are often only one of multiple income sources for low-income households. The mean Gross Value Added of own-account enterprises was Rs. 7,980 per month while the mean GVA of firms classified as establishments was Rs. 53,425 per month[2].

The MSME sector is therefore strongly linked to both macroeconomic progress as well as household financial well-being. At the level of the macro economy, this sector has long been regarded as the "nursery of entrepreneurship", featuring a heterogeneous set of business models, practices and technologies. MSMEs are also viewed as playing a critical role in industry value chains and as a source of employment opportunities for both entrepreneurs and their hired workers[3]. At the level of individual households, the expansion in non-farm employment opportunities is believed to have increased the average income of rural households and helped to mitigate the income risk of farm-based households through diversification[4]. Further, Foster and Rosenzweig (2004) have argued that the benefits from non-farm growth accrue more to poor

[1] Sector-wise contribution of GDP of India. (2017, March). Retrieved from http://statisticstimes.com/economy/sectorwise-gdp-contribution-of-india.php
[2] National Sample Survey Office (NSSO). (2017). Key Indicators of Unincorporated Non-Agricultural Enterprises (Excluding Construction) in India (NSS 73rd Round).
[3] Government of India. (2010). Report of Prime Minister's Task Force on Micro, Small and Medium Enterprises.
[4] Morduch, J. (1995). Income smoothing and consumption smoothing. The journal of economic perspectives, 9(3), 103-114.

households[5] (in contrast to the benefits from agricultural growth, which accrue more to landed households).

There is limited data on the state of access to finance for MSMEs in India. The Economic Census 2013-14 reports only 11.8 lakh enterprises (2% of all enterprises enumerated) with institutional loans as a major source of finance and a further 3.12 lakhs (0.53%) with SHG loans as their major source. The NSSO 67th round Survey of Unincorporated Non-Agricultural Enterprises estimated that, in 2010-2011, only 4.5% enterprises had outstanding formal loans, including loans from central and state government lending institutions. Yet another 4.5% of enterprises had at least one loan outstanding to an informal source but none from a formal source, suggesting that the overall use of credit facilities and MSME sector credit depth is likely to be quite low.

It is important to note here that these low estimates have persisted despite several initiatives to fund MSMEs. The most notable of these are the inclusion of MSMEs under Priority Sector Lending norms, with an explicit sub-target[6] and the CGTMSE (credit guarantee) facility, both of which are aimed at lenders, and seek to expand the supply of credit to under-served enterprise segments. PMMY is similar, in the sense that the scheme is designed to address and relieve supply-side constraints and accelerate the flow of credit. In such a design, it is perhaps implicitly assumed that a large segment of MSMEs are under-served and in fact, not only would they be able to productively deploy additional borrowed funds, they also hold enough equity to maintain healthy leverage during the tenure of loans.

However, the Indian MSME sector faces several constraints to growth—beyond access to credit— and the success of any credit-based intervention is critically dependent on progress on other fronts as well. These include a lack of access to markets and value chains, the unmet demand for better infrastructure, difficulties in managing both skilled and unskilled workforce, technology or environmental constraints and finally, barriers to accessing regulatory facilitation[7]. Surveys of MSMEs—inquiring on the primary challenges they face—reveals that delayed or inadequate credit ranked below larger concerns for market linkages and infrastructure but nevertheless, was the primary constraint for nearly 20% of MSMEs (Figure 1).

[5] Foster, A. D., & Rosenzweig, M. R. (2004). Agricultural productivity growth, rural economic diversity, and economic reforms: India, 1970–2000. Economic Development and Cultural Change, 52(3), 509-542.
[6] A comparison of MSME-PSL portfolio and PMMY portfolio size of reporting SCBs reveals that lending under PMMY (i.e. unsecured loans under Rs. 10 lakhs) constitutes only 7.5% of their corresponding MSME-PSL lending. This suggests very little overlap between the portfolios and further that without intervention, PSL alone is unlikely to adequately incentivize lending to micro enterprises.
[7] Grant Thornton. (2011). Vision 2020:Implications for MSMEs. Federation of Indian Chambers of Commerce and Industry (FICCI). New Delhi, India and Reserve Bank of India. (2008). Report of the Working Group on Rehabilitation of Sick SMEs

Figure 1 MSMEs perceptions of key obstacles to their growth
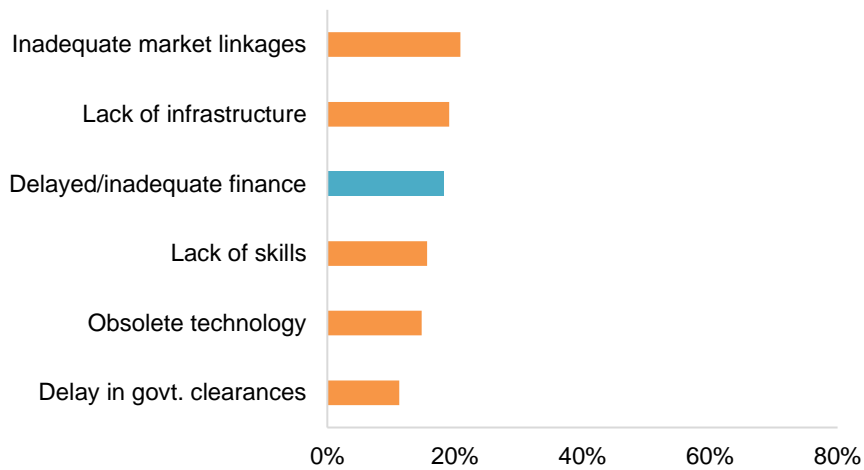
Source: RBI Report of Working Group on rehabilitation of Sick MSMEs, 2008

While PMMY does not (and cannot) address all of these constraints, several other initiatives do, and PMMY is located within a larger agenda for reform to unlock economic growth. First, this fiscal year saw the introduction of the Goods and Services Tax regime, to replace layers of varying indirect taxation with a unified all-India tax structure. This move is expected to increase resource mobility and expand market access for producers. Second, the identity verification and basic payments infrastructure enabled by the JAM trinity (PMJDY accounts and Aadhaar number linked to mobile numbers) create an information highway and payments highway that can be leveraged to improve the outreach and quality of financial services. A third and related financial sector development is the trend of disintermediation in financial services and formation of partnerships between say, origination specialists and large financial institutions acting as risk aggregators. An encouraging outcome of these partnerships could be the emergence of agile, specialized lenders who are well-placed to close market gaps in terms of outreach, underwriting or product innovation.

This study is an early-stage assessment of PMMY and does not set out to evaluate the impact of the scheme. Instead, our focus in this report is to study the design and implementation of PMMY and to generate insights on early performance trends. The report is divided in three chapters. The rest of Chapter 1 outlines a theory of change and describes the research design. Chapter 2 presents results from the analysis, further sub-divided into five themes. The final chapter concludes with a range of recommendations pertaining to aspects of loan origination, portfolio risk management and overall performance monitoring.

1.1 Policy design and theory of change

The Pradhan Mantri Mudra Yojana was launched in April 2015, as an initiative to increase unsecured lending to MSMEs with credit needs upto Rs. 10 lakhs. PMMY offers unsecured loans for MSMEs requiring credit for investments in existing businesses, as well as for new startups. Loans upto Rs. 50,000 are categorized as Shishu, from Rs. 50,000 upto Rs. 5 lakhs as Kishor and further upto Rs. 10 lakhs as Tarun loans. In addition, overdraft facilities extended (to households) against Pradhan Mantri Jan Dhan Yojana (PMJDY) savings accounts are also reported under this scheme.

The loans under PMMY are made by Member Lending Institutions (MLIs), which include a number of Scheduled Commercial Banks from both public and private sectors, Regional Rural Banks (RRBs), Micro Finance Institutions (MFI) and Non-Banking Finance Companies (NBFC), many of whom were previously lending to this target segment. Further, by direction from the RBI since 2015, all lending to MSMEs lower than Rs. 10 lakhs by SCBs is required to be uncollateralized [8]. As a result of these confounding factors, a straightforward time-series comparison of loans to MSMEs before and after the scheme is misleading as a measure of impact, because it is then unclear how to identify the effects of PMMY distinct from other underlying drivers of MLIs' original business.

To better understand the design of PMMY and its interaction with the existing lending network, we develop a theory of change that maps the relationships between each of the scheme's *features*, their corresponding immediate or intermediate *effects* on MLIs or borrowers, and the type of financial system impact or *outcomes* that we may expect as a result of these effects. We believe the theory of change would serve as a relevant framework to comprehensively track scheme performance and to retool for efficacy where needed.

Scheme features, effects and outcomes

We identify the unique contribution of PMMY as the introduction of four scheme features designed to address specific constraints in the supply of enterprise credit to MSMEs. These scheme features, and their corresponding effects and outcomes are mapped in Figure 2.

The first feature of PMMY is the enrolment of lenders as MLIs into the program, and ongoing conversations with high-level management to emphasize desired outcomes and mutually agree on lending targets for each year.

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[8] Reserve Bank of India. (2016). Master Direction - Lending to Micro, Small & Medium Enterprises (MSME) Sector.

Figure 2 Theory of change for PMMY

SCHEME FEATURES

- Enrolment & Supervision
- Refinance
- Credit guarantee
- MUDRA card, other features

SCHEME EFFECTS

- Higher disbursements
- Quicker processing
- Lower interest rate
- Product matched to purpose and use
- New client acquisition
- Insurance for MLIs against unexpected losses

If a higher proportion of loans are made in under-served regions

For example, client graduation from non-banks to banks

If first-time institutional borrowers

SCHEME OUTCOMES

- Increase in credit depth
- Lower regional inequality
- Improved terms of credit
- Inclusion of MSMEs
- Market stability

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This may appear to be a rather simple or procedural feature of the scheme but in fact, follows in a series of focused financial inclusion 'missions' initiated by successive governments and regulators. Researchers studying the impacts of previous large-scale financial inclusion initiatives[9] conclude that they were, primarily, effective in increasing the flow of finance to intended beneficiaries. These first-order impacts (and their implications for high-quality implementation of a large policy initiative) are often over-looked in the search for subsequent impacts on economic indicators. The proposed theory of change suggests that the effectiveness of the scheme in delivering first-order impact through the lending channel will mediate the realization of all other outcomes. It is therefore critical to monitor the additional flow of credit arising from PMMY, to understand the relative responsiveness of different institutions or channels, and to study the changing patterns in financial access and financial depth as a result.

The nature of targets and supervision will also determine the nature of outcomes. For example, we highlight in Figure 2 that setting MLI-level targets may be effective in increasing aggregate disbursements, but unless MLIs are also specifically directed or encouraged to expand their outreach or improve service qualities, many other corresponding outcomes such as lowering regional inequalities, quicker loan processing or financial inclusion of MSMEs may not be achieved.

The second scheme feature is the provision of refinance[10] support (facilitated by MUDRA) to MLIs, conditional on their willingness to pass this on as lower interest rates to borrowers[11]. Banks primarily finance their lending business through deposit mobilization and therefore enjoy a lower cost of funds than non-banks, who finance their business through either debt or equity. While the borrowing profile of MFIs in particular has improved substantially through the use of assignments, NCDs and securitization, borrowings from banks for on-lending is the primary source of debt finance used by MFIs (ICRA 2016)[12]. The average cost of funds for MFIs is in the range of 14-15%, depending on their size (MFIN 2016)[13].

In this context, the availability of MUDRA refinance (or indeed, any other interventions by MUDRA to lower MFIs' cost of funds) could serve to either lower costs on the current size of lending or

[9] Burgess, R., & Pande, R. (2005). Do rural banks matter? Evidence from the Indian social banking experiment. The American economic review, 95(3), 780-795. DOI: 10.1257/0002828054201242 and Butler, A., & Boudot, C. (2016). No Policy is an Island: Finance and Food Security in India. NSE-IFF Conference on Household Finance.

[10] The rate at which MLIs avail refinance is linked to the average cost of funds from RIDF, with a markup of upto 0.75% for banks and 3% for non-banks.

[11] The terms of refinance require that the underlying loans be priced within a specified margin on MLIs' cost of funds. For SCBs this is no higher than MCLR+1%, for RRBs and Co-operative Banks no higher than base rate+3.5%, and for NBFC-MFIs no higher than PLR+6%

[12] ICRA. (2016). Indian Micro Finance Penetration levels increasing; Borrower – Lender discipline holds the key for sustainable growth
Review for the year ended March 31, 2016 and Industry Outlook. New Delhi, India.

[13] MFIN. (2016). Micrometer – data as of 31st March 2016. (Issue No. 17).

expand the amount of lending that is possible. However, we caution that these outcomes may be realized only if the take-up of these facilities is high, and the restrictions on interest margin are complied with.

The third feature of PMMY is the creation of a specialized credit guarantee facility for unsecured loans less than Rs. 10 lakhs, intended to encourage uncollateralized lending to new or thin-file clients. The Credit Guarantee Fund for Micro Units (CGFMU) is a portfolio guarantee facility extended to eligible MLIs on unsecured loans lower than Rs. 10 lakhs[14]. All MLIs are eligible to transact with CGFMU, and guarantee is currently available at a uniform fee of 1-1.5%. CGFMU compensates 50% of the losses between 5-15% of amount in default.

This facility can be expected to have multiple effects. First, the availability of credit guarantee could encourage lenders to expand their size of lending to MSMEs and extend loans with confidence to thin-file clients on the basis of project viability rather than collateral[15]. Second, to the extent that the credit guarantee lowers the cost to MLIs of managing credit risk, it could also lower the risk premiums embedded in loan pricing[16]. Third, a large risk aggregator such as CGFMU could effectively provide an indirect layer of portfolio risk insurance to those MLIs (especially NBFCs and RRBs) facing high concentration risk, in the absence of market-prevalent mechanisms to do so. Used in this manner, the credit guarantee could ultimately serve to increase MLIs' resilience to local or sector-specific shocks, and increase market stability. However, like refinance, these benefits are likely to be realized only if MLIs participate in the guarantee program.

Apart from these three key features, the issuance of MUDRA debit cards and other directives from time-to-time could also directly influence the design of loan products offered, or ensure that more appropriate suite of products is offered to MSMEs based on their need[17].

Figure 2 describes the linkages between scheme features and expected outcomes, and outlines the channels of impact through combinations of intermediate effects. Here, we define scheme effects as immediate and short-term changes in the PMMY portfolio occurring as a result of one or more of PMMY's scheme features, while outcomes are longer-term impacts on the financial landscape. Favourable outcomes materialize conditional upon on the size and characteristics of

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[14] With the introduction of CGFMU for unsecured loans lower than Rs. 10 lakhs, these loans will (over a period) no longer be eligible under CGTMSE. The CGTMSE will remain a transaction-level guarantee scheme for MSME loans larger than Rs. 10 lakhs. This division allows the terms of guarantee under each to differ significantly, and for CGFMU to more suitably address the higher credit risk latent in unsecured lending.
[15] International Finance Corporation, World Bank Group. (2012). Micro, Small and Medium Enterprise Finance in India.
[16] Ghatak, S. (2010). Micro, small and medium enterprises (MSMEs) in India: an appraisal. Journal of technology management & innovation, 6(1), 66-76.
[17] Stein, P., Goland, T., & Schiff, R. (2010). Two trillion and counting. International Finance Corporation and McKinsey & Company.

intermediate effects. For example, if we observe systematic increases in aggregate loan disbursements under PMMY (which is marked in the figure as an intermediate effect), this would eventually reflect as improved credit depth ratios for the MSME segment, which is marked as an expected outcome. However, additional outcomes are unlikely to materialize unless several other intermediate effects are also observed. If loans are systematically targeted to underserved regions, then regional inequality in access could be reduced. If significant trends of new client acquisition or client graduation are observed, overall financial access for MSMEs is likely to improve over the medium-term. If PMMY's scheme features are effective at lowering interest rates or encouraging better product design that meets the needs of small firms, then this is likely to improve not only access to finance, but also the quality of services for MSMEs over the long-term. Therefore, periodic review of intermediate effects from the early stage of scheme implementation would be helpful to predict eventual outcomes over the medium and long-term.

This framework is particularly helpful to trace the dependencies of desired outcomes on immediate, measurable changes that should be observable during scheme implementation. For example, if policymakers wish to achieve lasting improvements in the terms of enterprise credit even for thin-file clients and informal enterprises, this would require a coordinated set of intermediate effects to be appropriately encouraged and periodically monitored. We recommend anchoring future monitoring and evaluation efforts to this type of framework, and ensuring that both immediate and longer-term effects and outcomes are robustly measured. Further modalities are discussed in Section 3.1.

1.2 Study objective and research design

This research study was conducted in 2016-17, alongside the second year of PMMY's operations and at a time when several components of the scheme were still evolving towards full realization (including the continuous enrolment of new MLIs and the ongoing implementation of CGFMU). Being too early for a full-scale evaluation of scheme impacts, this study instead aims to generate rich, early insights into various aspects of scheme design and implementation.

The study objectives are:

a. To outline the theory of change for PMMY considering all scheme components, objectives and desired outcomes, and propose an analytical framework for monitoring of intermediate effects and measurement of long-term outcomes.

b. Study both macro and micro aspects of scheme implementation. Macro aspects include the variation by institutional or regional factors, while micro aspects include various factors affecting loan decisions and the frontline interaction between lenders and borrowers.

c. Understand the range of financial products available to MSMEs as well as the characteristics of MSME borrowers, end uses of loan funds, and their overall customer experiences.

d. Recommend early-stage improvements to better achieve desired outcomes.

The analysis was split into three components. The first component is a deep-dive analysis of PMMY performance from the administrative data collected by MUDRA. This data includes disbursement metrics and key portfolio characteristics for all MLIs and all loan size categories, by state and district and for each year between 2015-2017. Disbursement metrics are number of loan accounts, total amount sanctioned and total amount disbursed. Performance metrics include percentage of loans or disbursements made to new customers, women, minorities, through MUDRA cards, and to PMJDY overdraft accounts. Additional performance metrics representing the spatial distribution of the portfolio and PMMY outreach relative to regional credit demand were also estimated by overlaying PMMY data with other publicly available national data sources.

However, the administrative data—even when merged with national surveys— does not adequately address research questions on the characteristics of MSME borrowers, uses of loan funds and any continuing barriers to accessing adequate and affordable credit.

We therefore complement the all-India data analysis with two small-scale field surveys in three financially well-developed districts— Kolkata in West Bengal, Ludhiana in Punjab and Rajkot in Gujarat. The first is a survey of 176 active MSME borrowers designed to understand the contract

features, transaction costs and eventual use of enterprise loans as well as the business, financial and socioeconomic characteristics of borrowers. The survey will not serve as a representative picture of PMMY borrower characteristics but offers granular insights on loan contract features and delivery channel factors as well as their suitability for borrowers and the intended use of funds.

The third research component is also a small-scale primary survey in the same districts as above. 21 MLIs active in these districts were chosen, and semi-structured qualitative surveys were administered to the respective frontline loan officers tasked with identifying suitable borrowers and managing the last-mile delivery of the scheme. The interviews focused on understanding the underwriting guidelines and loan processing for PMMY loans vis-a-vis other MSME loans, as well as the service climate for and perspectives of frontline loan officers.

The primary surveys were administered by professionally trained survey teams at IFMR LEAD and data quality was verified through industry best practices including a rigorous system of logical triangulations and back-checks. Further details on questionnaire design, sampling protocols and sample composition are discussed in Sections 2.2 and 2.3.

2. ANALYSIS

This chapter presents the results from three research components, distributed across five themes. The results are drawn from the analysis of PMMY administrative data collected by MUDRA (i.e. secondary data analysis), and the analysis of primary data collected from MSME borrowers and MLIs' frontline loan officers respectively (i.e. primary data analysis). Each of the five sections in this chapter link to specific channels of impact in the theory of change, and combine all relevant evidence from both primary and secondary data analysis.

The themes in each section are:

2.1 Analysis of macroeconomic time-series in MSME lending by both banks and non-banks, seeking to understand the immediate effects of PMMY on higher aggregate disbursement (the first scheme effect mentioned in Figure 2)

2.2 A study of the characteristics of MLIs including their participation, portfolio composition, product range and underwriting rules that determine loan origination. This links to several components in the theory of change such as the drivers of growth in disbursement, drivers of new client acquisition and the range of products available to MSMEs.

2.3 The third section discusses results from the primary survey of MSME borrowers. After a brief overview of sample composition and loan uses, the findings on operational and financial characteristics of enterprises with access to credit as well as the customer experience during loan tenure are discussed. These results relate to the components of the theory of change concerned with the types of products and loan use, loan processing time, and new client outreach.

2.4 The fourth section dives deeper both administrative (secondary) data and qualitative (primary) data to study trends in MLI specialization, and the implications of a fragmented market structure for inclusion and stability.

2.5 The final section explores regional patterns in disbursements under PMMY and identifies specific regional characteristics correlated with credit concentration. The results signify critical implications for regional inequality.

2.1 Macroeconomic trends in MSME lending

PMMY was launched in April 2015 and in the first two years, nearly Rs. 3.1 lakh crores in disbursements had been reported by MLIs under this scheme. In this section, we study aggregate lending trends available in the public domain to understand whether this represents a substantial expansion of credit vis-à-vis pre-PMMY levels of lending, and if yes, the channels through which this effect was achieved. The analysis is limited and preliminary, and there is scope to collate a wider range of variables for further analysis.

First, we study data published by the RBI on the outstanding credit of SCBs, where we subset only loans lower than Rs. 10 lakhs and made to individuals or firms engaged in Industry, Trading, Transport or Professional service occupations. Annual estimates since 2009 are reported by loan size in Figure 3 and Figure 4. The most striking observation is a consistent upward trend between 2009-2017 across all loan sizes, both in terms of loan accounts and in terms of credit outstanding. The number of smaller loans (less than Rs. 2 lakhs) made by SCBs rose significantly since 2015 (when PMMY was announced) as well as the total credit disbursed on the largest loans, i.e. between Rs. 5-10 lakhs.

It is unclear whether this trend is consistent, especially since both instances of post-PMMY increase occur in only either figure but not in both. Further, even notable increases from this analysis cannot be rigorously attributed to PMMY alone and as well, it may not be fair to conclude that where credit outstanding did not increase, PMMY had no effect on those categories. For example, where credit was extended as working capital loans or credit lines—with a high frequency of transactions within these accounts but low balances on average—the more appropriate metric would be total credit disbursed through the year (*flow* of credit) rather than credit outstanding at the end of the year (*stock* of credit). Alternatively, the type of loan would need to be captured and accounted for.

Next, we study data on lending by microfinance institutions, collected and reported by MFIN. Figure 5 shows a trend of steady growth in MFIs' Gross Lending Portfolio (GLP) between 2011-2016 and therefore, any increase in overall lending since PMMY cannot be directly attributed to the scheme itself. The data reported also indicates that in FY16, only 64% of GLP was in the form of non-agriculture enterprise loans, and that the remaining might include loans made towards cultivation, livestock rearing, household consumption smoothing or other expenses. Unfortunately, the break-up by loan use is not reported for every year, and we are unable study the composition of the portfolio by purpose has shifted after PMMY.

Figure 3 Number of MSME loans upto Rs. 10 lakhs by SCBs

Source: RBI DBIE Quarterly BSR-1 Table No. 3.4
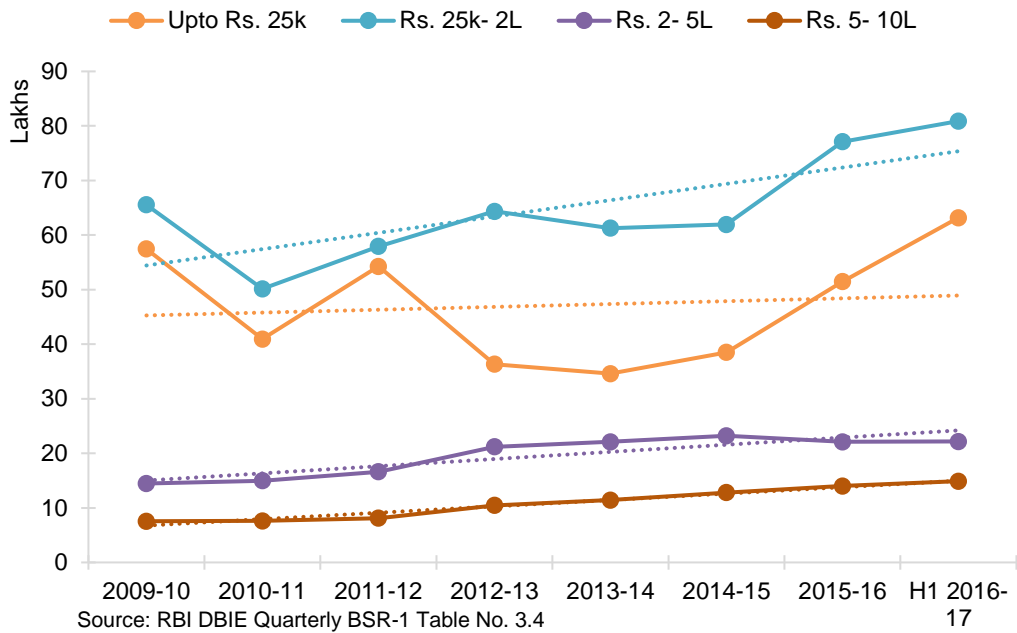
Figure 4 Total outstanding on MSME loans upto Rs. 10 lakhs by SCBs

Source: RBI DBIE Quarterly BSR-1 Table No. 3.4

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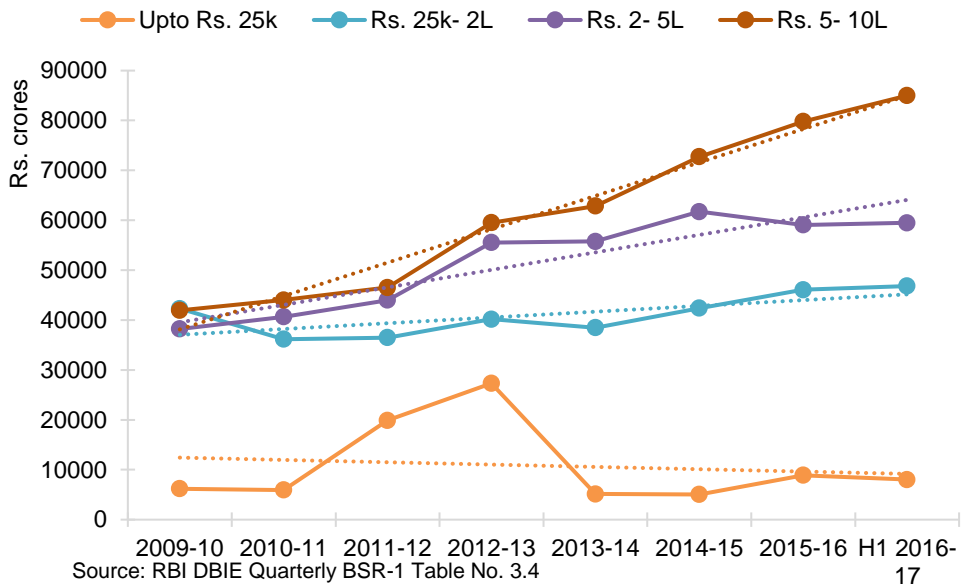
Interestingly, the MFIN data also reports the percentage of GLP that is maintained off-balance sheet, either through direct assignment or securitization, but due to certain reporting inconsistencies we are unable to assemble a continuous series for FY16 and FY17. We find a sharp increase in off-balance sheet origination in FY16 (the first year of PMMY), but we also learn that this dropped to previous levels by FY17 (Figure 6).

Figure 5 Trends in GLP and Off-B/S portfolio of NBFC-MFIs

Source: MFIN Micrometer 2015-16
Non-agri GLP is only available for 2015-16
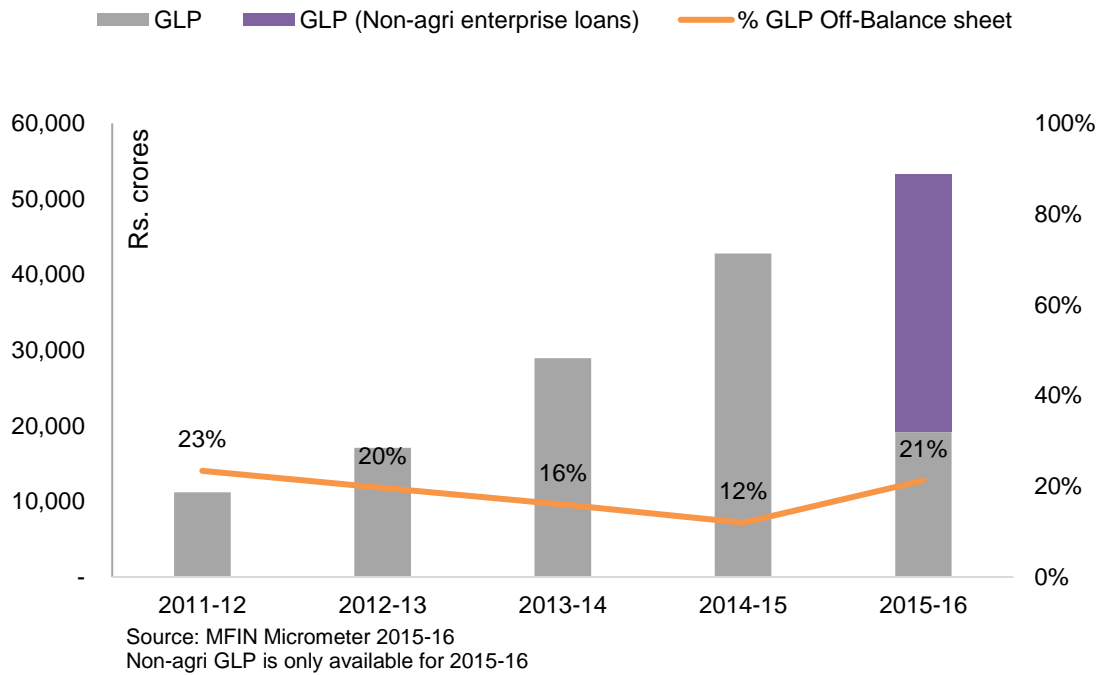
Figure 6 Trends in Off-B/S origination of all microfinance institutions

Source: MFIN Micrometer 2016-17
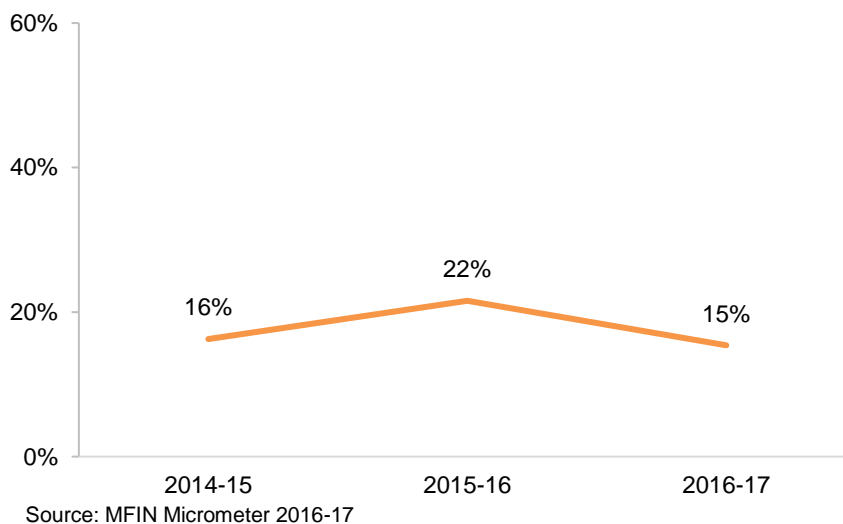
There is therefore no conclusive evidence that PMMY led to an increase in loan origination of MFIs, but there is mixed evidence of an effect on banks. However, the channels through which PMMY had an effect on banks in unclear. For example, if banks did increase their *disbursements* of larger Kishor loans in a manner that may not be captured in stock measures such as credit outstanding or GLP, did the increases accrue to their existing clients or to new clients? Did banks directly originate new clients or did they leverage the originating capabilities of NBFCs to bring more loans on-book? And most importantly, are the observed increases an effect of refinance or credit guarantee facilities (in which case the increases will accrue more from those MLIs who participated), or did they result purely from high-level pressure and supervision from MUDRA?

There is very limited data available in the public domain for an independent study to explore these questions, but doing so would contribute richly to how a large policy intervention interacts with a complex and inter-connected financial system to deliver benefits to citizens.

2.2 Characteristics of MLIs

In this section, we consider the types of MLIs participating in PMMY, their relative market shares and key indicators of portfolio composition. This first set of findings build a richer understanding of the types of MLIs participating in PMMY, while the second set of findings describe the range of products they offer to MSMEs and the underwriting rules that govern the origination of loans that are eventually reported under PMMY.

2.2.1 Market share and growth trends

Participating MLIs are classified in the MUDRA data by their institution type. A broad-level classification renders three MLI types: Scheduled Commercial Banks, Regional Rural Banks and Non-banks, including MFIs, NBFCs and SFBs. A second-level classification further categorizes SCBs into State banks, Nationalized banks, Private banks and Foreign banks.

Analyzing the data available from MUDRA we find that overall, SCBs contributed roughly a-third of the loan *accounts* in both years, while Non-banks contributed roughly two-thirds and RRBs less than 5%. The proportions reverse when measured in terms of *amounts*, where SCBs contributed roughly 60% of the disbursements in both years.

We note here that overdrafts extended against PMJDY savings accounts are also reported under the Shishu category by State banks, Nationalized banks and RRBs. While large in number, these accounts hold relatively smaller balances and as a result, excluding PMJDY OD accounts lowers the market share of SCBs when calculated in terms of accounts (Figure 7), but not when calculated in terms of disbursed amounts (Figure 8). Panels A and B of Table 1 report on Shishu loans including and excluding PMJDY OD accounts while Panels C and D report the on Kishor and Tarun loans respectively. The discussion going forward excludes PMJDY OD accounts unless otherwise specified.

Table 1 reports the total lending and market share for both financial years (FY16 and FY17), and *adjusted* estimates for FY17. The adjustment accounts for the ongoing enrolment of new MLIs in FY17 and in order to present a fairer comparison of portfolio trends year-on-year, recalculates estimates by excluding 16 MLIs who reported data in FY17 but not in FY16.

Figure 7 Share in PMMY portfolio by MLI type (Accounts)
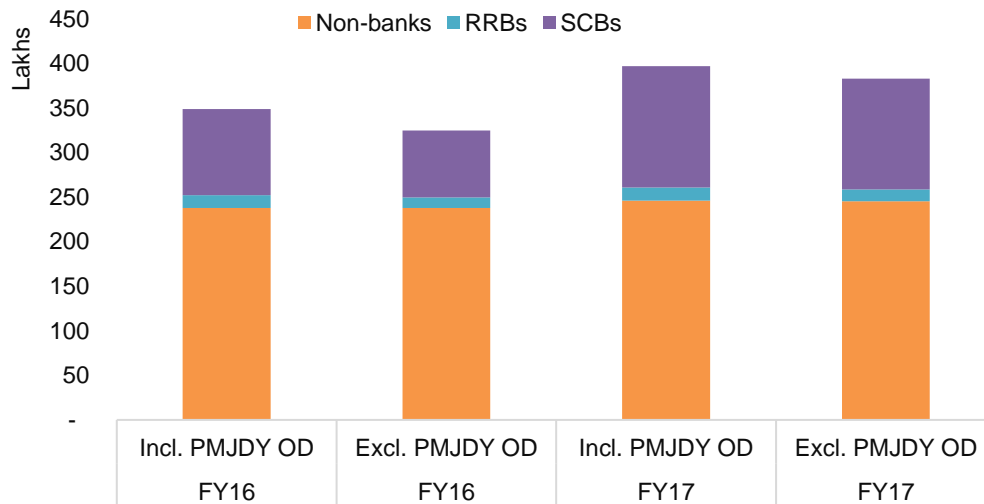
Figure 8 Share in PMMY portfolio by MLI type (Disbursed amount)
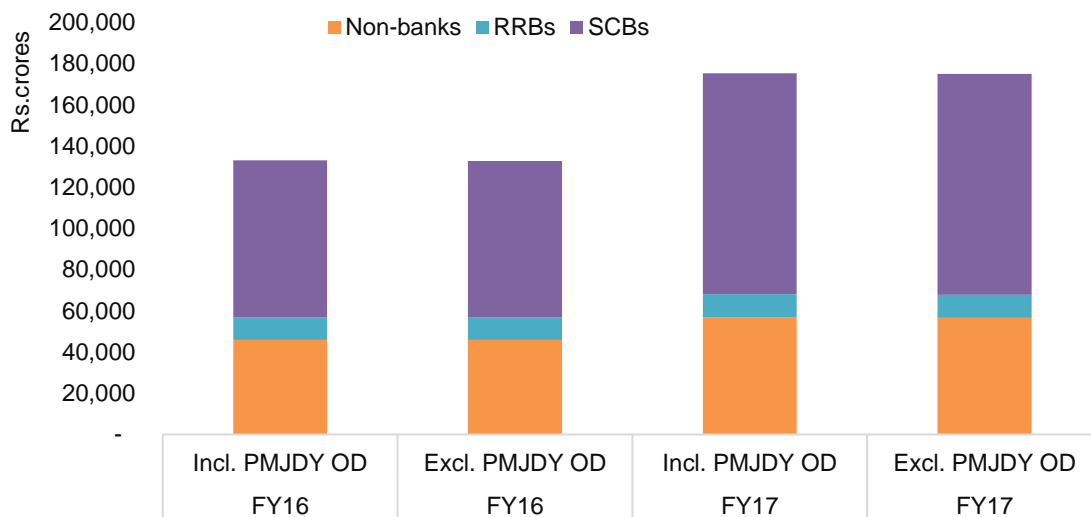
From Table 1 we identify specific institution types that dominate each of the Shishu, Kishor or Tarun loan categories respectively. For example, NBFC-MFIs alone accounted for 63.9% and 57.3% of non-PMJDY Shishu loans in both years and as well, a small number of MLIs reporting as Small Finance Banks accounted for more non-PMJDY loans than any other bank category (comprising a much higher number of MLIs).

A notable shift in the Shishu portfolio occurs with the inclusion of two important Private Banks in FY17, while they were not earlier reporting under PMMY in FY16. Private banks accounted for 8.9% of non-PMJDY Shishu loan accounts and 9.6% of corresponding disbursements in FY16, but increased to 24% and 29.6% respectively in FY17. Comparing with the adjusted estimate, we

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learn that only a 4-percentage point increase is attributable to *organic* loan growth by the original cohort of MLIs reporting in the first year, while the residual increase is entirely driven by the data reported by newly enrolled institutions. This highlights the need for more careful cohort analysis, or institution-wise analysis for program management and internal decision-making on PMMY, as these adjustments bear significantly on performance metrics. We discuss related recommendations in Section 3.3.

While non-banks (and institutions with non-bank origins or SFBs) dominate the smallest loan category, the traditional banks assume dominance with increasing loan size. Consider Kishor loans, where Nationalized banks alone accounted for nearly half the portfolio, whether measured in terms of number of accounts or amounts disbursed. State banks, Private banks and RRBs followed, while non-bank institutions accounted for less than 2% of credit disbursed under the Kishor category in FY16. Note here that the inclusion of new non-bank MLIs in FY17 significantly increased their overall share from 1.9% in FY16 to 8% in FY17. This increase is directly attributable to the new MLIs, since the adjusted estimate for FY17 is 2%, indicating that the original cohort of reporting non-bank MLIs only grew their share by 10 basis points.

Similarly, Panel D reveals that Public Sector banks accounted for more than 40% of Tarun loans in both years, followed by State and Private banks. RRBs, who were significant lenders of Kishor loans, contributed less than 5% of Tarun loans. It is clear that with increasing loan size, the dominance of large banks also increases. While MFIs are worthy contenders in the smallest loan category, their role is smaller than RRBs and non-MFIs NBFCs in the Kishor category. Subsequent analysis will explore this trend, and discuss the potential for increasing non-bank origination of larger ticket loans.

Finally, we compare market shares of MLIs between FY16 and adjusted estimates for FY17. This comparison helps to understand organic shifts in the portfolio driven by the same cohort of MLIs in both years, rather than by the introduction of a new data. To do this, we compare the growth rates for each MLI type between FY16 and adjusted FY17, and report separately for each loan size and by accounts in Figure 9 or amounts in Figure 10. This allows us to see shifts within MLI types, rather than changes in overall market share.

Figure 9 YOY change in aggregate PMMY portfolio by MLI type (Accounts, FY17)
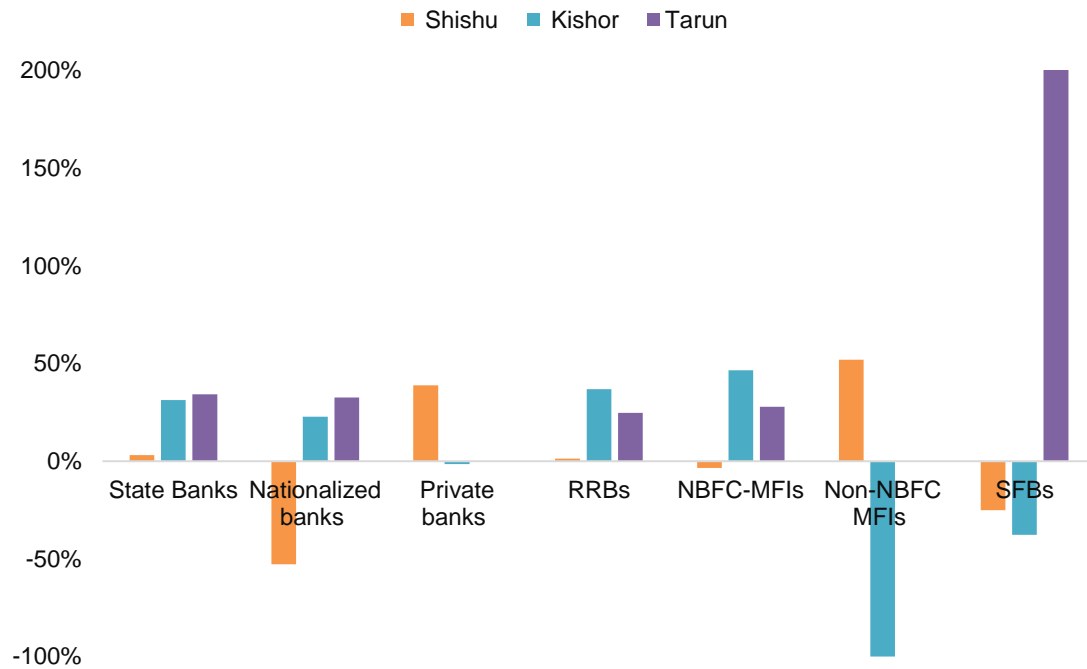
Figure 10 YOY change in aggregate PMMY portfolio by MLI type (Disbursed amount, FY17)
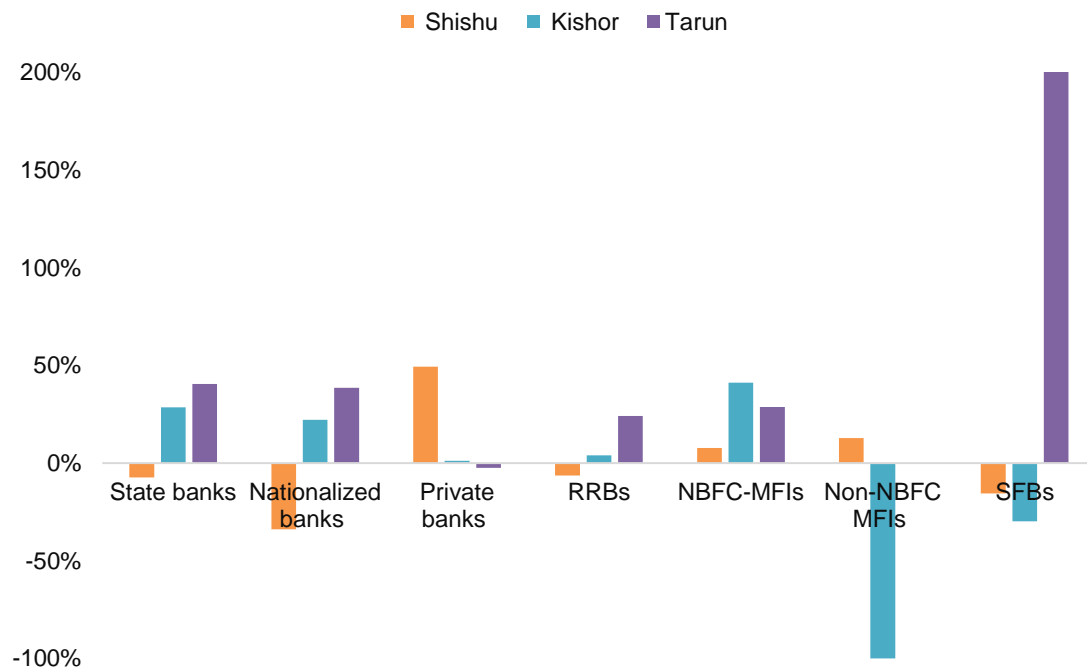
We notice that only two categories reported growth in their Shishu portfolio (Private banks and non-NBFC MFIs), whereas State banks, RRBs and NBFC-MFIs reported nearly unchanged portfolios and Nationalized banks reported a sharp withdrawal from the Shishu category. We are cautious in interpreting these withdrawals, for two reasons. First, the 'enrolment and supervision' scheme feature we described in Section 1 laid specific emphasis on originating

Shishu loans in the first year, and this emphasis was somewhat relaxed by the second year of the scheme. The removal of additional pressure may have triggered the re-direction of resources as per MLIs' internal priorities. Second, FY17 also saw a slowdown in lending activity following demonetization and the unavailability of human resources or other economic conditions could have caused banks to pause lending. At this time, we flag large withdrawals by Nationalized banks in FY17 for further analysis and continued tracking over time.

Consistent with the above reasoning, the removal of specific emphasis on Shishu loans seemed to have also triggered a shift towards Kishor and Tarun loans, especially for SCBs and RRBs. While State banks and Nationalized banks reported higher growth in Tarun loans, RRBs and MFIs consolidated growth in Kishor while a few ventured into the Tarun category (which however remains a tiny share of their portfolios).

Overall, this is an encouraging trend, but with some concerns. First, the market for large ticket loans remains heavily dominated by banks and to the extent that non-bank entities are able (or can be supported) to enter this market, they are likely to increase both outreach and competition. Second, if PMMY serves to increase banks' origination of larger loans or, systematically helps deserving MSMEs graduate to larger loans or better terms of credit, that could also result in better firm productivity and economic growth.

The only notable concern, as we flagged earlier, is the withdrawal of State banks and Nationalized banks from Shishu lending, especially when it is unclear whether these clients have been graduated or excluded. We study this trend at a more granular level in a later section dealing with strategic specialization. A striking implication is that while increasing specialization allows individual MLIs to optimally re-allocate their resources and lower the costs of delivery, this could also pose persistent barriers to access or graduation for borrowers in fragmented or under-served markets.

Table 1 Market share of various MLI types in PMMY portfolio

Panel A: Shishu Loans (incl. PMJDY OD)

	2015-16	2016-17	Adj. 16-17*
MARKET SHARE IN TOTAL ACCOUNTS			
Scheduled Commercial Banks	**23.7%**	**30.7%**	**21.7%**
State Banks	2.9%	2.4%	2.9%
Public Sector Commercial Banks	12.6%	5.3%	6.5%
Private Sector Commercial Banks	8.2%	23.1%	12.4%
Foreign Banks	0.0%	0.0%	0.0%
Regional Rural Banks	**3.2%**	**2.5%**	**3.1%**
MFIs, NBFCs & Others	**73.1%**	**66.7%**	**75.2%**
NBFC-MFIs	59.1%	55.3%	62.0%
Other MFIs	2.3%	3.1%	3.8%
Non-Banking Financial Companies	0.0%	0.5%	0.0%
Small Finance Banks	11.7%	7.8%	9.5%
MARKET SHARE IN TOTAL DISBURSEMENTS (IN RS. CRORES)			
Scheduled Commercial Banks	**22.6%**	**36.2%**	**22.6%**
State Banks	2.2%	1.5%	1.9%
Public Sector Commercial Banks	10.8%	5.2%	6.8%
Private Sector Commercial Banks	9.6%	29.5%	13.8%
Foreign Banks	0.0%	0.0%	0.0%
Regional Rural Banks	**4.8%**	**3.3%**	**4.3%**
MFIs, NBFCs & Others	**72.6%**	**60.5%**	**73.1%**
NBFC-MFIs	57.0%	49.6%	59.6%
Other MFIs	3.0%	2.5%	3.3%
Non-Banking Financial Companies	0.0%	0.5%	0.0%
Small Finance Banks	12.6%	7.9%	10.3%

Panel B: Shishu loans excluding PMJDY OD accounts

	2015-16	2016-17	Adj. 16-17*
MARKET SHARE IN TOTAL ACCOUNTS			
Scheduled Commercial Banks	**18.3%**	**28.5%**	**18.5%**
State Banks	1.4%	1.3%	1.5%
Public Sector Commercial Banks	8.0%	3.2%	4.0%
Private Sector Commercial Banks	8.9%	24.0%	13.0%
Foreign Banks	0.0%	0.0%	0.0%
Regional Rural Banks	**2.7%**	**2.3%**	**2.9%**
MFIs, NBFCs & Others	**79.0%**	**69.2%**	**78.7%**
NBFC-MFIs	63.9%	57.3%	64.8%
Other MFIs	2.5%	3.2%	4.0%
Non-Banking Financial Companies	0.0%	0.6%	0.0%
Small Finance Banks	12.7%	8.1%	10.0%
MARKET SHARE IN TOTAL DISBURSEMENTS (IN RS. CRORES)			
Scheduled Commercial Banks	**22.3%**	**36.2%**	**22.6%**
State Banks	2.2%	1.5%	1.9%
Public Sector Commercial Banks	10.5%	5.1%	6.7%
Private Sector Commercial Banks	9.6%	29.6%	13.9%
Foreign Banks	0.0%	0.0%	0.0%
Regional Rural Banks	**4.7%**	**3.3%**	**4.3%**
MFIs, NBFCs & Others	**72.9%**	**60.5%**	**73.2%**
NBFC-MFIs	57.2%	49.6%	59.5%
Other MFIs	3.0%	2.5%	3.3%
Non-Banking Financial Companies	0.0%	0.5%	0.0%
Small Finance Banks	12.7%	7.9%	10.3%

Panel C: Kishor loans

	2015-16	2016-17	Adj. 16-17*
MARKET SHARE IN TOTAL ACCOUNTS			
Scheduled Commercial Banks	**77.7%**	**72.4%**	**75.6%**
State Banks	12.6%	12.8%	13.4%
Public Sector Commercial Banks	50.6%	48.3%	50.6%
Private Sector Commercial Banks	14.5%	11.3%	11.6%
Foreign Banks	0.0%	0.0%	0.0%
Regional Rural Banks	**17.6%**	**18.8%**	**19.6%**
MFIs, NBFCs & Others	**4.7%**	**8.9%**	**4.8%**
NBFC-MFIs	3.5%	4.1%	4.2%
Other MFIs	0.0%	0.0%	0.0%
Non-Banking Financial Companies	0.0%	4.3%	0.0%
Small Finance Banks	1.1%	0.5%	0.6%
MARKET SHARE IN TOTAL DISBURSEMENTS (IN RS. CRORES)			
Scheduled Commercial Banks	**81.7%**	**78.4%**	**83.4%**
State Banks	16.7%	17.3%	18.4%
Public Sector Commercial Banks	48.0%	47.2%	50.3%
Private Sector Commercial Banks	17.0%	13.9%	14.8%
Foreign Banks	0.0%	0.0%	0.0%
Regional Rural Banks	**16.3%**	**13.7%**	**14.6%**
MFIs, NBFCs & Others	**1.9%**	**8.0%**	**2.0%**
NBFC-MFIs	1.5%	1.7%	1.8%
Other MFIs	0.0%	0.0%	0.0%
Non-Banking Financial Companies	0.0%	6.1%	0.0%
Small Finance Banks	0.4%	0.2%	0.2%

<div align="center">Panel D: Tarun loans</div>

	2015-16	2016-17	Adj. 16-17*
MARKET SHARE IN TOTAL ACCOUNTS			
Scheduled Commercial Banks	**95.8%**	**90.8%**	**95.8%**
State Banks	28.0%	28.6%	30.2%
Public Sector Commercial Banks	43.2%	43.5%	45.9%
Private Sector Commercial Banks	24.6%	18.7%	19.7%
Foreign Banks	0.0%	0.0%	0.0%
Regional Rural Banks	**4.0%**	**3.8%**	**4.0%**
MFIs, NBFCs & Others	**0.2%**	**5.4%**	**0.3%**
NBFC-MFIs	0.2%	0.2%	0.2%
Other MFIs	0.0%	0.0%	0.0%
Non-Banking Financial Companies	0.0%	5.2%	0.0%
Small Finance Banks	0.0%	0.0%	0.0%
MARKET SHARE IN TOTAL DISBURSEMENTS (IN RS. CRORES)			
Scheduled Commercial Banks	**95.7%**	**91.3%**	**95.9%**
State Banks	29.4%	30.5%	32.1%
Public Sector Commercial Banks	42.5%	43.6%	45.8%
Private Sector Commercial Banks	23.8%	17.2%	18.0%
Foreign Banks	0.0%	0.0%	0.0%
Regional Rural Banks	**4.0%**	**3.7%**	**3.9%**
MFIs, NBFCs & Others	**0.3%**	**5.0%**	**0.3%**
NBFC-MFIs	0.3%	0.2%	0.3%
Other MFIs	0.0%	0.0%	0.0%
Non-Banking Financial Companies	0.0%	4.7%	0.0%
Small Finance Banks	0.0%	0.0%	0.0%

2.2.2 Product range and underwriting rules

The first part of this section explored, using PMMY administrative data, the role of various institution types in driving origination in each loan category. In this section, we further explore the characteristics of each MLI type, with a particular focus on their customer orientation, product range, origination and underwriting processes and specific relaxations for PMMY loans (if any). The data for this analysis comes from 21 detailed qualitative interviews with a sample of frontline loan officers of 15 unique MLIs, including SCBs, RRBs, MFIs and SFBs.

The qualitative survey sought out frontline bank staff in-charge of loans to MSMEs, including PMMY loans. All MLIs interviewed confirmed that MSME lending was not a new vertical, and that MSMEs were serviced by their branches in the pre-PMMY period. For each MLI, we noted down the range of products (credit and non-credit) on offer for MSME clients, as well as their product features. A consolidated summary is presented in Table 2.

We find that range and types of product offerings for MSMEs varied widely by institution type, and this is a concern particularly where firms have access to only some MLI types, but remain excluded by others. For example, MFIs and SFBs in our sample reported that loan amounts could not exceed Rs. 50,000 on group loans on Rs. 2-3 lakhs on individual loans. Some SFBs were developing secured loan products to offer larger loans against property, but these still remain a very small portion of their MSME credit. The same institutions also reported much higher average interest rates on their loans, anywhere from 10-14 percentage points higher than SCBs or RRBs.

A second concern is the near absence of flexible loans or credit lines for MSMEs served by MFIs. All MFIs and SFBs in our sample only described term loans with fixed, equal repayments which disregard underlying cashflow volatility and the needs of firms seeking credit for working capital management rather than as finance for fixed assets. In fact, tiny or micro businesses who manage their working capital through fixed term loans bear a disproportionately high interest burden, in addition to the costs of managing or deploying excess funds at the time of disbursement. It would be more efficient to underwrite the same amount as a credit line, and allow firms to transact indefinitely within this limit and only pay interest proportional to the credit effectively used.

A third concern from Table 2 is the limited availability of non-credit products through non-bank channels. MFIs are only able to offer savings products through BC partnerships, and those are often limited to cross-sale to existing loan clients. Newly licensed SFBs have the opportunity to quickly expand access to a range of savings products (including term deposits and recurring deposits to accumulate small savings) to a large client base. Recall that the number of Shishu loans originated by SFBs was greater than those by any other bank type and under the new license, all of these clients should now have access to savings alongside credit.

A similar product gap is revealed when comparing the insurance products available through non-bank MLIs. MFIs typically bundle a credit life insurance cover with group and individual loans wherein the life of the borrower and borrower's spouse are covered, but only upto the value of the loan and only during loan tenure. In effect, this insures the lender from risk of default but benefits to the borrower only amount to a waiver of loan dues and a small payout. In this first part of this section we learned that a majority of borrowers under PMMY were served by MFIs or SFBs, and we now understand that almost all of them are likely un-insured or under-insured. Even in the case of banks, where multiple insurance products were reported, there is no data available to understand how many MSME clients are appropriately insured.

Overlaying these insights on findings from the first part of this section reinforce that a majority of MSME credit is delivered through MFIs and SFBs, where credit is both limited and expensive and as well, credit is often the only available product and savings, insurance and investment options are scarce. Together, these insights describe a financial landscape for MSMEs (even after the launch of PMMY) that is ***expensive, incomplete, and often unsuitable*** and herein lies the biggest challenge for PMMY in powering MSME growth, business health and household financial well-being. While PMMY will remain a credit-focused scheme, policy-making and supervision will need to recognize the risks of furthering the product gap by emphasizing loans over all other financial products.

The implications of an expensive, incomplete and unsuitable range of products are particularly salient when considered within the theory of change. In Figure 2 we hypothesized that some of the immediate effects of PMMY might be to lower the cost of borrowing for MSMEs and that through the use of MUDRA card or through access to a wider range of products, borrowers could enjoy better matched products at better terms. However, if the PMMY portfolio in effect inherits the features of the pre-PMMY financial landscape, these intermediate effects (and corresponding impacts) are unlikely to materialize.

Table 2 Product range of MLIs interviewed

	SCBs	RRBs	MFIs	SFBs
Group loan	Yes, incl. in partnership with BCs, MFIs		Upto Rs. 50,000	Upto Rs. 40,000
Individual unsecured loan				
Term loan/fixed repayment	Upto Rs.10L at 9-12%	Upto Rs.10L at 12-14% p.a.	Upto Rs.2L at 24-26%	Upto Rs.3L at 19- 24%
Flexible terms/WC loan	Upto Rs. 10 lakh	Upto Rs. 10 Lakh	No	No
Individual secured loan				
Against business investments (incl. transport vehicle)	Yes, hypothecated through loan tenure	Yes, hypothecated through loan tenure	No	No
Against personal property	Yes	Yes	No	Upto Rs. 10L at ~15%
Against gold	Yes	Yes	Yes (some MFIs)	Yes
Other financial products				
Savings	SB, Current A/C, FD, RD	SB, Current A/C, FD, RD	Limited, through BC partnerships	Limited SB, Current A/C, FD, RD (may not be available in all branches)
Insurance	Life, Personal Accident, Property, Liability	Life, Personal Accident, Property, Liability	Life (limited to loan amount)	Life (limited to loan amount)

In addition to a review of products, our qualitative interviews also captured details of loan processing and underwriting or sanctioning guidelines. In a later section, we study the processes and workflow differences between MLI types, but here we briefly describe specific issues with regard to underwriting.

We notice in Table 1 that all SCBs reported a relatively small number of Shishu loans, given their widespread branch network. From our qualitative interviews, we understand that most SCBs took limited efforts to attract new Shishu borrowers, with the exception of responding to walk-in inquiries or occasional awareness camps. Nevertheless, we understand that for those clients who do submit loan applications, SCBs in our sample were willing to relax underwriting requirements to an extent (in comparison to their standard requirements for all MSME loans).

Most importantly, SCBs were willing to waive requirements for business financial documents, valuation of goods and assets and threshold liquidity or leverage ratios for firms who they viewed as 'only served through PMMY'. In interviews, respondents alluded to the credit guarantee facility as a comfort in these cases and that therefore, rigorous documentation for informal businesses was not requested. Instead, they employed on a simple *3-part rule*: KYC documentation, firm/shop registration documentation and a minimum CIBIL score of 600-700. We find that similar rules were extensively used by many banks, and is likely a result of internal directives to permit approval of more Shishu loan applications.

We find no comparable relaxations made by MFIs or SFBs. In these MLIs, Shishu loans were typically made through joint-liability groups (where only KYC documentation, group membership and currently outstanding loans were verified), while Kishor loans were rare, and only offered to business clients with a long and disciplined association with the lender. Individual loans were underwritten based on detailed business appraisal including an analysis of cashflows using sales receipts, debt servicing capacity and owner's financial position. MFIs and SFBs in our sample did not report the use of credit guarantee facility. While it does appear that through joint-liability lending they were able to reach out to formerly excluded clients, their selection criteria for Kishor loans is currently quite restrictive.

Combining these insights with the relative dominance of these MLI types in the PMMY portfolio, we conclude that both MFIs and SCBs take efforts to simplify access requirements for Shishu loans but as loan sizes increase (and recall that banks contribute a larger share of the larger loans), requirements for financial documentation can be a significant barrier to access. MFIs and NBFCs have demonstrated the ability to underwrite business cashflows without extensive formal documentation, but their capacity to do so remains limited and as a result, their contribution to Kishor and and Tarun portfolios remains small.

2.3 Features and uses of PMMY loans

The previous sections discussed MLIs' relative contributions and the key characteristics of the financial landscape for MSMEs. In this section, we use available data to gain insights into the types of loans made under PMMY as well as the characteristics of PMMY borrowers. To complement the all-India data available from MUDRA, we conducted a small-scale sample survey that adds rich detail on the characteristics and experiences of PMMY borrowers, but does not match the representative breadth of MUDRA data. However, the primary surveys offer critical insights on how beneficiaries of this scheme interact with the financial system.

2.3.1 Insights on loan features from MUDRA data

The data reported to MUDRA includes aggregated totals (at an MLI-level and region-level) of specific loan tags for each loan category. Loans are tagged based on borrower characteristics, including the gender, caste and minority status of borrower, whether the borrower is new-to-bank, whether the loan was issued with MUDRA card or as a PMJDY overdraft, and whether the loan is tagged under various government sponsored schemes. In this report, we analyze patterns in the proportion of loans that are made to women, minorities, new-to-bank clients and through MUDRA cards. In addition, we also estimate the average loan ticket-size for each MLI and loan size category as the average disbursement per loan account reported. These results are reported in Table 3 Panels A-F.

Panel A reports the average loan ticket-size by each MLI type and loan size category. We observe that within the Shishu category (excluding PMJDY OD), RRBs and State banks made the largest loans on average (greater than Rs. 30,000) while NBFC-MFIs made the smallest loans, at an average around Rs. 19,000.

The Kishor category, by design, includes loans ranging from Rs. 50,000 to Rs. 5 lakhs and resulting from a wide range, we observe a twin-peak distribution. For NBFC-MFIs & SFBs, the average loan size was around Rs. 70,000-80,000, while average loan sizes available from all banks (including SCBs and RRBs) and non-MFI NBFCs were between Rs.1.8-3 lakhs. Loans in the Tarun category tended to have the least variation across MLI types, with average size ranging between Rs. 6.5-8 lakhs.

We also observed the average loan ticket-size changing between the years, perhaps reflecting compositional changes in portfolio such as the expansion or reduction in the average scale of finance available to borrowers within each category, or the inclusion of new borrowers who received smaller initial loans. The size of the average Shishu loan made by Nationalized banks

increased from Rs. 27,283 to Rs. 38,121. Recall that Nationalized Banks reduced their overall exposure in the Shishu category at the same time, perhaps making fewer but larger loans. Another notable change is the reduction in average Kishor loan size by RRBs from Rs. 1,84,086 in FY16 to Rs. 1,39,892 in FY17. The same is evident from Table 1, where RRB's number of Kishor loans registered a very small increase from 8,03,756 to 8,14,855 while the total disbursements decreased from Rs. 2,917 crores to Rs. 2,733 crores. It is unclear whether this is an outcome of resource limitations in FY17, or the result of making smaller loans to many "new" clients in place of a portion of existing clients.

Table 3 also reports the proportion of accounts tagged as new-to-bank, as loans to women and minorities, and loans with a MUDRA card. We are careful to interpret these estimates with caution as all are self-reported by MLIs where definitions are inconsistent and for all practical purposes, open to discretionary interpretation. It is also possible that some tags are not captured entirely and loans are only tagged upon discretion, or upto the achievement of targets.

With these caveats, we note in Panel B that a large proportion of loans by all SCBs were tagged as new to bank in both years. Many SCBs also reported a trend of a lower proportion of new-to-bank loans in the Shishu category by the second year, matched by a higher proportion in the Kishor category, suggesting a strategy to pursue inclusion through mid-size loans. However, the proportions themselves seem questionably high and we later describe a more rigorous research exercise to obtain more accurate estimates of inclusion and graduation under PMMY, and by different MLIs (Section 3.4).

Panels C and D report the proportion of loans made to women and minorities respectively. The data confirms that through the JLG model, MFIs, SFBs and some Private banks have successfully reached out to women borrowers, who represent an overwhelming majority of loans in these categories. However, outside of these MLIs, the representation of women clients in larger size loans, or loans from SCBs & RRBs is low, and upto 30% at best.

Similarly, the proportion of loans made to minority communities is also low on average. It is unclear whether both these tags are recorded and reported accurately under PMMY, and this concern over-rides any inferences from this data. For example, it is likely that MFIs over-estimate the proportion of loans eventually used by women entrepreneurs since loans may be borrowed in the name of women but used for enterprises owned by men in the household. On the other hand, banks may under-report the proportion of loans used by women and minorities, unless this tag is internally monitored and verified.

Panels E and F report the proportion of loans made through MUDRA cards and as PMJDY overdrafts, both of which are only made by State, Nationalized and Regional Rural banks. We find

that a very small proportion of loans are made through the MUDRA card, even for MLIs authorized to do so. While MUDRA cards allow borrowers more control over cash management and timely loan use, they also imply an additional fixed cost on each loan.

We also note that the proportion of loans issued with a MUDRA card are lower in the second year. This could result from a large number of loan renewals to the same clients, therefore requiring a lesser number of new cards. However, this would be inconsistent with Panel B, where a large proportion of new clients are reported. In order to clarify reporting on this tag and enable meaningful decision-making, we recommend issuing a clarification on this tag and discuss further in Section 3.

In summary, the data reported to MUDRA informs only a primary characterization of borrowers based on the segmentation of loan sizes and lender types. We understand the average loan size for each MLI, and to the extent that loan size and other contract features are correlated with certain types of loan uses, we might extend our understanding of whether loans are used for working capital, consumption smoothing or for capital investments. We also understand that the PMMY portfolio inherits social inequalities from the larger financial system, and barriers for access to credit especially for women continue to persist. Recall that the theory of change in Figure 2 hypothesizes that the reduction in inequalities may not be automatic, and will be conditional on focused efforts to bridge regional inequalities. The same hypothesis may be extended to gender or other inequality as well.

We understand the limitations of data collection from MLIs voluntary reporting, and complement the administrative data with our own sample survey of MSME borrowers. We discuss the survey and findings in the next part of this section.

Table 3 Key characteristics of PMMY loans from MUDRA data

Panel A: Loan average ticketsize

	2015-16			2016-17			Adj. 16-17		
	Shishu	Kishor	Tarun	Shishu	Kishor	Tarun	Shishu	Kishor	Tarun
SCBs	**25,156**	**208,845**	**726,940**	**30,302**	**207,502**	**751,892**	**27,334**	**207,878**	**751,916**
State Banks	31,299	263,522	763,080	28,128	258,200	797,955	28,138	258,200	797,955
Nationalized Banks	27,283	188,264	716,500	38,117	187,224	749,180	38,121	187,224	749,180
Private Banks	22,265	233,305	703,945	29,368	236,722	687,553	23,952	239,694	687,592
Foreign Banks		303,729	814,474		334,091	816,552		334,091	816,552
RRBs	**36,289**	**184,086**	**735,005**	**33,533**	**139,892**	**731,286**	**33,538**	**139,892**	**731,286**
Non-Banks	**19,009**	**80,625**	**783,897**	**20,840**	**172,382**	**689,242**	**20,812**	**79,430**	**785,000**
NBFC-MFIs	18,452	82,247	784,284	20,611	79,237	789,124	20,577	79,219	789,124
Other MFIs	25,087	197,406		18,633			18,633		
Other NBFCs				22,594	272,390	684,701			
SFBs	20,627	71,859	728,571	23,209	81,026	659,524	23,209	81,026	659,524

Panel B: Percentage of loans with tag "New to bank"

	2015-16			2016-17			Adj. 16-17		
	Shishu	Kishor	Tarun	Shishu	Kishor	Tarun	Shishu	Kishor	Tarun
SCBs									
State Banks	36.6%	43.4%	39.7%	14.5%	58.1%	58.6%	14.5%	58.1%	58.6%
Nationalized Banks	59.8%	71.9%	73.0%	38.3%	66.1%	60.9%	38.3%	66.1%	60.9%
Private Banks	60.4%	48.9%	20.1%	22.0%	66.5%	35.0%	47.4%	67.7%	35.0%
Foreign Banks	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
RRBs	53.6%	44.6%	39.5%	49.1%	52.5%	33.9%	49.1%	52.5%	33.9%
Non-Banks									
NBFC-MFIs	25.8%	5.7%	4.7%	19.7%	12.3%	8.5%	19.8%	12.0%	8.5%
Other MFIs	14.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other NBFCs				0.1%	51.3%	61.4%			
SFBs	28.7%	54.6%	0.0%	33.6%	31.6%	64.3%	33.6%	31.6%	64.3%

Panel C: Percentage of loans with tag "Women"

	2015-16			2016-17			Adj. 16-17		
	Shishu	Kishor	Tarun	Shishu	Kishor	Tarun	Shishu	Kishor	Tarun
SCBs									
State Banks	10.8%	14.7%	8.9%	5.9%	9.9%	2.4%	5.9%	9.9%	2.4%
Nationalized Banks	26.0%	22.7%	16.4%	26.2%	23.6%	13.3%	26.2%	23.6%	13.3%
Private Banks	78.4%	18.4%	8.7%	94.2%	16.4%	9.4%	87.6%	16.7%	9.4%
Foreign Banks	0.0%	9.8%	12.5%	0.0%	15.9%	13.1%	0.0%	15.9%	13.1%
RRBs	20.9%	20.5%	16.8%	30.3%	31.0%	16.7%	30.3%	31.0%	16.7%
Non-Banks									
NBFC-MFIs	99.7%	71.6%	74.5%	81.0%	72.6%	72.9%	83.0%	72.5%	72.9%
Other MFIs	100.0%	100.0%	0.0%	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
Other NBFCs				99.9%	3.0%	3.0%			
SFBs	100.0%	63.7%	0.0%	71.5%	5.4%	0.0%	71.5%	5.4%	0.0%

Panel D: Percentage of loans with tag "Minorities"

	2015-16			2016-17			Adj. 16-17		
	Shishu	Kishor	Tarun	Shishu	Kishor	Tarun	Shishu	Kishor	Tarun
SCBs									
State Banks	3.7%	5.7%	3.9%	1.7%	5.5%	2.7%	1.7%	5.5%	2.7%
Nationalized Banks	7.2%	12.6%	10.7%	11.1%	11.4%	10.7%	11.1%	11.4%	10.7%
Private Banks	15.2%	11.6%	7.7%	15.2%	12.6%	9.0%	10.0%	12.6%	9.0%
Foreign Banks	0.0%	0.0%	0.0%	0	0	0	0.0%	0.0%	0.0%
RRBs	10.2%	10.8%	17.9%	19.4%	22.3%	21.0%	19.4%	22.3%	21.0%
Non-Banks									
NBFC-MFIs	15.1%	0.1%	0.3%	14.6%	0.7%	0.2%	14.4%	0.7%	0.2%
Other MFIs	10.0%	6.5%	0.0%	0	0	0	0.0%	0.0%	0.0%
Other NBFCs				0.0%	4.9%	3.5%			
SFBs	0.6%	2.1%	0.0%	5.4%	18.6%	11.9%	5.4%	18.6%	11.9%

Panel E: Percentage of loans with tag "MUDRA card"

	2015-16			2016-17			Adj. 16-17		
	Shishu	Kishor	Tarun	Shishu	Kishor	Tarun	Shishu	Kishor	Tarun
SCBs									
State Banks	6.3%	3.2%	3.3%	0.3%	0.5%	0.5%	0.3%	0.5%	0.5%
Nationalized Banks	7.6%	3.4%	6.0%	6.5%	1.9%	3.3%	6.5%	1.9%	3.3%
Private Banks									
Foreign Banks									
RRBs	8.7%	0.5%	1.3%	2.0%	0.3%	1.0%	2.0%	0.3%	1.0%
Non-Banks									
NBFC-MFIs									
Other MFIs									
Other NBFCs									
SFBs									

	2015-16			2016-17			Adj. 16-17		
	Shishu	Kishor	Tarun	Shishu	Kishor	Tarun	Shishu	Kishor	Tarun
SCBs									
State Banks	53.7%			48.6%			48.6%		
Nationalized Banks	41.5%			41.7%			41.7%		
Private Banks									
Foreign Banks									
RRBs	21.9%			12.1%			12.1%		
Non-Banks									
NBFC-MFIs	0.0%			0.4%			0.5%		
Other MFIs									
Other NBFCs									
SFBs									

Panel F: Percentage of loans with tag "PMJDY OD"

2.3.2 Insights on loan features and uses from survey of MSME borrowers

The primary survey of MSME borrowers was located in regions with relatively high access to credit under PMMY that also had a competitive financial landscape (i.e. active participation by multiple lenders and institution types). Accordingly, three districts were chosen— Kolkata in West Bengal, Ludhiana in Punjab and Rajkot in Gujarat— and urban and semi-rural MSME clusters in these districts were identified. Within each cluster, micro and small enterprises were sampled using a combination of systematic random sampling and purposive selection. The criteria for purposive selection excluded enterprises without an outstanding business loan during the survey period.

Most borrowers were unaware or unable to report whether their loan was under PMMY. We therefore sampled likely PMMY borrowers based on the type of enterprises, type of lender and in most cases, the loan amount. Based on the loan sizes reported we classified respondents by their designated PMMY category. The sample includes few businesses with non-PMMY loans (loan size above Rs. 10 lakhs) as well and were retain them in the sample to provide a comparison for loan usage and customer experiences.

A trained survey team administered a detailed questionnaire to the owner or most knowledgeable informant of each enterprise. The questionnaire was designed to understand primarily loan access, use and transaction process. In addition, we also collected details of business ownership, activity, scale of operations, revenue and expense cash-flows and volatility, physical and financial asset ownership and basic socioeconomic characteristics of business owners' households. A total of 176 interviews were administered. 97% of survey respondents owned a single business and had only one outstanding enterprise loan, while the remaining reported multiple businesses or loans.

The 176 enterprises sampled in the primary survey were chosen from Kolkata, Ludhiana and Rajkot districts. A majority of enterprises were engaged in trading activities (57.4%), followed by a variety of services (29.5%) and only 13% of the sample were engaged in manufacturing activities. In terms of loan size, we classify sampled enterprises by four PMMY loan categories instead of the usual three— borrowers of Kishor loans are further sub-classified at a cut-off of Rs. 2 lakhs as *Kishor 1 (Rs. 50,000 – Rs. 2 lakhs) and Kishor 2 (Rs. 2-5 lakhs).* We find that the pooled sample is well-balanced across all loan sizes.

Table 4 Sample composition for survey of MSME borrowers

	All	Kolkata	Ludhiana	Rajkot
Number of surveyed enterprises	176	72	42	62
Primary activity				
Manufacturing	13.1%	13.9%	4.8%	17.7%
Trading	57.4%	62.5%	81.0%	35.5%
Services	29.5%	23.6%	14.3%	46.8%
PMMY loan category				
Shishu (Upto Rs. 50,000)	28.4%	52.8%	16.7%	8.1%
Kishor 1 (Rs. 50,001 – 2 lakhs)	32.4%	27.8%	42.9%	30.6%
Kishor 2 (Rs. 2 – 5 lakhs)	14.8%	6.9%	16.7%	22.6%
Tarun (Rs. 5 -10 lakhs)	14.2%	9.7%	11.9%	21.0%
Above Rs. 10 lakhs	10.2%	2.8%	11.9%	17.7%

The analysis of survey data in this section begins with a quick description of sample composition and nature of financial access in the survey locations. However, the key results from the survey focus not on describing the receivers of PMMY loans but on aspects of business cashflows, loan use and customer satisfaction.

Table 5 describes the credit landscape in survey areas. As expected, Nationalized and Private banks contribute anywhere between 50-80% of loans, with their share being the lowest for the smallest loan sizes. MFIs made 46% of the Shishu loans reported in the sample, but had almost no participation in any other loan category. All co-operative bank loans in the sample were reported in Rajkot district, where these banks were an active competitor to Nationalized and Private banks.

In comparison with Table 3, we see that the average loan sizes are slightly higher than the all-India average. This could be due to the fact that the areas studied are moderately high access markets and large centers of economic activity and thus received higher credit than average.

Table 5 Key characteristics of loans from primary survey

	Shishu	Kishor 1	Kishor 2	Tarun
% Sample loans in sample, by MLI type:				
Nationalized Bank	20.0%	26.3%	32.0%	12.5%
Private Bank	32.0%	56.1%	36.0%	50.0%
Microfinance Institution	46.0%	5.3%	0.0%	0.0%
Cooperative Bank	2.0%	12.3%	32.0%	37.5%
Median loan amount (in Rs.)	35,000	100,000	310,000	800,000
Median loan amount by MLI type:				
Nationalized Bank	50,000	135,000	300,000	800,000
Private Bank	32,500	100,000	400,000	850,000
NBFC-MFI	30,000	100,000	-	-
Cooperative Bank	50,000	100,000	300,000	700,000
% Loans requiring collateral[*], or collateral verification				
All sources	22.0%	24.5%	36.0%	41.7%
By MLI type:				
Nationalized Bank	30.0%	33.3%	50.0%	33.3%
Private Bank	25.0%	21.9%	44.4%	66.7%
NBFC-MFI	17.4%	0.0%		
Cooperative Bank	0.00%	28.6%	12.5%	11.1%

[*]Includes both household and business assets

Survey respondents also noted that their currently outstanding loans from banks often required some form of collateral or collateral verification. It is unclear whether the verification included both business and personal assets and further, if any personal assets were pledged against loans which are likely reported under PMMY. However, we observe a higher proportion of banks' customers reporting lenders' interest in collateral than those borrowing from MFIs.

Through the survey of enterprises, we also inquired on the eventual uses of loan funds. Encouragingly, a large majority of borrowers reported direct use of funds for both capital and working capital needs attached to their business— in fact, 99% enterprises reported at least one business-related use. Note that Figure 11 reports the percentage of enterprises reporting use of

loan funds on each purpose, and the same loan might be used for multiple purposes. Purposes are not mutually exclusive, and the estimates do not total to 100%. However, we do find the diversion of some loan funds towards non-business uses, most commonly to finance household purchases, consumption smoothing or meet emergent expenses.

While it is nearly impossible for lenders to exercise control over the end use of loan funds, these estimates are helpful to understand the extent to which funds disbursed under PMMY are deployed in productive enterprise activity, and the likely scale of economic benefits that might accrue. Understanding diversion of funds is also helpful if it indicates households' struggle to manage cash-in-hand. Product innovations such as the MUDRA card allow the borrow a higher degree of control over their use of funds.

Figure 11 Multiple uses of loans by borrowers
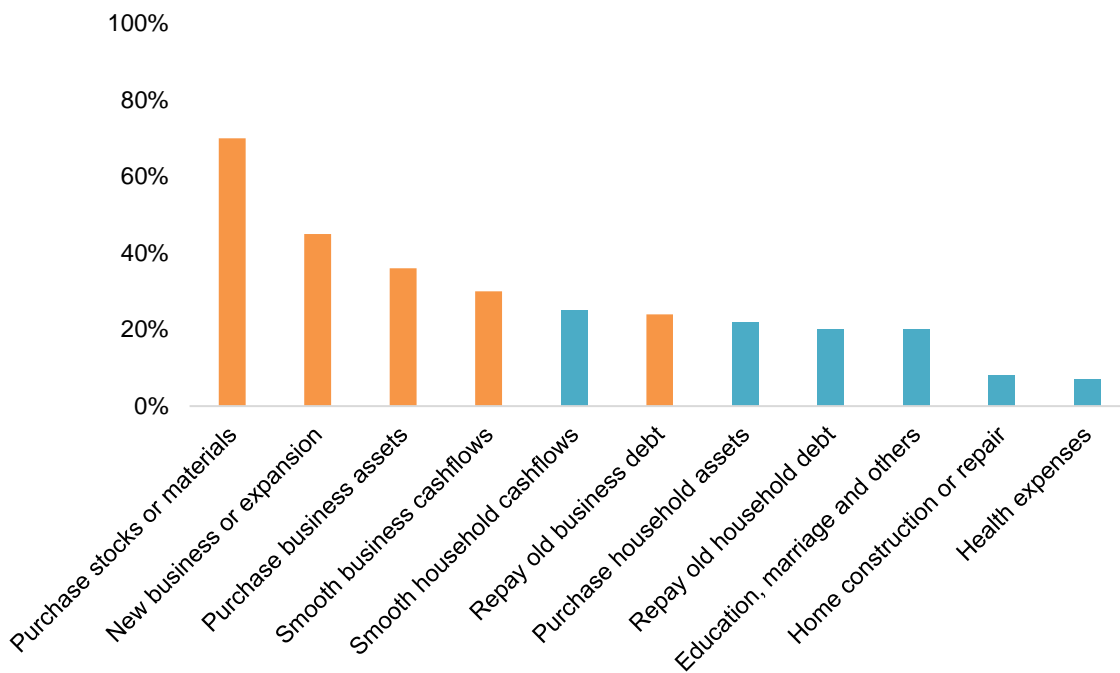
We now turn our attention to a few operational and financial characteristics of MSME borrowers. As reported earlier, a majority of enterprises were engaged in trading or small service activities, and manufacturing enterprises are more frequent only in the largest loan size category (see Table 6). We also learn that a majority of the enterprises we interviewed were sole proprietorships, but around 30-40% of those receiving larger loans were jointly owned and managed by multiple people within the household. Formal inter-household partnership firms were rare in the study locations.

Two other results from Table 6 link to results earlier discuss from Table 3. We find that the proportion of women-owned enterprises in the sample is quite low, even among Shishu loans, suggesting that while many JLG loans may be disbursed to women they may not be exclusively deployed in women-owned enterprises. This highlights the need to exercise caution when interpreting aggregate estimates of "loans to women" from PMMY administrative data. Similarly, we also find that many enterprises in our sample were well-established— the median age of enterprises was 11 years— and we find little evidence, in this sample, for a massive boost to entrepreneurship through increased access to credit. A more realistic estimate is, we find, that around 14% of enterprises are likely to be "new" but even here, it is impossible to establish a direct causal link with PMMY.

Finally, on sample characteristics, we discuss characteristics of borrowers' households. For most MSME borrowers, the income to household from the business was their primary and dominant source of income. Only 5% respondents reported an additional source of agricultural or livestock income, while 11% reported additional income from regular wage employment of any household member. We expect that in remote, rural regions (where this sample has very little representation) we might observe more income diversification through cultivation, livestock farming and wage labour, and fewer opportunities for regular wage income.

Respondents reported fairly low access to financial products (for either household or business use), indicating a wide product gap even among active clients of formal financial institutions. Curiously, life insurance was the most frequently reported financial product, followed by savings deposits as liquid or fixed deposits. Respondents also reported ownership of a variety of physical assets (likely also a form of alternative savings, in the absence of access to financial savings products)— we find that more than 64% borrowers owned land, and 42% borrowers reported ownership of gold, and both might be used as collateral against formal credit.

Table 6 Characteristics of borrowers' enterprises, from primary survey

		Sample	Shishu	Kishor 1	Kishor 2	Tarun	> Rs. 10L
Women-owned enterprises	*% MSMEs*	10.2%	10.0%	10.5%	7.7%	20.0%	0.0%
Median age of enterprise	*Years*	11.5	16.5	8	11.5	10	11.5
Established in 2015 or later	*% MSMEs*	14.2%	12.0%	12.3%	15.4%	12.0%	27.8%
Primary activity							
Manufacturing	*% MSMEs*	13.1%	10.0%	12.3%	15.4%	20.0%	11.1%
Trading	*% MSMEs*	57.4%	56.0%	57.9%	57.7%	60.0%	55.6%
Services	*% MSMEs*	29.5%	34.0%	29.8%	26.9%	20.0%	33.3%
Nature of business ownership							
Single owner	*% MSMEs*	67.6%	92.0%	56.1%	69.2%	60.0%	44.4%
Partnership/Family owned	*% MSMEs*	32.4%	8.0%	43.9%	30.8%	40.0%	55.6%
Number of employees	*Median*	2	2	2	3	4	2

Table 7 Characteristics of borrowers' households, from primary survey

	Sample	Shishu	Kishor 1	Kishor 2	Tarun
Median Household size	4	4	4	4	4
Median annual income					
From enterprise	150,000	100,000	150,000	190,000	200,000
From all sources	196,200	118,200	150,000	200,000	230,000
% households with:					
Agri or Livestock income	5%	0%	9%	0%	0%
Regular wage income	11%	14%	12%	8%	12%
Receiving welfare payments	14%	12%	25%	8%	8%
Receiving pension	2%	4%	4%	0%	0%
Physical asset ownership (% households)					
Land where household resides	64%	78%	63%	46%	56%
Land for business use	10%	6%	18%	8%	4%
Gold	42%	57%	46%	16%	32%
Bicycle	19%	46%	14%	0%	0%
Motorcycle	51%	36%	46%	69%	60%
Four wheelers	6%	2%	6%	8%	16%
Furniture	32%	48%	33%	15%	24%
Machinery/equipment	27%	24%	27%	23%	28%
Small tools	14%	22%	9%	15%	16%
Financial product ownership (% households)					
Savings deposits	12%	10%	11%	20%	12%
Life Insurance	35%	38%	38%	20%	36%
Health Insurance	5%	6%	2%	4%	8%
Asset Insurance	2%	2%	2%	0%	4%
Credit card	6%	2%	2%	8%	20%
Pension	1%	2%	0%	0%	0%
Mutual funds and investments	0%	0%	0%	0%	0%

The analysis so far described a sample of borrower enterprises in urban and semi-urban districts with high economic activity, matched with vibrant financial markets with multiple institutions and institution types. The characteristics of enterprises themselves closely mirror trends in the overall MSME landscape for India, in terms of ownership, business activity and size. Enterprises sampled do seem to have received higher credit than average, and reported access to a variety of financial products. However, the access is in no way comprehensive or adequate, given both business' and households' complex financial needs. The rest of this section will explore trends in business cashflows and profitability and then focus on aspects of loan processing and service that relate to customer satisfaction.

Business cashflows and profitability

The survey asked detailed questions in all items of business expense and revenue in an average month, as well as the volatility experienced in months of high expense or revenue and low expense or revenue. The data is insightful to understand both cashflow volatility as well as dynamic working capital management by firms to avoid revenue deficit in certain months. These results are summarized in the graphs below.

Figure 12 described the median experience of borrowers by loan category in terms of expense[18] volatility. We find that borrowers in the Kishor 1 category had the highest absolute expenses on average, while Shishu borrowers had the lowest expenses in the average month. Figure 13 describes the experience with revenues, and we notice that revenues are more volatile than expenses across all categories—the blue markers represent median revenues in an average month, while the vertical black lines represent how high or low the revenue could be in peak and low months respectively. Note that enterprises with larger loan sizes experienced the lowest volatility, while enterprises with smaller loans experienced more volatility. If we assume that enterprises with smaller loans also have a smaller scale of operations and lower managerial capacity, then it is likely that **the burden of volatility management is disproportionately higher for smaller firms**.

Figure 14 considers the interaction of expense and revenue in various scenarios and its' implication for business profitability and debt servicing capacity. First, we note that 88% all MSME borrowers in the sample were profitable on average, while the remaining 12% did not appear strictly profitable in the current year. It is unclear how unprofitable enterprises managed

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[18] Total expense and profit estimates exclude wages or other payments deducted by the owner.

loan repayments. Also note that the enterprises with larger loans also had a higher likelihood of being profitable on average.

Figure 12 Median expenses in average, high and low months
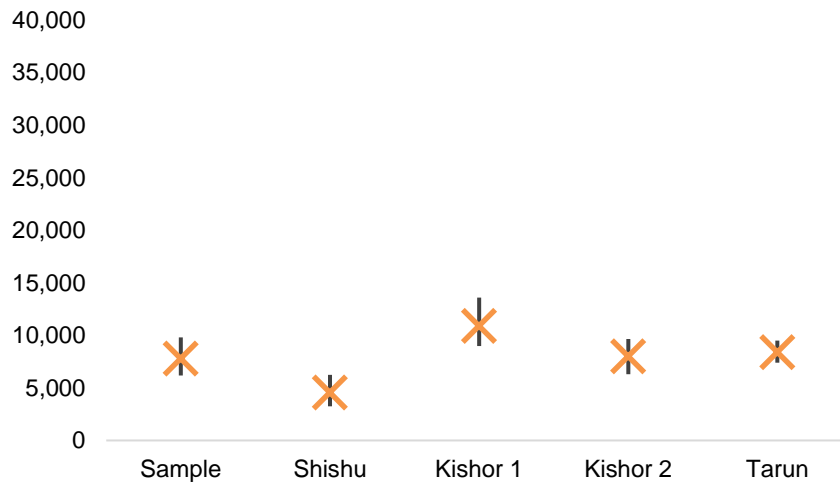
Figure 13 Median revenues in average, high and low months
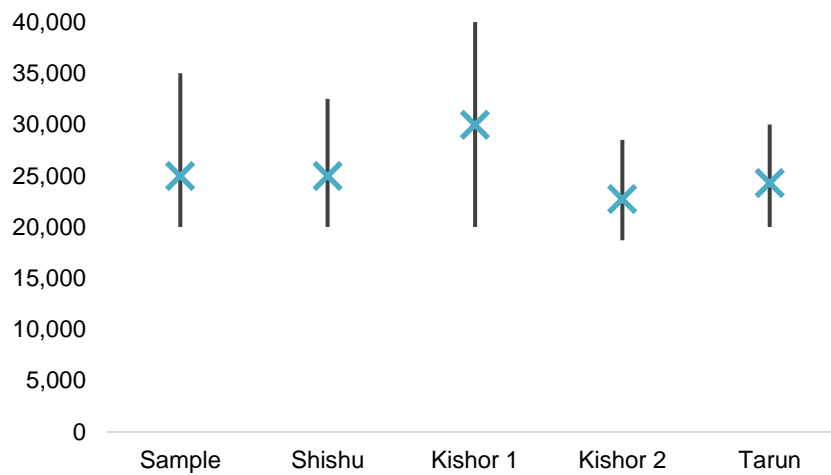
Figure 14 Profitability of sample enterprises

Note: Gross profits excludes wages and other payments deducted by the owner.
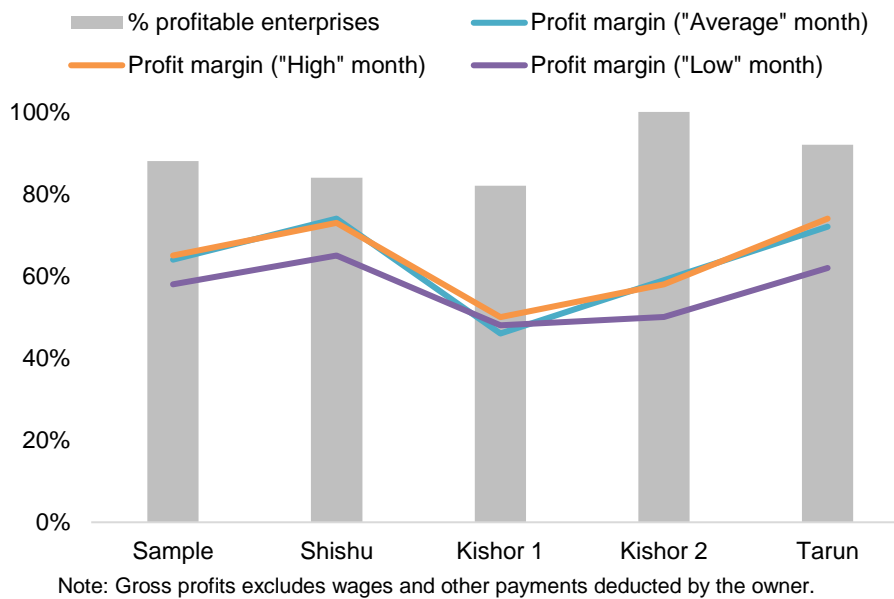
Yet another interesting observation from Figure 14 is that while enterprises in all categories experienced both expense and revenue volatility, their average profit margin in all scenarios remained reasonably consistent. We take this as indication of dynamic working capital management by savvy firms, although it would be interesting to further explore what types of firms were able to successfully maintain a consistent profit margin even under volatile conditions, and if the type of finance had any role to play in supporting a profitable strategy.

Factors in customer satisfaction

We also interviewed enterprises to understand customer perceptions of MLI's and features of loans. We learned that the loan amount required or available was the primary motivation for choice of lending institution, followed by recommendations of a particular MLI from business contacts. One of every four enterprises reported that, at the time of loan application, they did not seek out alternative offers from any other lender, while another 54% reported that they sought upto three offers.

Table 8 Customer experience with loan processing and service

	All sample	Nationalized Banks	Private Banks	Microfinance Institutions
***Information submitted* during loan appraisal**				
Credit history	58.3%	57.9%	47.6%	50.0%
Repayment delays	48.6%	52.6%	43.9%	3.8%
Value of assets	54.3%	71.1%	46.3%	7.7%
Income/expense seasonality	78.9%	86.8%	72.0%	69.2%
Financial statements	57.1%	68.4%	53.7%	7.7%
References	42.3%	55.3%	30.5%	0.0%

Site visit	70.5%	63.2%	79.3%	84.6%
Time to disbursement				
Less than 15 days	43.2%	21.1%	42.7%	73.1%
Between 16-30 days	38.1%	47.4%	35.4%	26.9%
Between 31-60 days	16.5%	21.1%	20.7%	0.0%
More than 60 days	2.3%	7.9%	1.2%	0.0%
Number of visits to branch	6.7	6.3	5.8	2.0
Overall satisfaction				
Not fully satisfied	17.6%	34.2%	17.1%	0.0%
Unlikely to borrow again	21.6%	31.6%	30.5%	0.0%

[*]This is self-reported by borrowers based on their experience during loan appraisal, and may not include any data collected by lenders on borrowers through external sources.

Table 8 describes the various aspects of borrower appraisal (subject to respondent recall) as well as the onerous waiting time till loan disbursement. Infact, 28% borrowers reported that in addition to long waiting times, they had to make 6 or more visits to the branch during the loan appraisal process.

It appears that a majority of lenders in this sample (across all institution types) asked to verify the value of assets, and this could include both personal and business assets. It is unclear from borrower reporting whether the assets were valued but not actually pledged as collateral. (It is unlikely that surveys based on respondent recall will be able to rigorously distinguish between the two, given the complexity of loan documentation and imperfect understanding and recall of respondents in this regard).

Overall, 82% of borrowers in our sample were satisfied with their experience and relationship with their MLIs. Interestingly, 100% of borrowers from MFIs reported satisfaction, while banks' clients were more likely to express dissatisfaction and dissent. *One of every five borrowers reported that they were unlikely to borrow again from their current lender*. While we understand that MFIs offer significant advantages in terms of loan processing time, and often service clients who would otherwise remain excluded— and both of these may go a long way in explaining high customer satisfaction— there remains scope for improvement for all MLIs in terms of satisfying customer needs and further, the financial needs of the entire MSME sector.

The implications of customer dissatisfaction are far-reaching. The theory of change implicitly assumes that customers once 'formally included' will remain so, and that the benefits of financial inclusion can compound and accrue over time. However if, as the scheme achieves more maturity, we observed MSMEs moving in and out of formality or not seeing their needs suitably met, there emerges a risk that the benefits of inclusion may not be realized to their full extent.

2.4 Lender specialization and market fragmentation

The analysis in earlier sections presented evidence of increasing lender specialization in the second year of PMMY, i.e. when the initial emphasis on originating Shishu loans was lifted, many SCBs shifted their focus away from smaller loans and instead towards making (larger) Kishor and Tarun loans. In this section, we explore this trend at a more granular level— at the level of each institution, rather than institution type. We also discuss pertinent evidence from qualitative interviews of frontline loan officers on how their workflow and loan processing is organized, and how this reflects an inherent institutional strategy favouring particular loan sizes. We conclude by drawing out the implications for market fragmentation and ultimately, for MSME borrowers.

2.4.1 Evidence of specialization from MUDRA data

Primary evidence of lender specialization comes from the administrative data on PMMY itself (*Figure 15*). Supporting previous evidence on MLI specialization, we find that most MLI portfolios were heavily in favour of either smaller or larger loans in both years, and very few MLIs' appeared to cater both loan sizes. The graph highlights that within the bank category, State banks, Nationalized banks and RRBs have portfolios dominated by Kishor or Tarun lending, while Private banks stand out with a different composition. Among banks, Private banks alone have an aggregate composition dominated by Shishu loans. Similarly, among non-banks, aggregate portfolios can be expected to be dominated by Shishu loans, with the only exception being non-MFI NBFCs who, in this case, are MSME specialist lenders.

It is likely that the MLI types whose portfolios are atypical from their peers are making a strategic choice to do so. For example, we know that many Private banks have entered into agreements with NBFC-MFIs to co-originate JLG loans, and these loans will be held on banks' balance sheets. Similarly, while many NBFC-MFIs find it profitable to have an exclusive and limited focus on small-ticket JLG loans, non-MFI NBFCs have an entirely different specialization, and are in the business of financing enterprises in specific trades and have built up informational and technical advantages to do so in a competitive manner.

We further explore evidence on strategic specialization, by studying portfolio trends at a more granular level. Table 9 reports the proportion of Shishu, Kishor and Tarun loans respectively for each MLI, while Table 10 YOY changes in MLIs' portfolio compositionTable 10 YOY changes in MLIs' portfolio composition reports the year-or-year growth between FY16 and FY17 in each loan category by MLI. Supporting previous evidence on MLI specialization, we find that most MLI portfolios were heavily in favour of either smaller or larger loans in both years, and very few MLIs' appeared to cater both loan sizes.

Figure 15 Composition of aggregate portfolios by loan size and MLI type
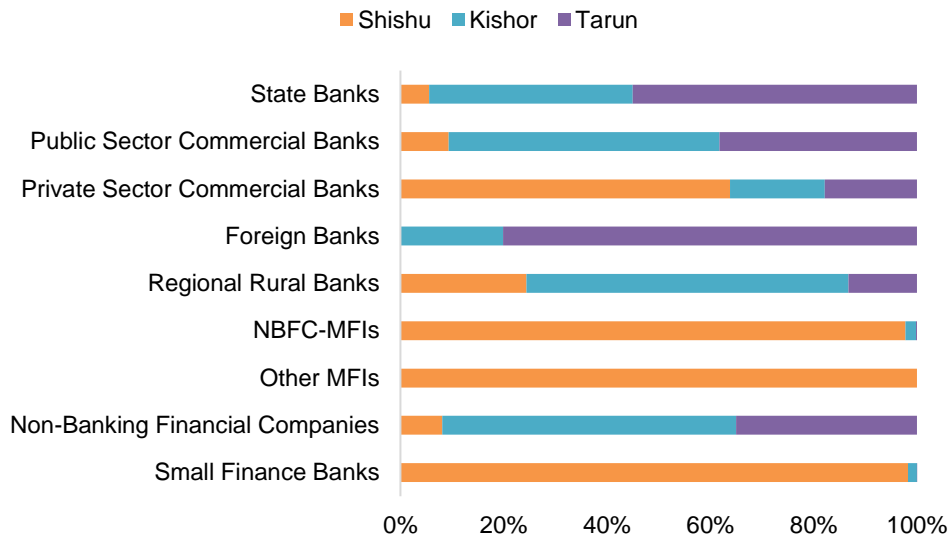
Defining a *non-specialist* as an MLI with atleast 10% of their PMMY loans in all three loan sizes, we identify only twelve non-specialist MLIs out of a total of 137. Of these, five were State banks and one was an RRB with only 13 loans in FY17. The remaining six were Private Banks with a total contribution of 99,216 loans in FY16 and only 30,109 loans in FY17.

A striking trend, as shown from data in Table 10, is that almost all State and Nationalized banks decreased their exposure in the Shishu segment (in terms of both accounts and disbursement amount), and that many of these banks reported corresponding increases in Kishor and Tarun. An exception here is state banks grew exposure in all three categories. Among 21 Nationalized banks, 16 grew Kishor or Tarun portfolios while decreasing Shishu exposure.

Among Private banks and RRBs, we find mixed trends. Of 17 Private banks reporting in both years, 5 banks reduced exposure in all three categories while 6 banks increased exposure in all three. Only 1 bank was observed with a moderate increase in Tarun accompanied by a corresponding decline of nearly one-third of Shishu loans, while a private bank reported aggressive growth in Kishor and Tarun loans but no Shishu loans. Among RRBs, a total of 56 banks reported PMMY loans in both years. All RRBs made Shishu and Kishor loans, but only 45 reported greater than 30 Tarun loans. Here, we find that 14 RRBs decreased exposure in all loan categories, but only 4 RRBs increased exposure in all three. 24 RRBs were observed increasing Kishor and/or Tarun exposure while decreasing Shishu exposure.

Among non-banks we observe an overall trend of consolidation towards Shishu loans. 35 non-bank entities reported in both years, of which 24 MLIs made exclusively Shishu loans. Of these 24, only 4 MLIs reported systematic decreases in Shishu exposure while the reported high growth in this segment. Only 1 SFB reported decreases across the board in all categories.

We are cautious to infer these time trends as purely strategic, for a number of reasons. We consider the possibility that many lenders faced significant resource constraints [19] after demonetization, and resorted to making fewer larger loans in order to meet disbursement targets in time. However, since only 22 MLIs reported decreases across all categories, this suggests that the decreases are perhaps more reflective of resource constraints and credit rationing rather than blanket liquidity constraints. Given this, the trends observed among different MLIs can be considered indicative of their strategic alignment in favour of larger or smaller ticket loans respectively (and as their likely choice of lending strategy in the absence of express direction to do otherwise).

From this analysis, we infer that MLIs participating in PMMY (and indeed, all MLIs) are loan-size specialists by choice, perhaps as part of a larger strategy to optimize internal processes and capitalize on particular strengths or successes. Sahasranaman and George (2013)[20] documented the costs of rural credit delivery through different channels and find that costs vary significantly based on whether the loans are originated by the banks through their rural branches (41.5% of the loan amount) or in partnership with a microfinance institution (in which case the costs are as low as 13.8%). Surprisingly though, even Nationalized and Private banks were specialists, while many State banks are not. It is unclear whether State banks' non-specialization is a result of management mandate or an outcome from their sheer scale of outreach. In the case of the latter, it might be that their wide rural outreach manifests in significant cost advantages.

The trend of MLI specialization interacts uniquely with the theory of change. Figure 2 assumes that credit risk is the only (or the most significant) barrier for thin-file clients to receive credit and therefore, the introduction of a well-functioning credit guarantee accompanied by a nudge from the supervisor should be sufficient to smoothen barriers to graduation. However, lender specialization and market fragmentation may render this linkage ineffective, since MLIs specialization choices may over-ride the benefits of a credit guarantee. Thin-file clients may remain constrained to microfinance institutions, and their ability to graduate to a higher loan size is then dependent on the emergence of a particular type of enterprise lending specialists who are able to underwrite thin-file clients. Increasing market fragmentation decreases consumers' effective choice and restricts both mobility and competition.

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[19] Several NBFC-MFIs and other non-banks faced liquidity constraints both in terms of ability to borrow and as well as in internal redeployment of funds from repayments collected. State and Nationalized banks may have faced other constraints with regard to work allocation and availability of personnel to process a large number of loans. For all of these reasons, small-ticket lending appears to have slowed.

[20] Sahasranaman, A. & George, D. (2013). Cost of Delivering Rural Credit in India. IFMR Finance Foundation Working Paper. Retrieved from http://foundation.ifmr.co.in/2013/04/23/cost-of-delivering-rural-credit-in-india/

Table 9 Composition of MLIs' portfolios by loan size

Member Lending Institution	2015-16			2016-17		
	Shishu	Kishor	Tarun	Shishu	Kishor	Tarun
SCHEDULED COMMERCIAL BANKS						
State Banks						
MLI 1	55.8%	27.1%	17.1%	29.0%	31.2%	39.7%
MLI 2	43.4%	42.6%	14.0%	32.5%	51.2%	16.3%
MLI 3	22.0%	61.5%	16.5%	24.9%	58.8%	16.3%
MLI 4	57.7%	28.5%	13.7%	34.3%	40.8%	24.9%
MLI 5	54.4%	37.2%	8.4%	41.3%	46.2%	12.5%
MLI 6	54.3%	30.8%	14.9%	50.6%	33.7%	15.8%
Public Sector Commercial Banks						
MLI 1	86.5%	12.1%	1.3%	67.6%	29.6%	2.8%
MLI 2	60.8%	34.3%	4.9%	34.5%	55.6%	9.9%
MLI 4	58.8%	37.4%	3.9%	32.7%	59.3%	8.0%
MLI 5	44.9%	48.2%	6.8%	32.0%	59.8%	8.2%
MLI 6	62.7%	32.1%	5.2%	50.3%	40.7%	9.0%
MLI 7	74.3%	19.5%	6.3%	73.2%	21.2%	5.6%
MLI 8	73.3%	19.2%	7.4%	40.5%	40.6%	18.8%
MLI 9	91.6%	6.9%	1.5%	88.1%	10.2%	1.8%
MLI 10	70.4%	25.2%	4.4%	41.2%	46.8%	12.0%
MLI 11	59.9%	33.7%	6.5%	40.9%	49.8%	9.3%
MLI 12	75.8%	21.9%	2.4%	43.4%	53.3%	3.4%
MLI 13	55.0%	39.1%	6.0%	56.6%	38.3%	5.1%
MLI 14	74.0%	22.1%	3.9%	42.9%	40.9%	16.2%

Member Lending Institution	2015-16			2016-17		
	Shishu	Kishor	Tarun	Shishu	Kishor	Tarun
MLI 15	57.6%	36.6%	5.9%	36.7%	55.2%	8.2%
MLI 16	54.1%	36.9%	9.0%	25.1%	57.3%	17.6%
MLI 17	54.1%	37.5%	8.3%	40.2%	52.3%	7.6%
MLI 18	76.6%	21.0%	2.4%	48.0%	46.5%	5.5%
MLI 19	57.8%	36.8%	5.4%	36.2%	53.9%	9.9%
MLI 20	65.6%	25.5%	8.9%	32.5%	52.8%	14.7%
MLI 21	55.7%	37.7%	6.6%	35.2%	52.7%	12.1%
Private Sector Commercial Banks						
MLI 1	26.4%	46.7%	26.9%	22.7%	50.8%	26.5%
MLI 2	20.2%	52.3%	27.5%	19.0%	49.6%	31.3%
MLI 3	15.5%	48.2%	36.3%	33.7%	44.8%	21.5%
MLI 4	50.6%	28.3%	21.1%	80.1%	11.1%	8.8%
MLI 5	0.0%	40.0%	60.0%	85.0%	6.6%	8.4%
MLI 6	25.6%	56.5%	17.9%	5.4%	61.3%	33.3%
MLI 7	93.3%	5.2%	1.4%	96.1%	2.8%	1.0%
MLI 8	93.2%	4.8%	2.0%	95.1%	2.8%	2.1%
MLI 9	28.8%	67.6%	3.6%	85.1%	11.9%	3.0%
MLI 10	97.9%	1.6%	0.5%	94.4%	4.5%	1.0%
MLI 11	20.8%	49.8%	29.4%	42.7%	37.1%	20.1%
MLI 12	26.7%	66.7%	6.7%	88.8%	10.3%	0.9%
MLI 13	28.7%	63.1%	8.2%	24.6%	68.2%	7.3%
MLI 14	89.4%	9.8%	0.8%	90.2%	8.7%	1.2%
MLI 15	3.5%	55.3%	41.3%	2.1%	70.0%	27.9%
MLI 16	18.4%	62.0%	19.6%	14.5%	63.2%	22.3%

Member Lending Institution	2015-16			2016-17		
	Shishu	Kishor	Tarun	Shishu	Kishor	Tarun
MLI 17	37.7%	32.2%	30.1%	20.8%	54.5%	24.8%
Foreign Banks						
MLI 1	0.0%	70.6%	29.4%	0.0%	40.0%	60.0%
MLI 2	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
REGIONAL RURAL BANKS						
MLI 1	46.5%	52.7%	0.8%	68.9%	30.7%	0.4%
MLI 2	25.5%	73.9%	0.6%	50.4%	47.6%	2.0%
MLI 3	68.1%	30.6%	1.3%	29.5%	69.5%	1.1%
MLI 4	79.1%	20.2%	0.7%	74.8%	24.5%	0.7%
MLI 5	94.7%	4.7%	0.6%	85.4%	14.0%	0.6%
MLI 6	88.9%	10.8%	0.3%	84.4%	15.4%	0.3%
MLI 7	49.0%	34.9%	16.1%	61.5%	15.4%	23.1%
MLI 8	89.1%	8.5%	2.4%	82.4%	14.4%	3.3%
MLI 9	73.4%	22.2%	4.4%	63.1%	34.8%	2.0%
MLI 10	54.5%	41.5%	4.1%	27.9%	64.9%	7.3%
MLI 11	77.3%	22.5%	0.2%	50.4%	49.1%	0.5%
MLI 12	71.6%	25.2%	3.3%	56.1%	39.0%	4.9%
MLI 13	84.8%	14.6%	0.6%	40.1%	59.3%	0.6%
MLI 14	73.7%	25.8%	0.5%	40.2%	59.4%	0.3%
MLI 15	83.6%	16.3%	0.1%	44.0%	55.8%	0.2%
MLI 16	71.0%	28.7%	0.4%	92.9%	7.0%	0.1%
MLI 17	34.7%	54.4%	10.9%	23.6%	75.9%	0.5%
MLI 18	79.2%	19.4%	1.4%	77.2%	21.3%	1.5%
MLI 19	82.5%	16.4%	1.1%	63.5%	34.5%	2.0%
MLI 20	82.2%	16.7%	1.1%	93.7%	4.5%	1.8%
MLI 21	31.0%	62.9%	6.1%	31.0%	62.9%	6.1%

Member Lending Institution	2015-16			2016-17		
	Shishu	Kishor	Tarun	Shishu	Kishor	Tarun
MLI 22	25.9%	68.2%	5.8%	30.1%	62.9%	6.9%
MLI 23	81.0%	18.5%	0.4%	67.7%	31.4%	0.9%
MLI 24	68.3%	30.7%	1.1%	51.5%	46.8%	1.6%
MLI 25	92.0%	7.8%	0.3%	89.8%	8.5%	1.7%
MLI 26	57.4%	38.0%	4.6%	43.0%	50.9%	6.0%
MLI 27	95.6%	3.7%	0.7%	88.7%	9.3%	1.9%
MLI 28	95.0%	4.5%	0.5%	91.2%	8.2%	0.6%
MLI 29	82.9%	13.3%	3.7%	87.3%	8.7%	4.0%
MLI 30	40.3%	53.4%	6.3%	27.4%	66.5%	6.2%
MLI 31	53.3%	45.1%	1.6%	41.0%	57.3%	1.7%
MLI 32	51.7%	45.3%	3.0%	48.3%	49.3%	2.4%
MLI 33	67.7%	30.7%	1.6%	45.7%	51.6%	2.8%
MLI 34	74.7%	23.9%	1.3%	60.8%	37.3%	1.9%
MLI 35	58.7%	37.9%	3.3%	99.5%	0.5%	0.0%
MLI 36	34.9%	64.1%	1.0%	34.9%	63.3%	1.8%
MLI 37	25.2%	74.8%	0.0%	16.0%	79.3%	4.7%
MLI 38	67.7%	30.5%	1.9%	59.3%	37.4%	3.3%
MLI 39	66.7%	30.6%	2.8%	68.7%	23.5%	7.8%
MLI 40	63.2%	35.9%	0.9%	26.2%	72.8%	1.0%
MLI 41	81.4%	18.5%	0.0%	62.1%	36.9%	1.0%
MLI 42	23.8%	68.4%	7.8%	20.8%	68.9%	10.3%
MLI 43	85.9%	13.1%	0.9%	79.4%	19.6%	1.0%
MLI 44	60.6%	37.2%	2.2%	77.1%	21.8%	1.2%
MLI 45	74.3%	23.7%	1.9%	85.6%	13.8%	0.6%
MLI 46	70.3%	29.1%	0.5%	46.1%	53.1%	0.8%

Member Lending Institution	2015-16			2016-17		
	Shishu	Kishor	Tarun	Shishu	Kishor	Tarun
MFIs, NBFCs & Others						
NBFC-Micro Finance Institutions						
MLI 1	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 2	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 3	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 4	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 5	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 6	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 7	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 8	98.2%	1.8%	0.0%	96.0%	4.0%	0.0%
MLI 9	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 10	99.8%	0.2%	0.0%	99.8%	0.2%	0.0%
MLI 11	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 12	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 13	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 14	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 15	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 16	97.4%	2.6%	0.0%	99.4%	0.6%	0.0%
MLI 17	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 18	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 19	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 20	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 21	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 22	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 23	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 24	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%

MLI 25	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 26	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 27	100.0%	0.0%	0.0%	99.9%	0.1%	0.0%
MLI 28	98.9%	1.1%	0.0%	99.3%	0.7%	0.0%
MLI 29	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%
MLI 30	99.9%	0.1%	0.0%	99.9%	0.1%	0.0%
MLI 31	99.6%	0.4%	0.0%	99.8%	0.2%	0.0%

Other MFIs

MLI 1	99.9%	0.1%	0.0%	100.0%	0.0%	0.0%

Small Finance Banks

MLI 1	100.0%	0.0%	0.0%	99.8%	0.2%	0.0%
MLI 2	99.0%	1.0%	0.0%	99.9%	0.1%	0.0%
MLI 3	99.2%	0.8%	0.0%	98.4%	1.6%	0.0%
MLI 4	100.0%	0.0%	0.0%	100.0%	0.0%	0.0%

Table 10 YOY changes in MLIs' portfolio composition

Member Lending Institution (Only MLIs reporting in both years, and >30 loans in each category)	Shishu % YOY growth in terms of		Kishor % YOY growth in terms of		Tarun % YOY growth in terms of	
	Accounts	Disbursement	Accounts	Disbursement	Accounts	Disbursement
SCHEDULED COMMERCIAL BANKS						
State Banks						
MLI 1	-71%	-68%	-36%	-37%	28%	38%
MLI 2	-2%	2%	56%	58%	52%	56%
MLI 3	42%	-2%	20%	12%	24%	26%
MLI 4	-57%	-46%	3%	20%	31%	44%
MLI 5	-26%	-29%	21%	21%	45%	46%
MLI 6	19%	5%	39%	35%	34%	40%
Public Sector Commercial Banks						
MLI 1	-73%	-58%	-15%	-13%	-27%	-27%
MLI 2	-64%	-51%	4%	8%	29%	35%
MLI 3	-239%	-41%	15%	37%	16%	51%
MLI 4	-51%	-51%	38%	51%	80%	81%
MLI 5	-43%	-41%	-1%	-3%	-4%	-6%
MLI 6	-27%	-4%	15%	52%	58%	83%
MLI 7	5%	-2%	16%	9%	-5%	-5%
MLI 8	-64%	-60%	39%	53%	67%	74%
MLI 9	-17%	-30%	28%	22%	2%	-5%
MLI 10	-52%	-44%	53%	82%	127%	159%
MLI 11	-21%	-13%	70%	57%	65%	77%
MLI 12	-48%	37%	119%	58%	28%	44%
MLI 13	-22%	-14%	-26%	-32%	-35%	-34%
MLI 14	-65%	-61%	11%	53%	151%	184%
MLI 15	-19%	-17%	92%	88%	77%	77%
MLI 16	-63%	-64%	23%	38%	55%	62%
MLI 17	-29%	-31%	34%	32%	-12%	-3%
MLI 18	-66%	-56%	20%	23%	22%	23%
MLI 19	-30%	-37%	65%	28%	104%	125%
MLI 20	-47%	-48%	121%	102%	76%	53%
MLI 21	-48%	-26%	15%	21%	52%	44%

Member Lending Institution (Only MLIs reporting in both years, and >30 loans in each category)	Shishu % YOY growth in terms of		Kishor % YOY growth in terms of		Tarun % YOY growth in terms of	
	Accounts	Disbursement	Accounts	Disbursement	Accounts	Disbursement
Private Sector Commercial Banks						
MLI 1	-34%	-39%	-16%	-22%	-25%	-27%
MLI 2	11%	19%	12%	26%	34%	26%
MLI 3	-73%	-65%	-88%	-90%	-93%	-93%
MLI 4	342%	349%	9%	7%	17%	18%
MLI 5			303%	306%	246%	228%
MLI 6	-99%	-98%	-93%	-91%	-88%	-88%
MLI 7	22%	40%	-36%	-38%	-14%	-14%
MLI 8	39%	42%	-20%	-19%	41%	38%
MLI 9	1005%	1147%	-34%	-28%	216%	217%
MLI 10	2%	4%	207%	158%	117%	115%
MLI 11	-61%	-51%	-86%	-86%	-87%	-86%
MLI 12						
MLI 13	65%	46%	108%	74%	71%	55%
MLI 14	35%	30%	17%	83%	97%	75%
MLI 15	93%	106%	311%	349%	119%	97%
MLI 16	-25%	-33%	-3%	1%	8%	13%
MLI 17	-96%	-58%	-87%	-89%	-94%	-94%
Foreign Banks						
MLI 1			-70%	-67%	7%	9%
MLI 2						
REGIONAL RURAL BANKS						
MLI 1	-21%	-26%	-69%	-89%	-73%	-76%
MLI 2	11%	27%	-64%	-63%	86%	77%
MLI 3	-60%	-56%	111%	74%	-24%	-32%
MLI 4	-17%	-12%	6%	4%	-10%	-11%
MLI 5	-42%	-9%				
MLI 6	102%	-18%	201%	164%	96%	80%
MLI 7	-96%	-97%	-99%	-99%	-95%	-94%

Member Lending Institution (Only MLIs reporting in both years, and >30 loans in each category)	Shishu % YOY growth in terms of		Kishor % YOY growth in terms of		Tarun % YOY growth in terms of	
	Accounts	Disbursement	Accounts	Disbursement	Accounts	Disbursement
MLI 8	-49%	-49%	-7%	-3%	-27%	-30%
MLI 9	192%	75%	433%	172%	59%	56%
MLI 10	-74%	-65%	-21%	-16%	-10%	-10%
MLI 11	-71%	-67%	-2%	-5%	10%	22%
MLI 12	100%	-10%	295%	15%	286%	74%
MLI 13	-49%	-58%	334%	278%	8%	4%
MLI 14	-29%	-36%	197%	26%	-14%	-3%
MLI 15	-68%	-56%	108%	86%		
MLI 16	-77%	-55%	-96%	-96%	-97%	-97%
MLI 17	-42%	3%	19%	63%	-96%	-91%
MLI 18	-9%	4%	3%	7%	0%	0%
MLI 19	-51%	-45%	33%	12%	19%	21%
MLI 20	-73%	-72%	-94%	-82%	-62%	-68%
MLI 21	-1%	-2%	-1%	-1%	-2%	-2%
MLI 22	-34%	-75%	-48%	-43%	-33%	-31%
MLI 23	-2%	7%	99%	90%		
MLI 24	-58%	-51%	-16%	-9%	-15%	-11%
MLI 25	2%	14%	14%	83%	587%	526%
MLI 26	-26%	-23%	33%	27%	29%	29%
MLI 27	-23%	-22%	109%	108%	138%	117%
MLI 28	-48%	-49%	-2%	-18%	-34%	-41%
MLI 29	22%	16%	-25%	-25%		
MLI 30	-40%	-36%	10%	1%	-13%	-10%
MLI 31	-43%	-45%	-6%	-4%	-23%	-25%
MLI 32	35%	-28%	57%	57%	16%	1%
MLI 33	-66%	-61%	-14%	10%		
MLI 34	-63%	-67%	-30%	-32%	-37%	-41%
MLI 35	-69%	-61%	-100%	-100%	-100%	-100%
MLI 36	-37%	-38%	-38%	-30%	13%	6%
MLI 37	-24%	-24%	27%	46%		
MLI 38	19%	7%	66%	33%	140%	132%
MLI 39	-1%	-2%	-26%	-9%	172%	219%

| Member Lending Institution | Shishu | | Kishor | | Tarun | |
| (Only MLIs reporting in both years, | % YOY growth in terms of | | % YOY growth in terms of | | % YOY growth in terms of | |
and >30 loans in each category)	Accounts	Disbursement	Accounts	Disbursement	Accounts	Disbursement
MLI 40	-58%	-52%	104%	115%		
MLI 41	-25%	-30%	96%	83%		
MLI 42	-45%	-52%	-36%	-35%	-17%	-18%
MLI 43	-18%	-4%	32%	29%	-8%	-9%
MLI 44	146%	-2%	13%	3%	0%	-1%
MLI 45	59%	71%	-19%	6%	-56%	-42%
MLI 46	-50%	-49%	39%	90%		
MLI 47	-51%	-45%	21%	13%	-31%	-32%
MLI 48	-23%	-17%	63%	46%	31%	25%
MLI 49	-41%	-20%	49%	57%	-99%	-97%
MLI 50	-40%	-22%	105%	147%		
MLI 51	33%	44%	371%	326%	-4%	-24%
MLI 52	-55%	-53%	4%	-1%	21%	5%
MLI 53	-19%	-59%	128%	8%	-6%	-2%
MLI 54	-58%	-44%	143%	174%	-6%	-7%
MLI 55	-1%	4%	73%	57%		
MLI 56	472%	195%	322%	130%	94%	58%

MFIs, NBFCs & Others
NBFC-Micro Finance Institutions

MLI 1	42%	62%				
MLI 2	57%	81%				
MLI 3	189%	208%	322%	357%		
MLI 4	114%	134%				
MLI 5	79%	89%				
MLI 6	53%	80%				
MLI 7	14%	29%				
MLI 8	-32%	-32%	56%	48%	23%	25%
MLI 9	18%	37%				
MLI 10	-3%	16%	-1%	-18%		
MLI 11	14%	30%				
MLI 12	-46%	-42%				

Member Lending Institution (Only MLIs reporting in both years, and >30 loans in each category)	Shishu % YOY growth in terms of		Kishor % YOY growth in terms of		Tarun % YOY growth in terms of	
	Accounts	Disbursement	Accounts	Disbursement	Accounts	Disbursement
MLI 13	111%	147%				
MLI 14	122%	205%				
MLI 15	96%	99%				
MLI 16	284%	326%	-14%	95%		
MLI 17	120%	24%				
MLI 18	19%	33%				
MLI 19	-13%	17%				
MLI 20	-27%	-10%				
MLI 21	129%	150%	82%	292%		
MLI 22	-21%	-6%				
MLI 23	82%	123%				
MLI 24	84%	125%				
MLI 25	-67%	-63%				
MLI 26	11%	40%				
MLI 27	1%	19%				
MLI 28	3%	39%	-33%	-36%		
MLI 29	107%	129%				
MLI 30	29%	57%	-1%	-2%		
MLI 31	6%	13%	-37%	-35%		
Other MFIs						
NON NBFC-Micro Finance Institutions	52%	13%	-100%	-100%		
Small Finance Banks						
MLI 1	-31%	-28%	529%	960%		
MLI 2	-12%	-1%	-94%	-93%		
MLI 3	-54%	-48%	-10%	12%		
MLI 4	39%	70%				

2.4.2 Implications for origination and market structure

The analysis in Section 2.4 so far presented evidence from administrative PMMY data on MLIs' strategic specialization and portfolio consolidation towards their perceived strengths even within a short period of two years. Along these lines, we discuss insights from the interviews of frontline loan officers on how lending processes are organized in a segmented market, and draw out critical implications for overall market structure and for consumers.

Our qualitative survey of frontline loan officers of both banks and MFIs inquired in detail on loan work allocation, including client identification and the various levels of decision-making involved. We learn that for almost all MLIs in our sample, regardless of institution type, the processing of PMMY loans was combined with all MSME loans and in the case of small MFIs, it also shared multiple steps with group loans too. There is a clear efficiency advantage to doing so, and this suggests that MLIs with stronger systems and higher capacity to process MSME loans also have the potential to scale the fastest in terms of PMMY.

Figure 16 walks through the broad steps in loan origination. We learn that for most bank branches (both SCBs and RRBs), all decision-making and sanctioning powers with regard to PMMY loans is self-contained within the last-mile branch, and the loan officer may be keen to build a service history with the client before sanctioning credit. Some larger banks have dedicated MSME lending branches and all loans sourced from a designated service area and referred to the specialist branch. In contrast, MFIs prefer that limited autonomy be given to the last-mile node and instead, loans are underwritten and sanctioned by a central officer at a regional office. A single credit officer will service individual loan applications from multiple service centres and often this officer will be tasked with verifying documentation, visiting business locations in-person and also performing additional quality monitoring checks through the appraisal process.

We understand that performance incentives vary greatly between MLIs but in general, SCB and RRB branches are assigned overall credit volume targets (for all MSME credit and not specific to PMMY) and in combination with the fact that the origination process is almost self-contained within each branch, this could lead to a perceived optimization of human resources by seeking to make "easier" larger-ticket loans to "safe" borrowers. On the other hand, loan officers of MFIs are incentivized on the basis of new group formations/new clients, but since the appraisal and underwriting (of individual loans) is performed by a trained specialist at a regional office, the cascading effect of incentives is more pronounced in encouraging more group loans where underwriting criteria are also simpler and loan sanction is quicker.

We therefore find that the cascading effect of both cost[21] and incentive structures is pronounced and persistent in determining the allocation of resources and loan outcomes. SCBs and RRBs, when they don't have specialized MSME lending branches, have a high degree of autonomy in loan-making and therefore may choose to achieve their assigned targets by optimizing their resources in favour of fewer, larger-ticket loans. This explains why a majority of their loans fall in the Kishor and Tarun category (despite a widespread branch network in rural and low-income areas) and why, when Shishu loans are made they are often the result of persuasive walk-in customers.

MFIs' processes are such that group loans are still encouraged as the primary entry point for all new customers and even those with pre-existing businesses are often required to complete 2-3 cycles as disciplined group borrowers before they become eligible for larger, individual loans. Second, because the capacity to underwrite business cashflows within these institutions is often limited to 1-2 senior staff in each regional office, they also have a limited capacity to rapidly scale this vertical of their portfolio.
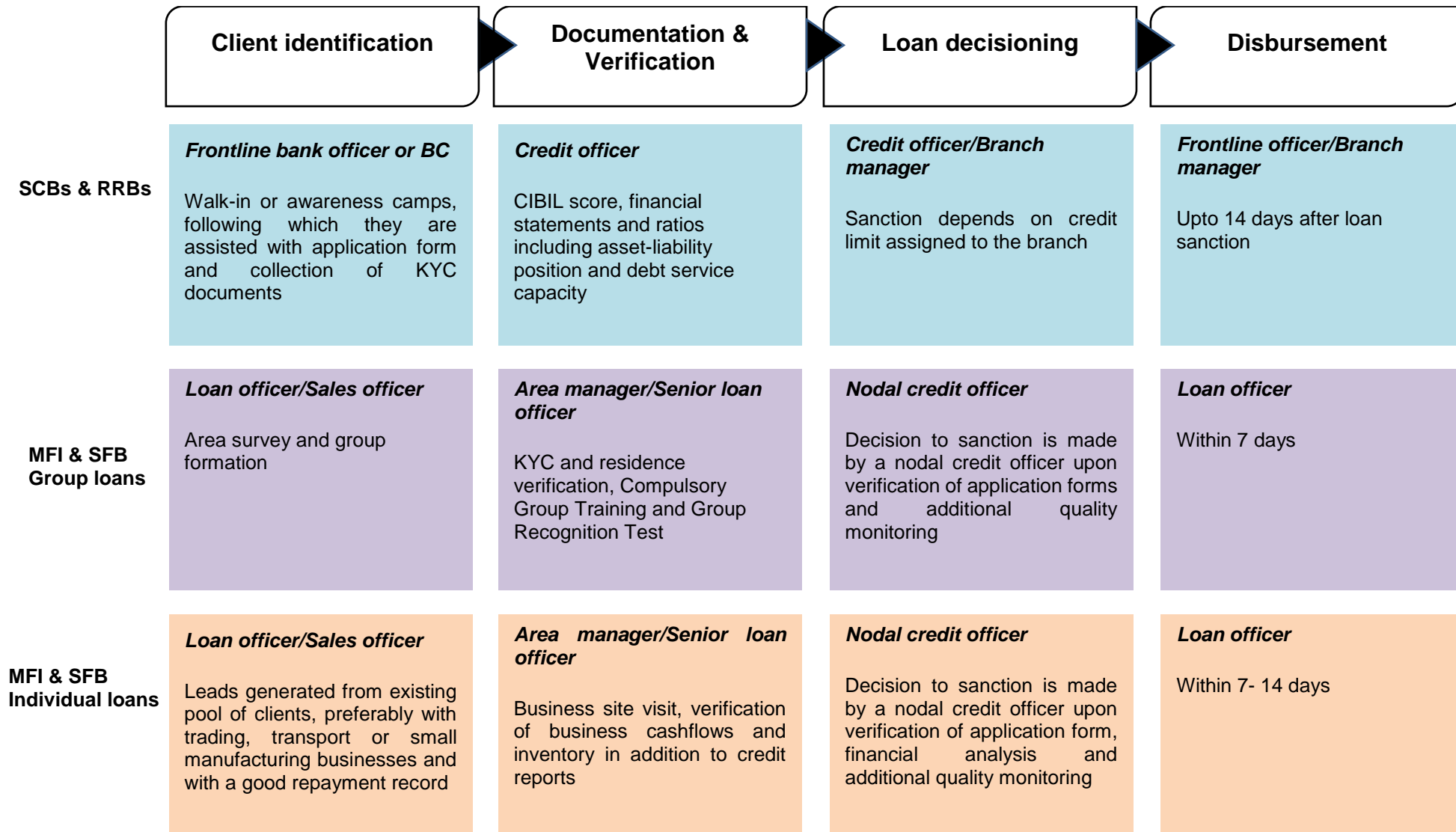
We find that for these reasons, the trend of specialization is both strategic and pre-determined by institutional factors. It would be unreasonable to expect that any MLI would deviate significantly from their loan-size specialization under PMMY unless there are powerful incentives and easy channels to do so. Our concern is that this creates a ***fragmented market*** for MSME credit, and in the absence of easily accessible means to graduate from one MLI to another, small firms may find their growth significantly restricted by which MLI they are associated with, or have access to.

Consider, for example, that many micro and small firms were first formally "included" through MFIs, with whom they built up a repayment history over time. Not all firms will grow uniformly and infact, many firms might find it optimal to remain small. However, for firms that have the appetite, competency and opportunity to make early investments and grow rapidly, credit constraints imposed by MFIs could be limiting. Recall that of all MFIs' loans under PMMY, less than 1% of loans were greater than Rs. 50,000.

In a fragmented market, the availability and use of comprehensive credit reports by lenders, their approach to underwriting clients who are experienced borrowers but effectively "new" to this institution, and vibrant competition are critical to removing barriers to client mobility and graduation.

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[21] Sahasranaman, A. & George, D. (2013). Cost of Delivering Rural Credit in India. IFMR Finance Foundation Working Paper. Retrieved from http://foundation.ifmr.co.in/2013/04/23/cost-of-delivering-rural-credit-in-india/

Figure 16 Steps in loan processing and designated work allocation, by MLI type

	Client identification	Documentation & Verification	Loan decisioning	Disbursement
SCBs & RRBs	*Frontline bank officer or BC* Walk-in or awareness camps, following which they are assisted with application form and collection of KYC documents	*Credit officer* CIBIL score, financial statements and ratios including asset-liability position and debt service capacity	*Credit officer/Branch manager* Sanction depends on credit limit assigned to the branch	*Frontline officer/Branch manager* Upto 14 days after loan sanction
MFI & SFB Group loans	*Loan officer/Sales officer* Area survey and group formation	*Area manager/Senior loan officer* KYC and residence verification, Compulsory Group Training and Group Recognition Test	*Nodal credit officer* Decision to sanction is made by a nodal credit officer upon verification of application forms and additional quality monitoring	*Loan officer* Within 7 days
MFI & SFB Individual loans	*Loan officer/Sales officer* Leads generated from existing pool of clients, preferably with trading, transport or small manufacturing businesses and with a good repayment record	*Area manager/Senior loan officer* Business site visit, verification of business cashflows and inventory in addition to credit reports	*Nodal credit officer* Decision to sanction is made by a nodal credit officer upon verification of application form, financial analysis and additional quality monitoring	*Loan officer* Within 7- 14 days

2.5 Regional patterns in the PMMY portfolio

The PMMY portfolio is spread across the length and breadth of the country and unsurprisingly, there is significant variation is disbursements at both state and district levels. The data reported to MUDRA is available for all MLIs and all loan categories at a state-level for FY16 and at both state and district-levels for FY17[22].

This section explores the adequacy of credit supply in various regions and how the flow of credit is determined by demand-side and supply-side features. For example, when we rank districts in terms of their PMMY credit supply in FY17, we find that the supply to the top 10 districts alone (with a total of 31.5 lakh PMMY loans) was roughly equal to the supply to the lowest-ranked 355 districts at the other end of the distribution. These districts are mapped in Figure 17, where the districts shaded orange received the highest share of loans under PMMY, the districts shaded blue received loans but were ranked at lowest in the distribution. The districts are chosen such that the number of loans received by 10 orange-shaded districts and 355 blue-shaded districts were roughly the same. It is evident that the top districts are large centres of economic activity and the loans were likely made to productive causes. However, the stark inequality raises a concern that productive enterprises elsewhere in the country may not be as well-served.
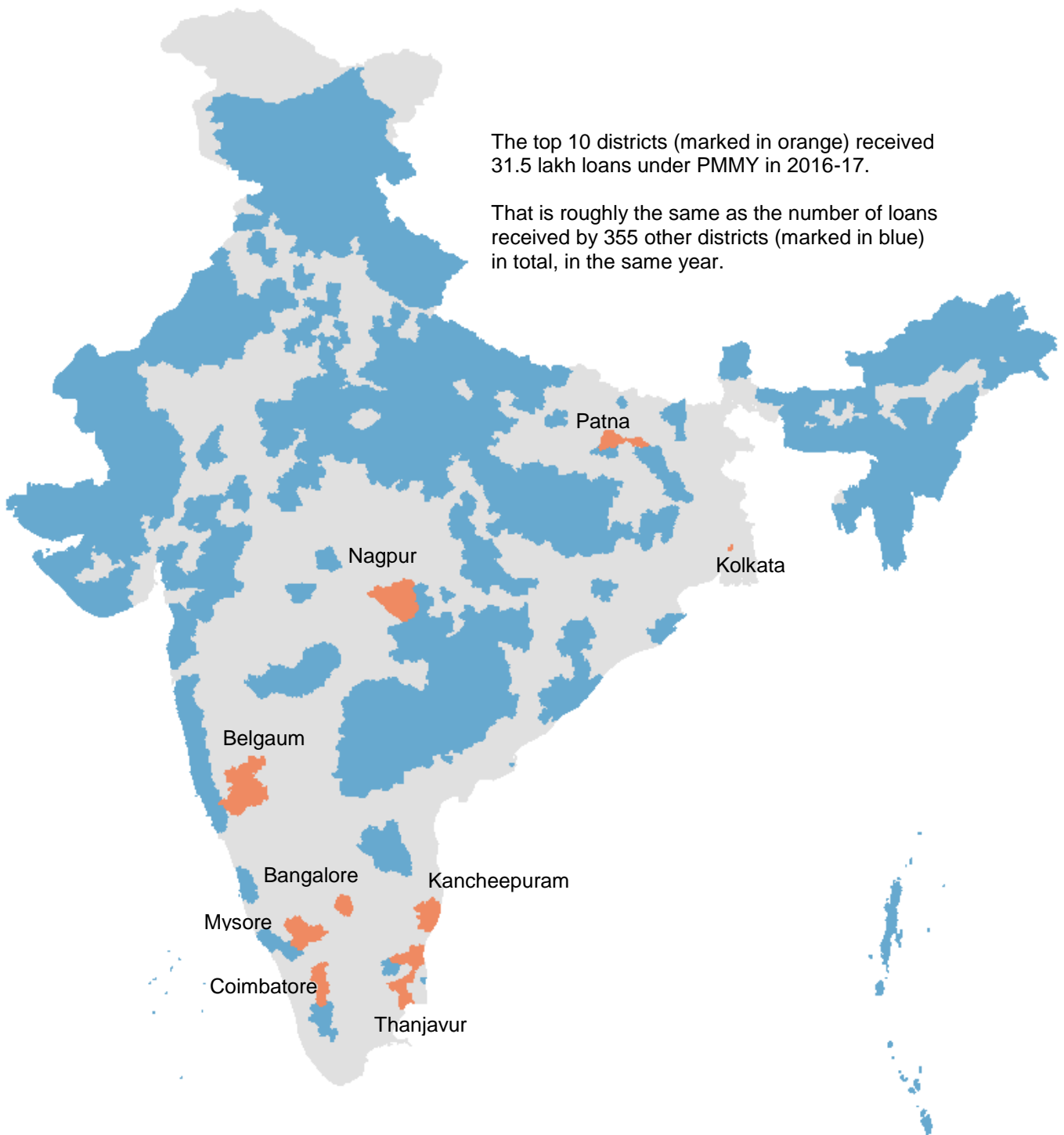
In this section, we use PMMY data from FY17 and estimate two measures of regional performance. The first is a measure of *credit concentration*, i.e. each district's share in all-India number of Shishu, Kishor and Tarun loans. The second is a measure of *credit saturation* estimated as the number of PMMY loans in a district divided by the number of micro and small enterprises estimated in the Sixth Economic Census[23]. The saturation measures serve as an important comparison to the concentration measure, and adjusts for the likely concentration of loans in enterprise clusters or regions with a higher ability to productively deploy credit[24].

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[22] Two MLI types did not report data at district-level, instead reporting their data under district "Other". These were Non-NBFC MFIs and Non-MFI NBFCs, and they constitute only 5.02% of total loans and 5.05% of total disbursement amount in FY17.
[23] Data for the Sixth Economic Census was collected in 2012-13.
[24] A limitation of this measure is that we are only able to consider the number of MSMEs in a region (varied by available estimates of their size), but not their GDP or size of credit demand. If district-level MSME GDP estimates were available, a second measure of credit saturation or credit depth could be estimated as the total disbursed amount relative to the GDP.

*Figure 17 Regional disparities in access to PMMY loans*

The top 10 districts (marked in orange) received 31.5 lakh loans under PMMY in 2016-17.

That is roughly the same as the number of loans received by 355 other districts (marked in blue) in total, in the same year.

Patna

Nagpur

Kolkata

Belgaum

Bangalore

Kancheepuram

Mysore

Coimbatore

Thanjavur

2.5.1 Concentration in Tier 1 and Tier 2 centres

We first try to understand whether credit is concentrated particularly in Tier 1 and Tier 2 centres. We use the 3-tier classification[25] recommended by the Sixth Central Pay Commission, which was developed on the basis of population but has come to have a wider appeal as a broader indicator of population density, urban development and economic opportunity. We would therefore also expect that cities with a higher-ranked classification would also have a better economic and financial profile. Since PMMY data is only available district-wise, districts with Tier 1 and Tier 2 cities are tagged, and we compare their respective shares in PMMY lending with their share in the distribution of MSMEs.

We find that 8 Tier 1 districts alone account for nearly 5% of all Shishu loans, and 86 Tier 2 districts accounted for 25% of Shishu loans. These proportions are roughly in-line with the presence of MSMEs in these respective districts. However, for Kishor and Tarun loans we observe higher concentration, and that the degree of concentration is higher for larger loan sizes. For example, Tier 1 districts received 6.3% of Kishor loans and 10.4% of Tarun loans, while Tier 2 districts received 30% of Kishor loans and 36.5% of Tarun loans.

Figure 18 Comparison of Tier 1 and Tier 2 regions' share of loans and share of MSMEs
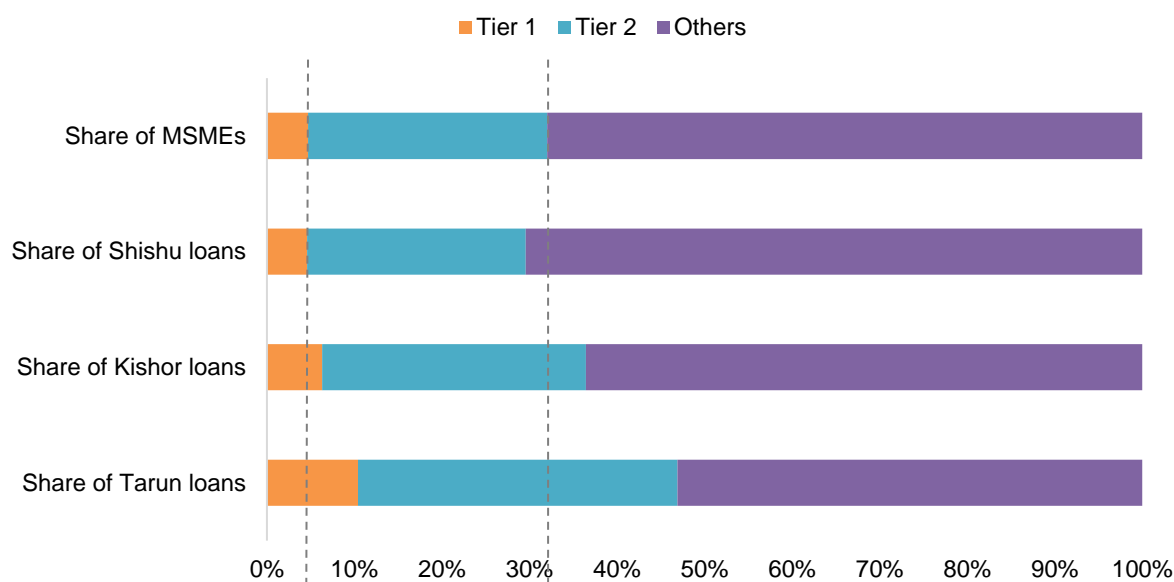
We also present these estimates disaggregated by MLI type in Table 11. For Shishu loans we find that State & Nationalized banks made a disproportionately high share of their Shishu loans in Tier

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[25] According to this classification, Ahmedabad, Bangalore, Chennai, Delhi, Hyderabad, Kolkata, Mumbai and Pune are Tier 1 ("X"), 91 other cities are Tier 2 ("Y") and the rest are not assigned to any tier.

1 locations than the average (15.8% compared to 4.6%), at the cost of credit flow to non-tier locations. In comparison, we find that all other MLI types (including Private banks) disbursed a large majority of Shishu loans in non-tier locations. Regional Rural banks, unsurprisingly, wered absent from Tier 1 locations and consistently disbursed a dominant share of their loans (of all size) in non-tier locations, likely by design and the localized nature of their operations.

Table 11 Tier 1 and Tier 2 credit concentration by MLI type

	Tier 1	Tier 2	Non-tier
Number of districts	8	86	613
Share of MSMEs	4.7%	27.3%	68.0%
Shishu loans			
Share of PMMY loans	4.6%	25.0%	70.5%
Share of PMMY loans by MLI type:			
State & Nationalized banks	15.8%	26.0%	58.2%
Private banks	2.7%	21.0%	76.3%
Regional Rural banks	0.1%	22.7%	77.2%
Non-banks	4.1%	26.3%	69.6%
Kishor loans			
Share of PMMY loans	6.3%	30.1%	63.5%
Share of PMMY loans by MLI type:			
State & Nationalized banks	6.0%	26.7%	67.3%
Private banks	10.8%	44.1%	45.1%
Regional Rural banks	0.2%	28.3%	71.5%
Non-banks	25.5%	48.9%	25.6%
Tarun loans			
Share of PMMY loans	10.4%	36.5%	53.1%
Share of PMMY loans by MLI type:			
State & Nationalized banks	8.6%	34.3%	57.0%
Private banks	20.0%	48.9%	31.2%
Regional Rural banks	0.3%	23.6%	76.1%
Non-banks*	50.2%	34.2%	15.6%

*Non-banks made only 42 Tarun loans in FY17.

Non-banks, particularly MFIs, are known to focus on rural and low-income clients. Accordingly, a large majority of their Shishu loans were made in Tier 2 or non-tier locations. However, we find that one-fourth of non-banks' Kishor loans and one-half of their Tarun loans are concentrated in Tier 1 locations, but recall from earlier analysis that these loans contribute only 11% of non-banks' total disbursed credit in FY17. One possible reason for this could be that most non-banks find it operationally convenient and profitable to operate within small, economic dense geographies rather than build a wide branch network. As a result, their disbursements of Kishor non-JLG loans may be concentrated in a few urban or semi-urban economic centres.

Private banks, similar to non-banks, reported a higher proportion of Kishor and Tarun loans in Tier 1 and Tier 2 locations than the average, but less than 3% of their Shishu loans in Tier 1 locations. This trend is interesting because many Private banks, in partnership with MFIs, have acquired large rural portfolios of Shishu loans, but remain driven by operational conveniences and profitability concerns for their larger-ticket loans and as a result, these loans remain concentrated in Tier 1 and Tier 2 locations. This trend in particular illustrates the ***effects of co-origination*** for smaller loans, and the potential opportunity to use similar arrangements to transform the lending landscape in non-tier locations.

It is important to reiterate here that concentration of credit is not a cause for concern in itself, especially if the flow of credit is adequately responding to high demand and an ability to profitably deploy credit in these regions. Indeed, the estimates by Tier 1, Tier 2 and other cities do suggest that except for certain institutional deviations, the overall distribution of loans is matched by the overall distribution of MSMEs and underlying economic activity. However, if the flow of credit in some regions is heavily influenced by supply-side features (such as existing branch networks or MLIs' comfort in underwriting only certain client segments), and if PMMY's design is insufficient to over-ride historical inequalities, there is a risk that the scheme will yield only marginal benefits. The next section furthers the regional analysis by replacing the broad Tier 1/Tier 2 classification with specific regional demand and supply characteristics, and studies the drivers of both credit concentration and market saturation.

2.5.2 Regional drivers of credit concentration

This analysis replaces the Tier 1/Tier 2 classification with regional credit demand and supply characteristics (listed in Table 12), and estimate the responsiveness of credit distribution to these characteristics. We estimate the relationships as correlation coefficients between, on the one side, credit concentration or saturation at a district level and on the other side, a set of district economic and financial characteristics. The choice of characteristics for this analysis is currently limited by data availability.

Table 12 Description of variables featured in regional analysis

Variable	Description
PMMY performance	
Concentration	Number of PMMY loans in a district divided by all PMMY loans, calculated from MUDRA administrative data, FY17
Saturation	Number of PMMY loans in a district divided by the number of MSMEs, calculated from Sixth Economic Census 2013-14
Distribution of enterprises	
Share of MSMEs	Number of MSMEs in a district divided by all MSMEs
Share of GVA	Total GVA by MSMEs in a district divided by all-India MSME GVA. GVA estimates obtained from NSSO 67 Survey of Unincorporated Non-Agricultural Enterprises, 2010-11
Financial sector development	
CRISIL Inclusix score	Obtained from CRISIL Inclusix Report Vol. 3, 2015
Access indicators	
MSME access to formal loans	Incidence of indebtedness for subset of MSMEs, calculated from NSSO 67 Survey of Unincorporated Non-Agricultural Enterprises, 2010-11
Household access to formal loans	Incidence of indebtedness for households, calculated from NSSO 70 All India Debt and Investment Survey, 2012-13
Institutional loans as major source of finance	Proportion of MSMEs reporting institutional loans as a major source of finance, calculated from the Sixth Economic Census 2013-14
SHG loans as a major source of finance	Proportion of MSMEs reporting SHG loans as a major source of finance, calculated from Sixth Economic Census 2013-14

We estimate Spearman correlation coefficients, which estimate the strength direction of association between two *ranked* variables. This method is a better fit for non-linear distributions and less sensitive to outliers, while the use of rankings also moderates the variation in the data. The results therefore reflect the relationship between the relative ranking of districts along these dimensions, and not the absolute values themselves.

Box 1. Interpreting Spearman correlation coefficients

As an illustration of how to interpret the coefficients, we visualize examples of high and low correlation estimates. Figure 19 plots district-level share of Kishor loans on the vertical axis and the district-level share of MSME profits on the horizontal axis, representing the relationship between distribution of loans and productive deployment of credit.

Figure 19 Example of high rank correlation
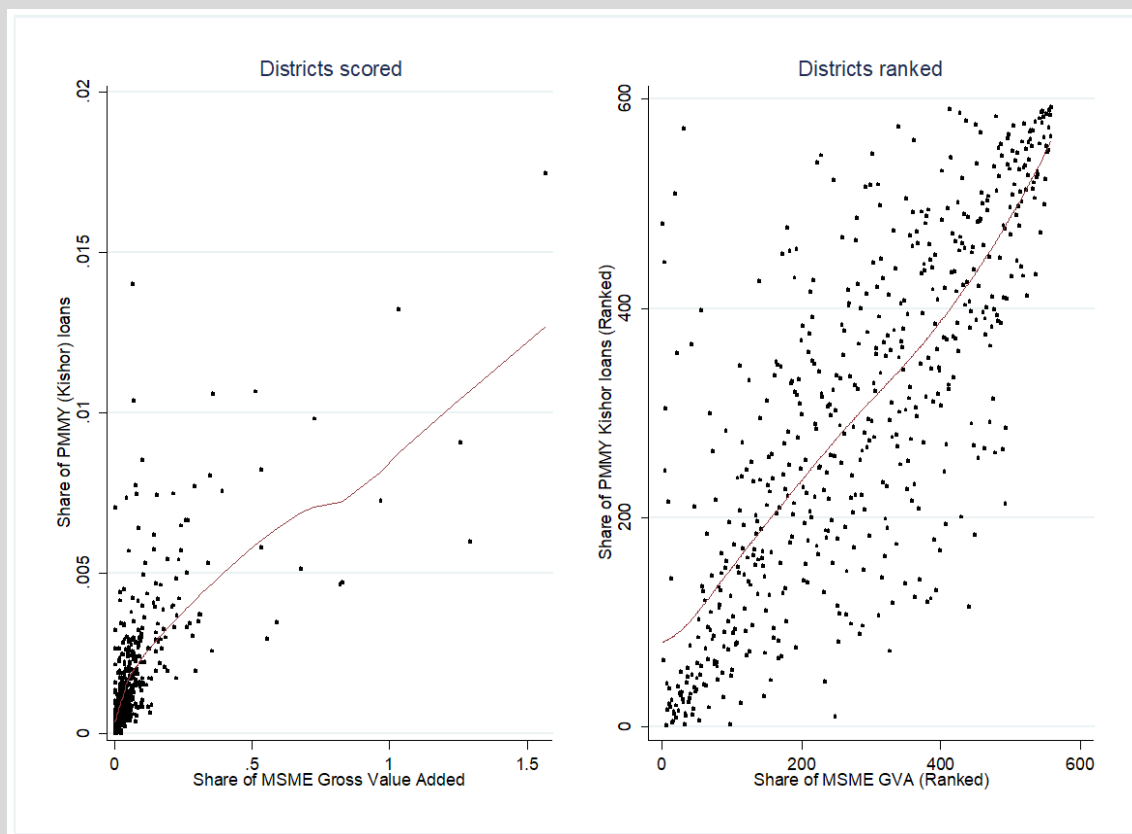
The left panel plots values as-is, while the right panel plots the relative ranking of districts on each variable. The Spearman coefficient estimates the strength and direction of correlation of the ranks, as presented in the right panel, and returns an estimate of 0.788, indicating that districts representing a higher share of MSME profits also received a higher proportion of Kishor loans.

In contrast, Figure 20 presents a relationship with the lowest correlation in our analysis. We observe a non-linear, non-monotonic relationship in the left panel, while the dispersion is amplified even further when presented as ranks in the right panel. It is evident that there is no consistent relationship between the variables, and the same is also reflected in the magnitude of the coefficient (0.086).

Figure 20 Example of low rank correlation
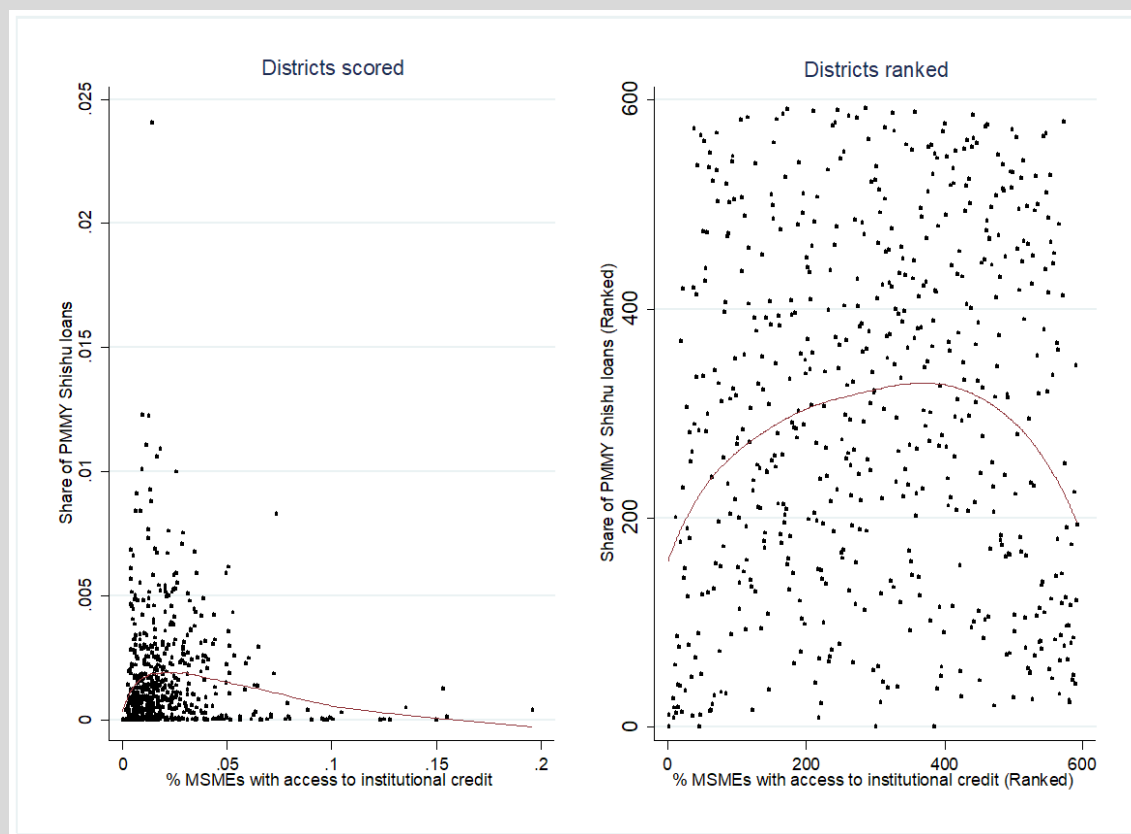
We analyse rank correlations between a range of regional characteristics and both concentration and saturation measures. Table 13 reports estimates with concentration and saturation by Shishu, Kishor and Tarun loans respectively, while Table 14 reports estimates of concentration disaggregated by MLI type. Estimates of market saturation are not available by MLI type. Each estimate is accompanied by the p-value and where p-values are lower than 0.05, estimates are considered statistically significant. However, we only consider relationships as economically significant if their coefficient is greater than 0.4, having observed that the distribution is too dispersed for coefficients of a lower magnitude.

The first result from Table 13 is that the concentration of loans of all sizes (Shishu, Kishor or Tarun) is highly and positively correlated with the presence and profitability of MSMEs. For example, the correlation at the district-level between the share of Shishu loans and the share of MSMEs was high at 0.669 (and higher for Kishor and Tarun loans), and similarly high when considering share of MSME profits instead. These coefficients are the highest in the table, and we interpret this as a positive indication of **productive disbursement of credit** overall.

Table 13 Correlation between measures of regional distribution in PMMY with regional characteristics

	Concentration			Saturation		
	Shishu	Kishor	Tarun	Shishu	Kishor	Tarun
Distribution of enterprises						
Share of MSMEs	0.669	0.780	0.763	0.161	-0.086	-0.164
	0.00	0.00	0.00	0.00	0.04	0.00
Share of GVA	0.602	0.788	0.787	0.252	0.228	0.114
	0.00	0.00	0.00	0.00	0.00	0.01
Financial sector development						
CRISIL Inclusix score	0.370	0.572	0.551	0.189	0.428	0.224
	0.00	0.00	0.00	0.00	0.00	0.00
Access indicators						
MSME access to formal loans	0.213	0.390	0.333	0.087	0.387	0.219
	0.00	0.00	0.00	0.04	0.00	0.00
Household access to formal loans	0.344	0.393	0.290	0.225	0.194	-0.059
	0.00	0.00	0.00	0.00	0.00	0.15
Instl. loans as major source of finance	0.086	0.175	0.135	0.113	0.298	0.296
	0.04	0.00	0.00	0.01	0.00	0.00
SHG loans as a major source of finance	0.375	0.261	0.168	0.374	0.199	0.052
	0.00	0.00	0.00	0.00	0.00	0.20

This coefficient is relatively smaller for Shishu loans than for Kishor and Tarun but this is unsurprising, given that many Shishu loans may be used for only semi-productive purposes, or by home-based enterprises not counted in MSME surveys. However, looking at the saturation measure instead of concentration produces very different results. The overall magnitude of effects drops and while statistically significant, the effects remain too small to be economically significant. In other words, while the presence of profitable economic activity is positively correlated with the flow of credit, even districts with a high concentration of profitable activity are hardly saturated.

The second striking result from Table 13 is the persistence of supply-side features in relation to patterns in credit disbursement. We report correlations with the CRISIL Inclusix score, which is a composite index of branch networks, savings penetration and credit penetration of SCBs and

MFIs. On credit concentration, we find that districts with a higher Inclusix score received a higher share of Kishor and Tarun loans (0.572 and 0.551 respectively).

In both cases we observe that the correlations with credit concentration are significant, but with saturation are (economically) insignificant. While districts with a higher number of MSMEs or a better banking network are able to attract more loans, these features are yet inadequate to ensure a sufficient amount of credit for all enterprises in the region. In fact, this result is indicative of large market gaps that exist even in regions that might be thought of as financially or economically well-developed. This suggests room for increasing *credit saturation* even in top economic centres alongside, of course, lesser developed districts which are often the focus of inclusion efforts.

Table 13 also reports correlation coefficients with historical access indicators from the Sixth Economic Census and the NSS 67th Round Survey of Non-Agricultural enterprises. Several of these correlations are statistically significant with both concentration and saturation measures, but their effect sizes are too small to be economically significant[26] to be interpreted as a strong driver of PMMY loan trends.

For comparison, we also report pooled estimates for each loan size (across all MLI types) from Table 13, allowing us to learn which institutions are driving higher correlations. For example, among the strongest effects in Table 13 was the high correlation between districts' share of PMMY loans and districts' share of MSMEs and MSME profits. Table 14 reports correlations of regional characteristics with credit concentration by MLI type and loan size. From Table 14 we learn that the effect is strongest State & Nationalized banks (0.687 and 0.665 for Shishu loans and higher for Kishor and Tarun), and weakest for Regional Rural Banks (at 0.47 and 0.318 for Shishu loans). This is perhaps because State & Nationalized banks have widespread branch networks and the ability to move resources toward more profitable branches, while RRBs lack this flexibility and must serve the regions they are located in.

Similarly, decomposing the correlations with CRISIL Inclusix also reveals interesting patterns by MLI type. In the Shishu segment, only State & Nationalized loans are (economic) significant in relation to district-wise Inclusix scores, while private banks, RRBs and non-banks are not. Private banks in particular may be unresponsive to the strength of branch networks that Inclusix represents owing to their determined focus on growing exposure to group-based Shishu loans either directly or through co-origination partnerships, since we also note that their

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[26] Statistically significant but economically not significant effects can be better understood using multivariate analysis robust to the endogeneity between many of these variables.

corresponding coefficients for Kishor and Tarun loans are significant. Recall that this trend is similar to the results observed by the Tier 1/Tier 2 classifications as well.

Overall, this analysis of regional variation and correlation estimates underscores the complexity of addressing regional inequalities. While it is heartening to observe that the most dominant effect on credit concentration is the underlying distribution of economic opportunities themselves, there is also evidence that lending by atleast some MLI types systematically reinforces existing patterns of regional access and inequality. Determined efforts such as Private banks' focus on microfinance Shishu loans act to significantly weaken self-perpetuating patterns in inequality. While a more robust analysis of these drivers could reveal tremendous insight, we find it is beyond the scope of this study.

Linking to the theory of change in Figure 2, we apply the key insight that the distribution of PMMY loans is heavily determined by the concentration of economic activity and the historical ease of credit delivery at the district level and therefore, regions without these will likely remain underserved in the absence of corrective practitioner or policy actions.

Table 14 Correlation between measures of regional distribution in PMMY with regional characteristics, by MLI type

	Shishu					Kishor				
	All	S & N	Private	RRBs	Non-banks	All	S & N	Private	RRBs	Non-banks
Distribution of enterprises										
Share of MSMEs	0.669	0.687	0.589	0.470	0.598	0.780	0.799	0.586	0.528	0.547
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Share of GVA	0.602	0.665	0.525	0.318	0.559	0.788	0.772	0.738	0.461	0.545
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Financial sector development										
CRISIL Inclusix score	0.370	0.467	0.232	0.136	0.339	0.572	0.570	0.547	0.344	0.380
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Access indicators										
MSME access to formal loans	0.213	0.229	0.086	-0.021	0.230	0.390	0.368	0.408	0.185	0.165
	0.00	0.00	0.04	0.62	0.00	0.00	0.00	0.00	0.00	0.00
Household access to formal loans	0.344	0.368	0.218	0.448	0.323	0.393	0.430	0.239	0.308	0.168
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Instl. loans as major source of finance	0.086	-0.038	0.076	0.004	0.056	0.175	0.120	0.160	0.096	-0.062
	0.04	0.36	0.07	0.93	0.17	0.00	0.00	0.00	0.02	0.13
SHG loans as a major source of finance	0.375	0.151	0.284	0.213	0.358	0.261	0.263	0.170	0.204	0.131
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Tarun				
	All	S & N	Private	RRBs	Non-banks
Distribution of enterprises					
Share of MSMEs	0.763	0.743	0.626	0.387	0.309
	0.00	0.00	0.00	0.00	0.00
Share of GVA	0.787	0.747	0.754	0.350	0.369
	0.00	0.00	0.00	0.00	0.00
Financial sector development					
CRISIL Inclusix score	0.551	0.506	0.586	0.250	0.224
	0.00	0.00	0.00	0.00	0.00
Access indicators					
MSME access to formal loans	0.333	0.286	0.403	0.172	0.098
	0.00	0.00	0.00	0.00	0.02
Household access to formal loans	0.290	0.286	0.249	0.193	0.080
	0.00	0.00	0.00	0.00	0.05
Instl. loans as major source of finance	0.135	0.114	0.116	0.208	-0.001
	0.00	0.01	0.00	0.00	0.99
SHG loans as a major source of finance	0.168	0.183	0.070	0.239	0.119
	0.00	0.00	0.09	0.00	0.00

3. RECOMMENDATIONS

3.1 Framework for evaluation

In Chapter 1, we outlined a hypothetical 'theory of change' framework that links policy inputs to immediate effects and eventual long-term outcomes. Such a framework can serve as the foundation for ongoing scheme supervision, target-setting and administrative data collection. In this basic framework, we identified six immediate scheme-specific effects (higher disbursements quicker loan processing, lower interest rates and new client acquisition) and five corresponding financial sector outcomes potentially arising from successful scheme implementation. Broadly, the set of desired financial sector outcomes from PMMY aims to achieve either service additionality (such as the inclusion of formerly excluded firms, or relieving credit constraints and enabling full service) or improvements in service quality (such as lower borrowing costs, quicker processing time and better-matched products). At this time, we have focused the list of outcomes to financial sector changes and excluded hypotheses on the effects on labour markets or aggregate economic activity.

The primary objective of disaggregating immediate effects from desired policy outcomes is to generate early insights on likely outcomes, identify gaps in design or implementation and to inform early-stage design improvements. We recommend using various available administrative data collection methods to continuously track scheme performance based on the set of intermediate scheme *effects*, while also setting up nationally-representative and periodic data collection efforts to measure progress on desired *outcomes*. Ideally, data on intermediate effects should be available directly from MLIs, on an annual or more frequent basis. This could be a direct input into scheme management and ongoing supervision. On the other hand, indicators of desired financial sector outcomes or changes are better captured through nationally representative surveys directly administered to small firms on a 3-5 year basis.

Monitoring intermediate effects

With regard to intermediate effects, we learned that MUDRA has built an extensive network with MLIs for administrative data collection and at the current time, this includes data on number of loan accounts in each category, amounts disbursed several social inclusion tags and a rudimentary (although not robust) financial inclusion tag. Through this network, MUDRA aggregates timely, accurate and relevant data on PMMY performance, and this data serves as a critical input to ongoing monitoring and supervision. We recommend expanding the scope of MUDRA's administrative data to include:

- Broad categories of loan product type and loan features that may be accurately measured from MLIs, such as whether the loan was extended as a term loan or flexible working capital product, whether it was originated directly or co-originated through partnership agreements, loan tenure, and interest rate.
- A standardized "new entrepreneurs/new accounts" tag for all MLIs.

Measuring performance on outcomes

It would be important to periodically review the impact of the scheme on the financial landscape as a whole, and specific financial sector outcomes such as increased credit depth for small enterprises, easier access to enterprise credit and increased formalization of enterprise financing. To this end, we reviewed available public data sources and identified three national surveys that generate rich and representative data on small enterprises:

- The Sixth Economic Census surveys all enterprises in India and was last conducted in 2012-13. While a rich source of data on the nature and activities of enterprises, it only provides data on formal credit if it forms a major source of finance for enterprises and thus any measure of access computed from this database proves to be a significant under-estimate.
- The Ministry of Micro, Small and Medium Enterprises occasionally commissions a census of registered and unregistered enterprises in the country. Ensuring that these census estimates are comparable with the Economic Censuses, and including basic indicators of financial access in both surveys will help to generate reliable estimates of headline indicators.
- NSSO conducts a period Survey of Unincorporated Non-Agricultural Enterprises, collecting detailed data on enterprises operational and financial characteristics. This dataset is extremely detailed, and we recommend a comparison of key indicators over the two most recent rounds (2010-11 and 2015-16) to study structural changes in the MSME landscape and the effect of financial sector expansion.

Updating extensive and representative databases periodically could serve not only as a well-established reference for trends and progress in enterprise credit (similar to the NSSO All India Debt & Investment Survey is for household access to credit), but also as a means to reliably verify and robustly attribute any accompanying changes in the labour market, occupational choice or overall economic activity to specific interventions in enterprise credit. In the absence of reliable data sources, it would be impossible to measure the broader equilibrium effects of a large credit policy intervention such as PMMY.

3.2 Guidelines for high-quality origination

Moving on to the specifics of loan origination, our analysis reveals that the PMMY portfolio inherits specific features from the overall patterns of credit distribution in India, including regional inequalities, lender specialization and market fragmentation. Special efforts will therefore be required to enlist and encourage lenders willing and able to reverse these trends and bridge gaps in access.

3.2.1 Calibrate Refinance and Credit Guarantee to increase take-up

As incentives to boost MSME lending, it is also relevant to consider whether the current design of policy levers (particularly refinance and credit guarantee) are suitable for and well-aligned with the needs of high-performing MLIs, and whether they are effective in encouraging more lending to target segments.

MUDRA financing (both as direct refinance or purchase of securitized assets, or as second-loss guarantee provision to private-sector transactions) could have a tremendous impact on improving the terms of finance for MLIs and eventually, the flow of credit to MSMEs. MUDRA participation would also serve to increase market confidence in MSME loans as an asset class.

The credit guarantee (CGFMU) provides an efficient mechanism to manage credit risk, especially for non-bank MLIs who tend to have higher concentration risk. However, we learn that take-up is low, and that the costs of managing credit risk continue to remain embedded in loan APRs, subsidized by the low cost of funds (in the case of banks) or absorbed by high capital reserves (in the case of NBFCs). MFI-NBFCs in particular may be reluctant to participate in CGFMU given that the current guarantee fee (around 1%) is higher than their credit losses in an average year. However, this comparison ignores the destabilizing effects of higher-than-average credit losses in the years that they do occur (say, in 2017 following demonetization or in 2011 following the AP government ordinance), as well as the additional costs of equity incurred in shoring up capital reserves to absorb risk.

We recommend that both MUDRA financing and CGFMU be viewed as interventions that could potentially improve the rating of MSME lenders or MSME loan-backed assets, and any pricing or feature considerations for both should incorporate insights from credit rating agencies with sector expertise. For example, rating agencies are well-equipped to predict underlying risk in each of these asset classes and to inform the ideal level of first-loss and second-loss default guarantee thresholds in CGFMU. Second, rating agencies' insights would be helpful to quantify the equity implications for MLIs participating in CGFMU, i.e. if participation in a well-functioning guarantee arrangement could deliver a higher rating for their assets at a lower capital ratio. We

believe that a re-calibration along these lines might be helpful to appropriately design and increase take-up of these two important features of PMMY.

3.2.2 Including specialist originators while ensuring a balanced product suite

In the analysis we learned that NBFC-MFIs were highly specialized— with a sharp focus on the smallest loans— and played an important role in disrupting regional inequalities to credit access. Recall that in Table 10, Shishu loans reported the lowest correlations between credit concentration and historical indicators of institutional access to enterprise credit. These were also the loans with the lowest concentration in districts with a higher share of MSMEs, suggesting more widespread outreach. Similarly, we also learned that non-MFI NBFCs played a small but significant role in originating loans in the Kishor and Tarun category, in comparison to banks. We therefore recommend identifying and enrolling more specialist lenders under PMMY.

These include institutions who enjoy a sectoral advantage through the strength of their experience or size of their networks as well as institutions developing new, technology-focused underwriting and delivery capability. Further, it would also be important to enrol institutions offering an adequate and comprehensive suite of products, including working capital credit, vehicle finance and large equipment financing. The purpose of broader enrolment would be to extend refinance, credit guarantee and any other facilities to all MLIs in a manner that would encourage them to reach out to under-served enterprises.

3.2.3 Promote co-origination of MSME loans

Alongside enrolling new MLIs, MUDRA could also consider promoting co-origination arrangements between MLIs, which would serve both to expand outreach and increase lending efficiency. For example, MFIs have developed strong capabilities for client sourcing and loan management, but often face significant constraints raising funds and making loans that do not meet standard PSL eligibility criteria. For this and other reasons, many MFIs partner with SCBs to originate loans on their behalf, for a fee. In our analysis, we find evidence that such partnerships played a large role in supporting Private banks' determined expansion in the Shishu segment, and we believe that given opportunities and incentives, similar partnerships with NBFCs could expand lending in Kishor and Tarun segments too.

3.2.4 Eliminate known barriers to graduation

These recommendations in this section relate to specific practices in loan underwriting we learned about during qualitative interviews with frontline loan officers, and we believe small changes in the lending guidelines could serve to improve customer experiences under PMMY.

First, we learned that many banks rely heavily on the CIBIL score as a primary selection mechanism of borrower eligibility, unlike MFIs who rely more on the verification of outstanding loans from either or all credit bureaus. This particular requirement for a CIBIL score proves quite exclusionary for even mature MFI clients who have rich histories with MFI bureaus, but remain unscored on CIBIL. While the RBI has now required complete integration of retail and microfinance credit histories, this process is still underway and likely to take several years to complete. In the interim, equipping banks' frontline loan staff to use and interpret scores Highmark and Equifax in addition to CIBIL could expand the universe of eligible borrowers. Banks of course would remain free to determine appropriate cut-offs on each score as per their underwriting norms, but this small step would ensure that firms not scored on CIBIL are given the opportunity to apply for PMMY loans through banks at lower interest rates.

The second recommendation is related to the long turnaround times for loan processing reported both by frontline loan officers at banks as well as MSME borrowers as clients of banks. Most banks reported following relaxed underwriting norms for Shishu and smaller Kishor loans, but similar processes as other loans, thus contributing to extended processing times. However, some reported the use of a fast-track processing system, where MUDRA loan applications were tagged for faster movement through internal systems. To the extent feasible, we encourage all banks to follow a similar system, especially when approval processes can be streamlined or certain skips stepped as waived by underwriting norms for small loans.

3.3 Suggestions for additional MIS formats

Our third set of recommendations relate to specific aspects of administrative data collection and ongoing performance analysis by MUDRA.

3.3.1 Since the set of participating MLIs under PMMY will grow rapidly in the initial years, the inclusion of data from new players inflates aggregate totals year-on-year and overestimates the growth of lending in the economy. Similar to the analysis of administrative data in Table 1, we recommend tracking portfolio performance for a fixed cohort of MLIs (in addition to portfolio aggregates). This adjustment is necessary for more accurate estimates of changes in lending, and allows the decomposition of growth as 'organic' (i.e. growth driven by participating MLIs) and 'inorganic' growth driven by the enrolment of new MLIs into the scheme.

3.3.2 We also recommend the incorporation of certain analysis formats into ongoing scheme supervision that reveal more granular trends across both institutional and regional dimensions. On the institutional side, we recommend tracking individual MLIs' portfolio composition over time and year-on-year change to detect systematic strategic shifts (corresponding to Table 9 and Table 10).On the regional side, we recommend mapping district-level credit concentration, market saturation and credit depth. Some MLIs (non-MFI NBFCs and non-NBFC MFIs) are yet to report disaggregated data at the district-level and therefore, these reporting formats may need to be incorporated in a phased manner.

3.3.3 The analysis reveals that the Kishor category comprises a wide variety of loans and loan sizes, including individual personal or business loans as small as Rs. 60,000 from MFIs as well as MSME loans of upto Rs. 5 lakhs from banks. As a result, tracking aggregate performance of institutions under the Kishor category produces less meaningful insights, and ceases to differentiate between lenders specializing at the edge of these ranges. For the purpose of administrative reporting alone, we recommend splitting the Kishor category into loans from Rs. 50,000 to Rs. 2 lakhs and loans between Rs. 2-5 lakhs respectively.

3.3.4 Our final recommendation is with respect to harmonizing the definitions of loan tags as per express guidelines. For example, the loan-level tag "MUDRA card" is to represent loans with a linked MUDRA card or other debit cards, and not only newly issued MUDRA cards in that year. This estimates the proportion of loans accessible through linked cards, and will be a critical input to decision-making around this feature of the PMMY scheme. Similarly, we also recommend standardizing the definition of the "new accounts" tag, perhaps by linking this to specific fields[27] in customer credit reports themselves, rather than as discretionary input by the loan officers.

3.4 Proposals for further research

While the scope of this report was limited by a set of initial objectives, in the course of study we were able to develop a comprehensive understanding of PMMY policy design challenges and related academic literature on access to financial markets and enterprise growth, as well as the strengths and weaknesses of available data sources on this subject in the Indian context. We leverage this understanding to propose ideas for continued policy research that could support and inform critical design improvements and enhanced supervision of PMMY.

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[27] The credit report will return a unique value for loan applicants without a previous formal credit history, or without a currently outstanding loan etc.

The following is a preliminary list of research questions.

3.4.1 Estimating inclusion and graduation using credit bureau records

Currently, the policy conversation on financial inclusion of MSMEs and the additionality achieved through PMMY revolves around the "New Accounts" tag in the MUDRA data, which is known to be reported inconsistently. We propose instead, as a one-time exercise, to leverage the strength of credit bureaus to arrive at a robust estimate of inclusion and client graduation.

This would require anonymized but comprehensive credit histories of a randomly selected of sample of PMMY borrowers, preferably drawn from a representative set of MLIs. This data could then be used to identity the proportion of loans made to first-time formal borrowers as well the proportion of loans made by banks to borrowers who were earlier served only by non-banks. The latter represents client graduation into a lower interest rate.

3.4.2 A study of MSME credit depth to identify under-served districts

The regional analysis in this report was limited to measuring market saturation in terms of the number of enterprises due to the unavailability of estimates valuing the district MSME GDP. However, the NSSO 73rd round Survey of Unincorporated Non-Agricultural Enterprises 2015-16 will soon release unit-level data on the operational and financial characteristics of a representative sample of MSMEs.

Kumar and Baby (2016)[28] argue that stark inequalities in credit access—measured through district-level credit depth— can have a cascading effect on economic growth and inequalities over time. We propose a replication of their exploratory analysis at first, with a specific focus on understanding the variation in MSME sector credit depth by comparing estimates of MSME credit through PMMY with estimates of MSME Gross Value Added from NSSO.

3.4.3 Understanding the effects of financial access on the MSME landscape

Leveraging new data available from the NSSO 73rd round Survey of Unincorporated Non-Agricultural Enterprises on the operational and financial characteristics of MSMEs collected in 2015-16 and previously in 2010-11. A comparative analysis of both rounds of data could offer insight into the changing nature of MSME operations and in particular, the effects of expanding financial access on their investments, risk-taking and profitability.

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[28] Kumar and Baby (2016), "Determining Optimal Credit Depth Allocation at a District Level", IFMR Finance Foundation Working Paper series. Available at: www.bit.ly/creditdepth

3.4.4 Calibrating the design of CGFMU to improve take-up by all MLIs

The fourth proposal is related to understanding the underlying risk in Non-banks enterprise lending portfolios with a view to informing the calibration of the credit guarantee facility. This exercise should be undertaken in collaboration with the National Credit Guarantee Trust Corporation and, in addition to the analysis of risk experiences, must also review market prevalent forms of refinance and credit guarantee currently available to MLIs, and arrive at terms that are both appropriate and competitive