



REPORT

Formalization of Nano Enterprises through Digital Platforms: Potential and Challenges

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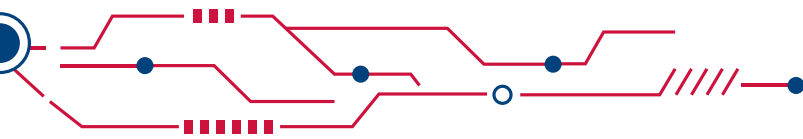
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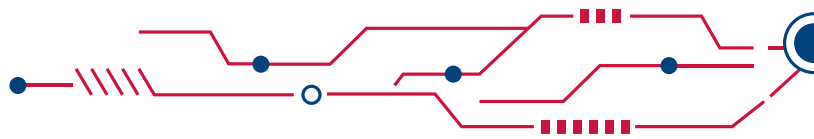
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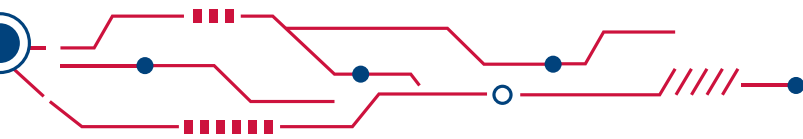
Abbreviations

ATT1	:	Attitude of Entrepreneurs for Formalization - First Latent Variable to Measure It
ATT2	:	Attitude of Entrepreneurs for Formalization - Second Latent Variable to Measure It
ATT3	:	Attitude of Entrepreneurs for Formalization -Third Latent Variable to Measure It
ATT4	:	Attitude of Entrepreneurs for Formalization - Fourth Latent Variable to Measure It
B2B	:	Business to Business
B2C	:	Business to Customer
B11	:	Behavioral Intention to Use the Registration Portals for Formalization - First Latent Variable to Measure It
B12	:	Behavioral Intention to Use the Registration Portals for Formalization - Second Latent Variable to Measure It
B13	:	Behavioral Intention to Use the Registration Portals for Formalization - Third Latent Variable to Measure It
CEO	:	Chief Executive Officer
CI	:	Confidence Intervals
CSC	:	Community Service Centers
DIC	:	District Industry Centers
EM	:	Entrepreneurs' Memorandum
FY	:	Financial Year
GDP	:	Gross Domestic Product
GeM	:	Government e Marketplace
GST	:	Goods and Services Tax
GSTN	:	Goods and Services Tax Number
GVA	:	Gross Value Added
ILO	:	International Labour Organisation
IMF	:	International Monetary Fund
IMPS	:	Immediate Mobile Payment Service
IT	:	Information Technology
ITI	:	Industrial Training Institutes
KII	:	Key Informant Interviews
MSME	:	Micro, Small, and Medium Enterprises

MSMED Act	:	Micro, Small and Medium Enterprises Development Act
e-NACH	:	Electronic National Automated Clearing House
NEFT	:	National Electronic Funds Transfer
NEIC	:	National Enterprise Identity Card
NGO	:	Non-Governmental Organization
NPCI	:	National Payments Corporation of India
NRLM	:	National Rural Livelihood Mission
NSDC	:	National Skill Development Corporation
NSS	:	National Sample Survey
NSSO	:	National Sample Survey Organization
ONDC	:	Open Network for Digital Commerce
P2M	:	Peer-to-Merchant
P2P	:	Peer-to-Peer
P2PM	:	Person-to-Person-Mobile
PEOU 1	:	Perceived Ease of Use of the Registration Portals for Formalization - First Latent Variable to Measure It
PEOU 2	:	Perceived Ease of use of the Registration portals for Formalization - Second Latent Variable to Measure It
PEOU 3	:	Perceived Ease of Use of the Registration Portals for Formalization - Third Latent Variable to Measure It
PEOU 4	:	Perceived Ease of use of the Registration Portals for Formalization - Fourth Latent Variable to Measure It
PLS-SEM	:	Partial Least Squares Structural Equation Modeling
PMJDY	:	Pradhan Mantri Jan Dhan Yojna
PR1	:	Perceived Relevance for the Registration Portals for Formalization - First Latent Variable to Measure It
PR2	:	Perceived Relevance for the Registration Portals for Formalization - Second Latent Variable to Measure It
PR3	:	Perceived Relevance for the Registration Portals for Formalization - Third Latent Variable to Measure It
PSL	:	Priority Sector Lending
PSP	:	Payment Service Providers

PT1	:	Perceived Trust for the Registration Portals for Formalization - First Latent Variable to Measure It
PT2	:	Perceived Trust for the Registration Portals for Formalization - Second Latent Variable to Measure It
PT3	:	Perceived Trust for the Registration Portals for Formalization - Third Latent Variable to Measure It
PU1	:	Perceived Usefulness for the Registration Portals for Formalization - First Latent Variable to Measure It
PU2	:	Perceived Usefulness for the Registration Portals for Formalization - Second Latent Variable to Measure It
PU3	:	Perceived Usefulness for the Registration Portals for Formalization - Third Latent Variable to Measure It
PU4	:	Perceived Usefulness for the Registration Portals for Formalization - Fourth Latent Variable to Measure It
PU5	:	Perceived Usefulness for the Registration Portals for Formalization - Fifth Latent Variable to Measure It
PU6	:	Perceived Usefulness for the Registration Portals for Formalization - Sixth Latent Variable to Measure It
RBI	:	Reserve Bank of India
RTGS	:	Real-Time Gross Settlement
SARDI	:	South Asia Regional Digital Initiative
SHG	:	Self-Help Groups
SPV	:	Special Purpose Vehicle
SRLM	:	State Rural Livelihood Mission
TAM	:	Technology Acceptance Model
UAM	:	Udyog Aadhaar Memorandum
UAP	:	Udyam Assist Platform
UID	:	Unified Identification
UPI	:	Unified Payment Interface
URN	:	Unique Registration Number
USAID	:	United States Agency for International Development





Executive Summary

India's Micro, Small, and Medium Enterprises (MSMEs), spanning over trade, manufacturing, and service sectors, contribute significantly to both the domestic market and the country's export landscape. The most recent pan-India data on the estimated number of MSMEs and their characteristics go back to 2015-16 when the 73rd round of the National Sample Survey (NSS) was conducted. We are yet to see the seventh economic census data which was conducted between 2019-21 and covered all establishments engaged in non-agricultural economic activities including construction (except public administration, defense and compulsory social security).

According to the 73rd round (2015-16) of the NSS, India has nearly 63 million unincorporated non-farm MSME enterprises. More than 99 per cent of MSMEs in India belong to the 'micro' category, defined on the basis of a composite criteria, with an upper bound threshold of investment in plant, machinery, and equipment of INR one crore (~ USD 120K) and annual turnover of INR five crores (~ USD 600K). In the recent past, several concerted policy and ecosystem efforts have focused on creating a more enabling policy and business landscape for the development of the micro-business sector. Despite these initiatives, ground-level data indicates that the incidence of informality in the MSME sector persists. While India has also introduced world-class digital public infrastructure, the actual use of these formalization platforms remains below the optimal level.

Over 96 per cent of India's microenterprises operate with an annual turnover less than INR one crore (~ USD 120K). For enabling effective policy making, it is crucial to address the heterogeneity of microenterprises which are at different stages of business growth. Nano enterprises can be classified as a distinct segment within the MSMEs as firms with an annual turnover less than INR one crore (~ USD 120K), characterized by their hyperlocal roots and focus. Typical examples of nano enterprises include small retail or *Kirana* stores¹, local businesses and small manufacturing units being run by households or individuals.

The study particularly delves into the trade sector enterprises with annual turnover between INR 10 lakhs (~ USD 13.33K) and one crore (~ USD 120K), to identify their challenges and opportunities. In addition to contributing to the evidence on the drivers of formalization such as entrepreneur and enterprise background characteristics and institutional and ecosystem factors, this study aims to understand the latent factors, such as perceived usefulness and ease of use, that drive an individual's behavior to adopt formalization.

The study was conducted among 1,683 nano enterprises (~75 per cent registered and 25 per cent unregistered) spread across four states of India: Jharkhand, Madhya Pradesh, Maharashtra, and Tamil Nadu, selected based on the higher number of Udyam registrations and to ensure geographical representation from different zones. Within each state, one developed district and another relatively less developed or aspirational district was selected to ensure a representative sample within each state. An enterprise was classified as 'registered' if it was registered with at least one of the following digital platforms: Udyam, Goods and Services Tax (GST)², and Shop Act/Gumasta license. Unregistered enterprises are not registered on any of the above three platforms.

¹ *Kirana*: A small, usually family-owned shop selling groceries and other miscellaneous small items.

² Udyam: Udyam portal is an easy to use simplified online registration portal for MSMEs, initiated by the Ministry of MSME, Government of India.

GST: The Goods and Services Tax is a successor to VAT used in India on the supply of goods and service. It has subsumed almost all the pre-existing indirect taxes except a few state taxes.

Gumasta license: Every person who establishes a business needs to obtain the license under the Shops and Establishment Act of that respective state. This shop and establishment act is known as Gumasta license in Maharashtra.

Key Findings

Age of the Entrepreneur

Older entrepreneurs aged 35 and over are more likely to operate formally than younger ones in the reference category of 18-35 years. This is possibly because a high proportion of businesses owned by owners in younger age groups are at a survival stage.

Gender of the Entrepreneur

Women-owned businesses are less likely to be registered.

Education

The higher the level of formal education of the entrepreneur (including having a professional diploma degree), the more likely it is that the business is registered.

Annual Turnover

In the case of firm-specific variables, enterprises with higher levels of turnover of more than INR 25 lakhs (~ USD 30K) are more likely to be registered.

Forced Entrepreneurship Due to Lack of Alternative Employment

Findings suggest that an enterprise is less likely to be registered if the owner is in the business because of a lack of alternative dependent employment sources. Entrepreneurs who have entered the business out of necessity, are not inclined to register and may be waiting to shift once they secure employment.

Risk of Eviction and Payment to Officials

46 per cent of entrepreneurs expected added benefits from registering themselves. One such benefit is that registered businesses do not have to worry about eviction from their place of business or pay bribes to officials to continue their operations. In contrast, non-registered businesses may constantly worry about these legal actions.

Customer Awareness About Registration

The survey asked whether customers request a proof of registration. The results show that if a business experiences a higher level of customer awareness, then it is more likely to be a registered business.

Behavioral Factors Influencing the Use of the Udyam Platform for Registration

Perceived Ease of Use (PEOU) and Perceived Trust (PT) in the portal have stronger influence on the intention to use the Udyam registration platform.

Reclassify the Micro Segment and Recognize 'Nano' Enterprises as a Distinct Segment

The current micro-segment needs to be divided into Nano and Micro categories to develop target interventions that address unique challenges of informality faced by the Nano segment.

Introduce Special Initiatives for Women-Owned Enterprises

Women entrepreneurs' attitude toward digitalization is positive but does not translate into getting registered due to socio-cultural barriers. Hence, it would be useful to create policies with a gender lens to promote women-led enterprises.

Adopt a Phygital Approach Towards Formalization

Physical and digital intervention should go hand in hand as there is a need for change in behavior of these enterprises. While Udyam registration is a voluntary process, implementing campaigns to reach out to entrepreneurs and support them in the registration process would be a highly effective initiative. Government institutions at the district and block levels, such as District Industry Centers (DICs), Community Service Centers (CSCs), and local bodies, can play a crucial role in facilitating the onboarding of enterprises onto digital registration platforms.

Integration of all Registration Processes Into a Single Window System

The fragmented and cumbersome landscape of nano-enterprise registration and formalization in India hinders their growth and participation in the formal economy. Implementing a unified system, whether through strengthening the Unique Registration Number (URN) process or a National Enterprise Identity Card (NEIC), will significantly enhance the ease of doing business for nano-enterprises in India.

Target Initiatives for Specific Stage of Formalization

The nano enterprise sector is not homogeneous. The thrust of the formalization initiative must be calibrated according to the level of formalization, such as:

- **Survival Stage Business:** Create awareness about registration and incentivization through fringe benefits emphasizing support, skills development and subsidized sources for registered units
- **Self-Employed and Hyperlocal Enterprises:** Government should focus on block-level digital incubation centers and digital registry of such nano enterprises to graduate them into formalization
- **Ready to Formalize:** Provide registration assistance at point of business

Leverage Consumer Awareness to Drive Adoption

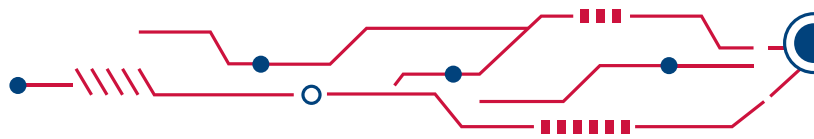
Customer awareness can play a crucial role in formalizing nano businesses. Customer awareness campaigns to inform customers on the formalization status of their goods and service provider and to promote the use of services from registered businesses could be one of the most effective strategies.

Establish a 'National Council for Formalization of Nano Enterprises'

To channelize discussed initiatives there is a need for creating a council or corporation like National Skill Development Corporation (NSDC) with a corresponding ministry at the central and state level. This will act as an implementing body for creating a single window system or digital platforms to issue NEIC and to establish a dialogue between and within relevant departments and ministries like MSME, Commerce & Industries and also a network of incubation centers etc.



Photo Credit: Paula Bronstein/Getty Images/Images of Empowerment



I. Introduction

Micro, Small, and Medium Enterprises (MSMEs) play a significant role in India's economy. These businesses, spanning over trade, manufacturing, and service sectors, contribute significantly to both the domestic market and the country's export landscape. During the year 2015-16, the share of unincorporated non-farm enterprises to the aggregate annual gross value added (GVA) was 56 per cent (NSSO, 2017). Another report, based on National Accounts Statistics, suggests that the share of the informal sector in India during 2017-18 was 52.4 per cent of the GVA to the economy (Murthy, 2019). However, more recent data highlights that during the financial years 2019-20, 2020-21 and 2021-22 the share of MSME GVA in India's Gross Domestic Product (GDP) was much lower, 30.5 per cent, 27.2 per cent and 29.2 per cent, respectively (MoMSME, 2023a). It is unclear whether this reduction of MSME GVA share is a sign of increasing formalization of MSME or is it simply a pandemic-induced economic contraction of the informal sector (Nagaraj and Kapoor, 2022).

India has nearly 63 million unincorporated non-agricultural MSME enterprises in the country according to the 73rd round (2015-2016) of the National Sample Survey (NSS). This is the most recent, although dated, data on the estimated number of MSMEs in the country as we are yet to see the seventh economic census data which was conducted between 2019-2021.

Out of the total estimated number of enterprises at the all India level, 51.3 per cent were in rural areas. At a sector level, 31 per cent were engaged in manufacturing, 36.3 per cent of enterprises were in trading (both wholesale and retail) and 32.6 per cent were in other services excluding construction (NSSO, 2017).

More than 99 per cent of MSMEs in India belong to the 'micro' category, defined on the basis of a composite criteria, with an upper bound threshold of investment in plant, machinery, and equipment of INR one crore and annual turnover of INR five crores (MoMSME, 2023b). The Indian economy is positioned to be one of the fastest-growing economies in the world with an annual economic growth rate ranging from six per cent to eight per cent for most years in the last decade. Despite economic progress and policy endeavors to formalize micro enterprises, the persistence of the informal sector

remains significant in this business segment. Overarching policy questions in the context of the country's sustainable economic growth are: Can the informal sector businesses scale up in tandem with this growth trajectory? If not, how can this growth rate be sustained without integrating this significant segment of the economy into the growth process?

In recent years, the policy effort for the growth of the MSME sector has been ramped up. One important part of these policies is the thrust on formalization of the micro businesses through the Udyam portal, an easy to use simplified online registration portal for MSMEs. In view of the Digital India movement, the Government of India has implemented several digital initiatives supporting scaling of micro businesses. Some of these initiatives include digitalization of all Government tax compliance platforms like Goods and Services Tax (GST), marketing platforms like Government e Marketplace (GeM) and Open Network for Digital Commerce (ONDC).

Due to the persistent efforts of various Government departments and organizations, the recent policy landscape appears highly vibrant and positive for the development of the micro-business sector. Nevertheless, the ground-level data indicates that the incidence of informal units in the MSME sector has not diminished. Despite the successful implementation of digital infrastructure, the actual use of these platforms remains low. For example, according to the Ministry of MSME, as of March 9, 2024, about 24.1 million MSMEs are registered on the Udyam Portal. Even if we consider NSS' 73rd round (2015-16) estimates of a total of 63.4 million MSMEs in the country, then this results in the registration of 38 per cent MSMEs. The true proportion of registered enterprises is likely to be lower as the total number of MSMEs (the denominator) has possibly increased now compared to the 2015-16 estimates.

Two main reasons contribute to this anomaly of sub-optimal usage of registration platforms. Firstly, the majority of Government schemes are primarily targeted towards MSMEs in the manufacturing sector, while 70 per cent of the micro businesses are prevalent in retail trade and other segments of the service sector. Except for generic schemes related to skilling and credit support, initiatives specifically tailored for the retail and trade sector are rare. **Secondly**, while there is a focus on designing schemes, the implementation and monitoring aspects require improvement for an effective uptake of these schemes by micro entrepreneurs. Therefore, it is important to understand why some of these enterprises choose to remain hidden. Also, we need to gain a better understanding of their attitudes and intentions to address the challenges they continue to face in using the existing digital registration platforms.

All stakeholders across the board agree that incorporating small businesses from the informal sector into the mainstream is crucial for sustaining economic growth and achieving balanced development. This report provides some evidence-based insights that may help to design, initiate and implement the policy of formalization for a crucial subset of micro enterprises, viz., nano enterprises.



Photo Credit: LEAD at Krea University

2. Literature Review

The revised definition for MSMEs comes with the inclusion of retail and wholesale trade enterprises as MSMEs. Retail and wholesale traders have been facing a severe liquidity crunch after sales were hit by the Covid-19 lockdown. Acknowledging this concern in mind, the MSME Ministry has issued the order to include retail and wholesale trade as MSME and to extend to them the benefit of priority sector lending under RBI guidelines (GoI 2022).

More than 99 per cent of MSMEs in India belong to the 'micro' category, defined on the basis of a composite criteria, with an upper bound threshold of investment of INR one crore and annual turnover of INR five crores (MoMSME 2023b). This new classification has come into effect from July 01, 2020.

The earlier criteria of classification of MSMEs under Micro, Small and Medium Enterprises Development Act (MSMED Act) of 2006 were based on investment in plant and machinery for the manufacturing sector and investment in equipment for the service units. So the earlier classification did not consider turnover threshold as a criteria while categorizing the MSMEs and the investment criteria was different for manufacturing and service sector. Moreover, retail and wholesale trade were left out of the ambit of MSME. Moreover, the new definition excludes the turnover amount with respect to exports from the limits of turnover for any category of MSME units whether micro, small or medium. This particular change in criteria of classifying the MSMEs is likely to offer major relief to the exporters (MoMSME, 2023b).

Over 96 per cent of India's microenterprises operate with an annual turnover less than INR one crore (Omidyar Network and BCG, 2018). This significant number of small-scale businesses underscores the crucial role they play in India's economic landscape. The microenterprises comprise a heterogeneous group of enterprises, which are at different stages of business growth. More than 90 per cent of businesses in the micro category remain informal. They are owner-managed firms, most of which operate with less than five workers.

Nano enterprises can be classified as a distinct segment within the MSMEs as firms with an annual turnover less than INR one crore, characterized by their hyperlocal roots and focus. Typical examples of nano enterprises include small retail or *Kirana* stores, local businesses and small manufacturing units being run by households or individuals.

While the term nano enterprise is not used much in academic literature or policy discourse, various reports and commentaries make a case for coining it to distinguish it from other MSMEs (Buteau *et al*, 2023; Sharma *et al*, 2023). This report considers nano enterprises having annual turnover between INR 10 lakhs (~ USD 13.33K) and one crore (~ USD 120K).

2.1 Informality of MSMEs: Reasons and Challenges

The available literature and reports around formalization of the MSME sector explore the reasons for informality and self-exclusion by the small businesses (Buteau *et al*, 2022; Unni, 2018). Most commonly documented reasons are high costs of registration and indirect registration costs, for example, concerns about paying taxes and adhering to labor laws (ILO, 2015). In India the seasonal and floating nature of small businesses avoids registering. Also, if small business owners are not aware of specific benefits from registering their units, related to access to finance and markets, they are reluctant to register. Many of the nano enterprises have very little manpower which makes it difficult for them to comply with all processes related to formalization alongside running their own business. More alarmingly, according to the data shared in one of the question and answer sessions in the Lok Sabha (lower House of the Indian parliament), a total of 32,298 MSMEs have canceled their Udyam registration due to the shutdown of their businesses during the period July 1, 2020 - December 8, 2023.

This informality restricts nano enterprises from accessing the numerous benefits associated with formalization such as easy access to finance and markets. Additionally, service sector nano enterprises grapple with several challenges, including low productivity, high competition due to low barriers to entry, and limited working capital, making them vulnerable to economic downturns. Closure of such enterprises can have devastating consequences, causing household distress due to the intertwined nature of personal and business finances, and leading to job losses for the often semi-skilled, unskilled, and migrant workers they employ.

Thus, in order to mitigate the risks and challenges related to informality, registration and licensing becomes the first step towards formalization of businesses. This typically involves registering with government agencies, obtaining the necessary licenses and permits, and complying with tax regulations and reporting requirements (Gaarder and Doorn, 2021). However, given the informality and lack of official documents that act as prerequisites for the registration process, it is not easy for nano enterprises to overcome this first hurdle. In recent years, digital adoption, however, has offered avenues for formalization through the digital trail MSMEs create via transaction details. Digitalization led formalization, as it grows, will allow better visibility and benefits to nano enterprises.

2.2 Government Initiatives for MSMEs

The concept of supporting small businesses in India dates back to the very beginning of the country's industrial policy in 1951. Initially, these "small sector industries" were classified based on the number of employees they had. However, the definition and classification of these businesses have undergone numerous changes throughout the decades, with the criteria shifting from employee count to annual turnover.

In the context of formalization of MSMEs, the MSMED Act of 2006 marked a significant turning point. It established a legal framework for MSMEs and defined them based on investment in plant and machinery for manufacturing units and based on investment in equipment for enterprises providing services. This act also introduced mandatory registration processes for MSMEs through the Entrepreneurs' Memorandum (EM) system. Moreover, it founded a Board, the National Board for MSMEs, whose role was to examine the factors affecting the promotion and development of MSMEs and review the policies and programs of the Central Government in regard to facilitating the promotion and development and enhancing the competitiveness of such enterprises and the impact thereof on such enterprises.

In 2015, the government replaced the EM system with the Udyog Aadhaar Memorandum (UAM) to simplify the registration process. Subsequently, the registration process was made available online in January 2017. Furthermore, a new notification was passed by the Ministry of MSME on July 01, 2020 to rename the Udyog Aadhaar Registration as Udyam Registration and made the registration even more easy for all units which fall under the purview of MSMEs as per the new definition introduced on July 01, 2020 by the Government of India. All Startups and MSMEs are eligible to receive benefits from the various Government schemes by getting themselves registered under New MSME Legislations.

"Digitalization of the paper-based registration process does not ensure that it becomes easy to use. Digitalization should be useful, easy to use and the compliance burden should be reduced."

- Pradnya Godbole, CEO at deAsra Foundation

The objective of launching the Udyam Registration system by the Ministry of MSME was to establish a unique identifier system for MSMEs, serving as the foundation for their formal identification (MoMSME, 2023b). While the self-registration process was designed for simplicity, an initial challenge emerged regarding the Aadhaar authentication process. To address this, the Udyam Assist Platform (UAP) was launched in January, 2023 to facilitate registration of informal micro enterprises through the generation of the Udyam Assist Certificate. Notably, lending institutions have further amplified this initiative, as access to priority sector lending (PSL) now requires MSME borrowers to possess Udyam registration. As of March 9, 2024, over 24 million MSMEs have registered themselves in the Udyam portal with 97 per cent belonging to the micro-enterprise category. Udyam registration has the potential to bring previously unregistered businesses, particularly nano and micro enterprises, into the formal sector. This may open up doors to benefits like easier access to finance and government schemes (Sharma *et al.* 2023).

Currently, a dedicated online portal offers Udyam registration as the preferred method, though it is not mandatory for micro and small businesses. Even without the need to register businesses on the Udyam portal, businesses

still have to undergo cumbersome documentation processes for meeting other compliance requirements. For example, micro businesses that provide services to large companies have to be registered with the GST. Businesses have to produce an Udyam registration number and a GST number (GSTN) to avail of bank loans, Government schemes and credit scores. They also have to undergo tedious procedures to get export-import licenses, avail of other initiatives like Open Network for Digital Commerce (ONDC) - an efficient & inclusive e-commerce platform, and the Government e Marketplace (GeM) portal for selling their products/services for public sector procurement.

Alongside, the Ministry of MSME has taken numerous other initiatives to digitally enable the entire MSME ecosystem. The Unified Payment Interface (UPI), launched in 2016, is a real-time system for mobile transactions that enables transition from a cash-based economy to a digital one (MoMSME, 2023b). This shift has significantly impacted business operations and financial management for MSMEs. This was followed by the introduction of the Goods and Services Tax (GST) in July 2017 with the aim of easing the tax reporting process. The shift to online tax reporting through GST has created a trove of digital data from MSMEs that is verified (invoices matched), granular (invoice level details available), current (monthly/quarterly filing), and electronically accessible.

Another important regulation to which most businesses in India are subject to is the Shop and Establishment Act, enacted by every state in India. The Shop and Establishment Act is regulated by the Department of Labor and regulates premises wherein any trade, business or profession is carried out. This registration mechanism is known as the Gumasta license in some states, including Maharashtra. This state-level requirement focuses on regulating working conditions and employment terms within a state's jurisdiction.

2.3 Public-Private Partnerships

Despite the shift to digital platforms and efforts to increase accessibility, challenges towards formalization of nano enterprises persist. Interestingly, private sector initiatives in e-commerce and FinTech are offering promising alternatives for facilitating the formalization of small businesses. Owing to the policies implemented by the Government of India and the Reserve Bank of India (RBI) for promoting digital payments, the emergence of FinTech with new technologies to ease user experience and payment service providers (PSPs) building infrastructure to support smooth transaction flows, digital payments in India continue to grow at a high rate. According to the Indian payments handbook 2022-2027, in FY 2022–23, the number of transactions had grown by 82 per cent from 46 billion in FY 2021-22 to 83.7 billion transactions with an increase in the transaction value by 65 per cent from 84.1 trillion INR in FY 2021-22 to 139.14 trillion INR in 2022-23 (PwC, 2023).

This growth of digital transactions validates the need for a newer approach to formalization bringing together the Government and private sector players. This public-private collaboration in the formalization space can leverage market induced registrations on payment platforms to bring small businesses into the formal economy. A paradigm shift in approach toward formalization will make this possible.

UPI is the flagbearer of the digital payment's revolution, constituting over 75 per cent of the overall transactional volume in retail digital payments in India. UPI's popularity has grown to the point that peer-to-merchant (P2M) transactions surpassed peer-to-peer (P2P) transactions in terms of volume. UPI which was primarily used for P2P transactions has transitioned towards person-to-person-mobile (P2PM) and P2M transactions. Growth in mobile app-based payments is another indicator of the affinity towards digital payments. This trend underscores the potential of a public-private collaboration approach to formalization, leveraging market-driven registrations to bring small businesses into the formal economy. Embracing such a paradigm shift can significantly enhance formalization efforts. These platforms leverage market-driven registrations and hold potential for future collaboration with the government.

“There are data security and internal legal issues for sharing data with the Government. Fintechs may support the Government in sharing their data of nano enterprises. However, to overcome the data security issue, brainstorming is required on the objectives of data sharing.”

- Founder of a Leading Fintech & Director of an eCommerce Platform



Despite various government-led initiatives, a unified database on enterprise registration status and nature of business remains elusive due to the informal nature of many businesses. For many nano enterprises which lack proper documentation, it is possible to leverage their digital footprint, primarily from UPI transactions. Policy documents and studies have advocated for integrating the Shops and Establishment Act, UPI databases, and other vendor registration systems with Udyam. This suggests a need for comprehensive research to understand the fragmentation that exists in the process of formalization of MSMEs, particularly for small businesses. Our study collects primary data from nano entrepreneurs across four states of India to uncover their challenges and motivations for formalization.

3. About the Study

There is a need for granular and disaggregated data on the formalization of nano enterprises in India within the public domain.

Our study fills this gap and explores the status of nano enterprises in India and the role of digital platforms in formalizing them.

While existing studies explore the advantages and perceptions of business registration, few capture the extent of formalization through different registrations and documentation held by nano enterprises.

The overarching aim of this study is to generate evidence on any implementation gap in current policies to improve the uptake of formalization platforms among nano enterprises in the trade and service sector.

The specific objectives of this study are:

- i. To understand the comparable characteristics of entrepreneurs and enterprises of both registered and unregistered nano enterprises.
- ii. To understand the significant drivers and enablers of formalization.
- iii. To understand how the attitudes of registered nano business owners influence their intention to use digital registration platforms.

While there is evidence on the formalization status of MSMEs at large, the study fills the gap in the following way:

1. **Specific Target Segment:** Our study focuses on nano enterprises having an annual turnover between 10 Lakhs and one Crore.
2. **Sectoral Analysis:** The study particularly delves into the trade and service sector to identify their unique challenges and opportunities, given the rarity of initiatives specifically tailored for the retail and trade sector.
3. **Focus on Behavioral Traits of Entrepreneurs:** While there is evidence on what drives formalization from an institutional and ecosystem perspective, this study aims to understand the latent factors, such as perceived usefulness and ease of use, that drive an individual's behavior to adopt formalization.

We believe that the study Recommendation would help envision and recommend actionable ideas to incentivize formalization of nano businesses through the use of digital platforms. Moreover, with its focus on the retail and trade sector nano enterprise segment, this study aims to contribute to the designing of the National Retail and Trade Policy that is in the process of being finalized by the Government of India during the study period.

3.1 Study Sites

According to the Ministry of MSME, as of March 9, 2024, about 24.12 million MSMEs were registered on the Udyam Portal, out of which more than 97.2 per cent belonged to the micro business segment. One of the key objectives of our study is to understand the latent factors that drive an individual's behavior to adopt formalization. Our choice of states was guided by this objective. We selected the states of Jharkhand, Madhya Pradesh, Maharashtra, and Tamil Nadu, based on the higher number of Udyam registrations overall and among micro enterprises. The selection also ensured representation across different geographical regions of India: West (Maharashtra), Central India (Madhya Pradesh), South (Tamil Nadu), and the East (Jharkhand).

Within each selected state, one developed district and another relatively less developed or aspirational district were selected to ensure a representative sample within each state. We selected both registered (~75 per cent) and unregistered (~25 per cent) nano enterprises within each selected state. This particular selection criteria helped us understand the significant drivers of formalization.

Registered enterprises include those which are registered on at least one of the following digital platforms: Udyam, GST, and Gumasta. Unregistered enterprises are not registered on any of the above-mentioned digital platforms.

Non-probability sampling methods such as convenience and quota sampling³ were used for selecting nano enterprises for the survey.

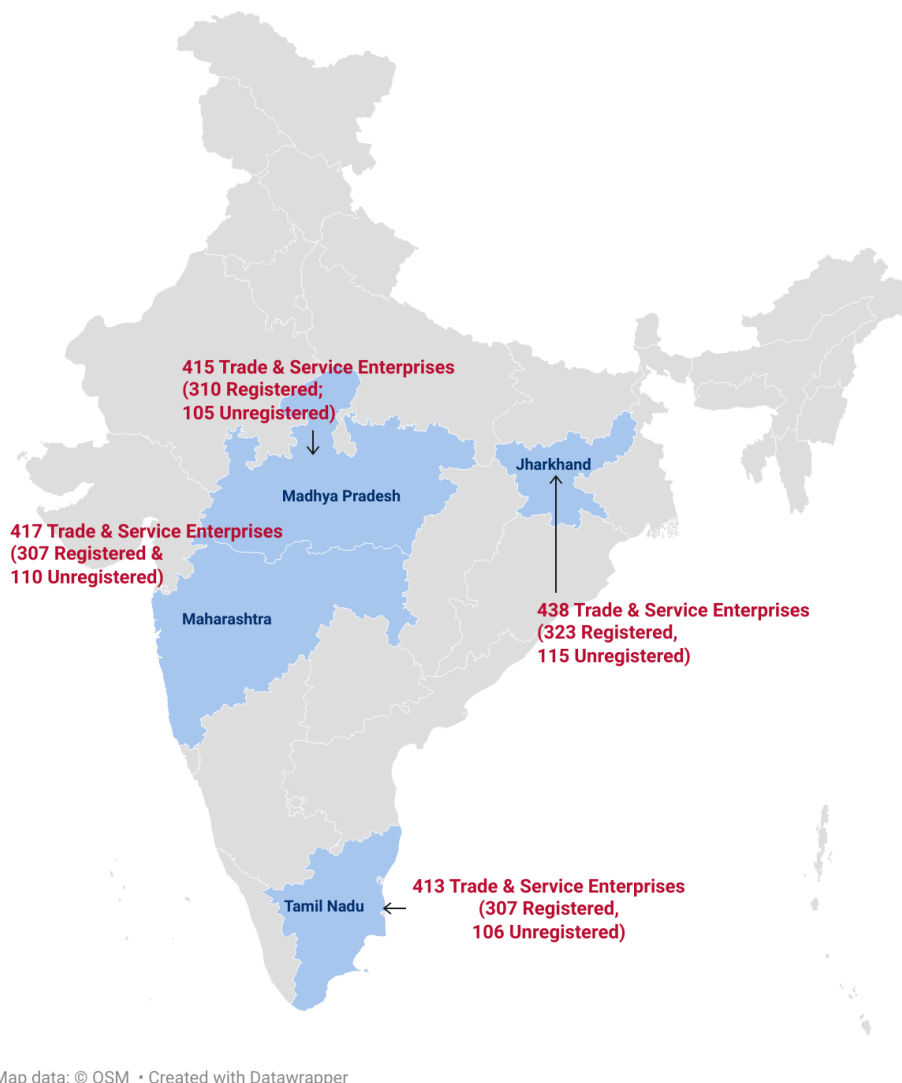


Figure 1: Distribution of Sample Across States: LEAD Nano Enterprise Survey on Formalization (Sept.-Nov., 2023)

Inclusion Criteria

1. Enterprises having an annual turnover of 10 Lakhs (~ USD 13.33K) to one Crore (~ USD 120K) for both registered and unregistered enterprises. We use the term nano enterprises for such enterprises. In a few cases, where the reported annual turnover was slightly outside (within ± 10 per cent) the range of 10 Lakhs to one Crore, we have included those enterprises as well. But for the simplicity and consistency of presentation, throughout the report, we have presented the annual turnover range as 10 Lakhs to one Crore.
2. Nano enterprises that are primarily operating in the retail and trade sector. Later the inclusion criteria was relaxed to include other service sector enterprises also in order to achieve the desired sample size within each state.

³Quota sampling is a type of convenience sampling to recruit participants, until the proportions in each subgroup match with the desired proportion.

3. For the purpose of the study, by registration we primarily mean registration on the Udyam portal. However, in the absence of Udyam portal registration, GST registration or Gumasta license (in Maharashtra) were also considered.

3.2 Methodology

The study uses a mixed methods approach to achieve the study objectives. A primary quantitative survey was conducted to collect data from registered and non-registered nano enterprises from selected states using a structured questionnaire. Alongside we have conducted key informant interviews (KIs) with sectoral experts and other relevant stakeholders to understand nuanced insights around digital adoption and formalization of small businesses. In terms of analytical methods, the study adopts the following tools to achieve different study objectives:

3.2.1 Descriptive Methods

To identify the characteristics of entrepreneurs and enterprises that are registered on any of the digital platforms (Udyam, GST, or Gumasta license), we considered basic descriptive analysis with univariate statistics and bivariate associations. The findings were contrasted with those who are yet to register as on the survey date.

3.2.2 Logistic Regression Analysis

In the next step, the study explores key determinants of formalization through a logistic regression analysis. This analysis aids in identifying the significant factors contributing to the registration of nano businesses in the sample. We posited that the outcome or the dependent variable in this analysis is binary, such as “use” or “non-use” of digital registration. This approach allowed us to estimate the probability of a business being registered on any one of the digital platforms (Udyam, GST, or Gumasta license) based on a set of explanatory variables. The explanatory variables in this case are derived from existing literature and key informant interviews (KIs). These measurable characteristics of registered and non-registered units include age, gender, education, the level of development of the district, the state rank in Udyam registration in which the business is located, and annual turnover, among others.

3.2.3 Technology Acceptance Model (TAM)

In the third and final step of quantitative analysis, the study employs a customized version of the Technology Acceptance Model (TAM) based on Structural Equation Modeling. The rationale behind using this methodology is to understand how the attitudes of nano business owners influence their intention to use digital registration platforms.

This method is utilized to estimate the relationships between the dependent variable, behavioral intention to register on digital platforms, and independent variables such as perceived usefulness, perceived ease of use, perceived relevance for business, perceived trust, and attitude. Additionally, the study will analyze the impact of various personal and business characteristics (moderators) on these factors. Examples of moderators include entrepreneur’s age, education, and awareness of regulations.

This analysis will help understand how the individual and business contexts influence the decision to formalize. The efficacy of this approach, compared to the usual regression analysis, is well-documented in the literature (Chuttur 2009; Davis, 1989; Scherer *et al.* 2019). Therefore, it is considered suitable for capturing the latent behavioral factors leading to intention and attitude toward formalization.

3.2.4 Qualitative Methods

To gain nuanced insights on the existing formalization framework and the associated challenges, we have conducted KIs with sectoral experts and other relevant stakeholders. A semi-structured interview schedule was designed for these interviews. Based on in-depth discussion with experts, a thematic analysis was done across the following themes:

- Theme 1: Challenges in formalization of enterprises
- Theme 2: Adoption of digital technology & innovation
- Theme 3: Eradication of the multilayer of formality and introduction of a single window digital platform
- Theme 4: Public-Private integration and data security issues
- Theme 5: Institutional arrangement for integrating digital platforms and strengthening the current process

3.3 Limitations of the Study

For the purpose of selecting nano enterprises for our study, it was not possible to obtain the required sampling frame in all states. In Madhya Pradesh, we were able to obtain a sampling frame of registered enterprises from the District Industry Centers and used it for sampling selection. In Maharashtra, in order to reach out to the nano enterprises, we received support from a social enterprise which has been working with the entrepreneurs to facilitate the process of formalization of their enterprises and access to government benefits. For surveying the unregistered enterprises, we have resorted to non-probability sampling methods such as convenience and quota sampling. Our inability to adopt probability sampling methods, due to unavailability of sampling frames, may lead to biased estimates if the nano enterprises we reached out to are different, in terms of key background characteristics, than that of those whom we could not reach out.



4. Analysis and Findings

The analysis is conducted at three levels:

- a. Descriptive comparison of the characteristics of registered and unregistered business.
- b. Logistic regression to understand drivers of formalization across any of three platforms.
- c. Technology Acceptance Model (TAM) to uncover latent constructs that influence adoption of Udyam registration.

The section discusses Findings from the quantitative survey of nano enterprises on formalization conducted from September to November, 2023. While identifying the characteristics of nano businesses, we also look at factors that drive formalization behavior and the latent constructs behind it.

4.1 Sample Characteristics

In this section, we present characteristics of our sample both at the enterprise and entrepreneur level in Table 1.

**Table 1: Characteristics of Nano Enterprises and Their Owners:
LEAD Nano Enterprise Survey on Formalization (Sept-Nov, 2023)**

Sl. No.	Sample Characteristics	Frequency (n)	Percentage (%)
Overall sample size N = 1,683			
i. Enterprise Characteristics			
1	Sector		
	Retail Trade	1255	75
	Service	428	25
2	Vintage of the Enterprises		
	0-1 Years	59	4
	2-5 Years	489	29
	6-10 Years	518	31
	10+ Years	617	37
3	Employment		
	Full Time Employee	3183	82
	Contractual	388	10
	Family Member	314	8
4	Turnover Buckets		
	10 – 24.9 lakhs	1108	66
	25 – 49.9 lakhs	319	19
	50 – 74.9 lakhs	126	7
	75 lakhs - 1 Crore	130	8
5	Registration Status		
	Registered Enterprises	1246	74
	Non-Registered Enterprises	437	26

Sl. No.	Sample Characteristics	Frequency (n)	Percentage (%)
Overall sample size N = 1,683			
ii. Entrepreneur Characteristics			
1	Gender of the Entrepreneur		
	Female	123	7
	Male	1559	93
2	Age of the Entrepreneur		
	18-30 Years	280	17
	31-50 Years	1202	71
	50+ Years	201	12
3	Education of the Entrepreneur		
	Primary or below	55	3
	Six to ten years of schooling	419	25
	Eleven to twelve years of schooling	425	25
	Diploma*	241	14
	Graduate and above	541	32

*Eligibility criteria for a professional diploma course, including those at the government diploma/vocational training institutes such as Industrial Training Institutes (ITIs), often is to pass 10th class (for some courses eligibility may be to qualify 12th exam). If after completing the 10th or 12th exam, one opts for a diploma course and gets a diploma degree, we consider them under the diploma category as opposed to their highest level of formal education.

4.2 Characteristics of Businesses Across Registration Status

The section illustrates the relationships between an enterprise's registration status and entrepreneur (education, age, gender) and enterprise (annual turnover, business segment, type of employment) characteristics. The registered enterprise cohort is defined as comprising those enterprises which are registered on at least one of the following digital platforms- Udyam, GST, and Gumasta. Unregistered enterprises are not registered on any of the digital platforms. The comparative analysis of characteristics of registered versus unregistered businesses provides a basic understanding of the enablers and barriers to formalization.

Before we start looking at the bivariate association between registration status and other enterprise and entrepreneur characteristics, in Figure 2 we present the registration status of nano enterprises across various types of registration and states.

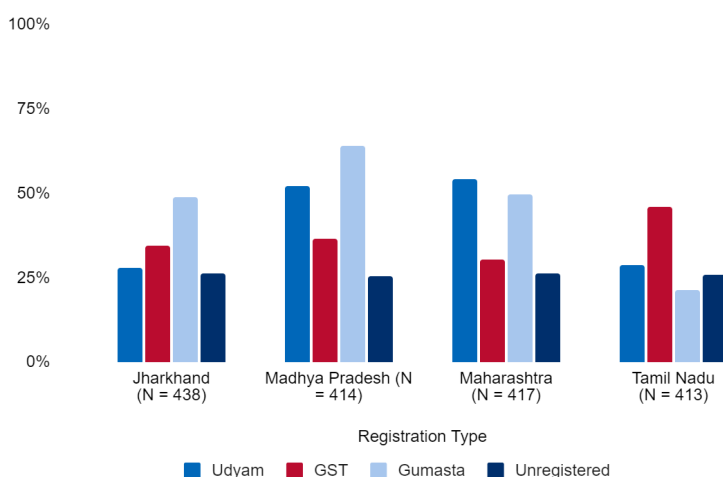


Figure 2: Registration Status of Nano Enterprises Across Various Types of Registration and States: LEAD Nano Enterprise Survey on Formalization (Sept-Nov, 2023)

4.2.1 Entrepreneur's Characteristics and Registration Status

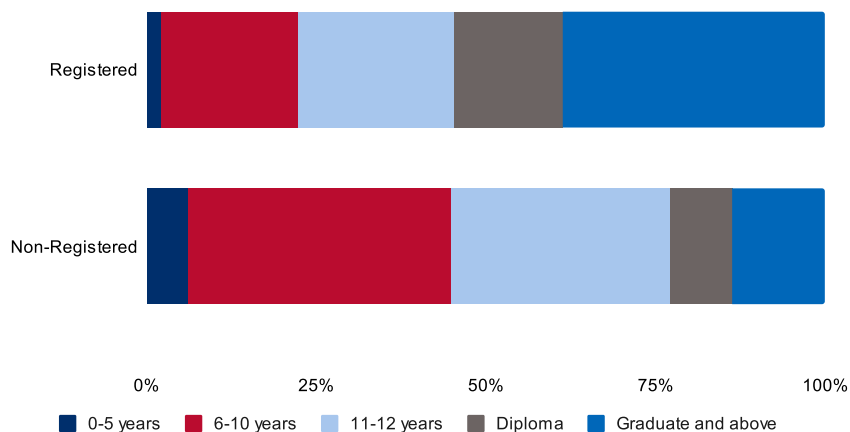


Figure 3: Distribution of Registered and Non-Registered Enterprises Across Education Status of Entrepreneur: LEAD Nano Enterprise Survey on Formalization (Sept-Nov, 2023)

Figure 3 shows that 39 per cent of the registered business owners have a formal education of graduation and above whereas this percentage is significantly lower (14 per cent) among non-registered business owners. The proportion of entrepreneurs having a professional diploma degree is higher among the registered enterprises (16 per cent) relative to only nine per cent among the unregistered enterprises. In the registered cohort, only 2.3 per cent have education level primary or below. In contrast, six per cent of non-registered entrepreneurs belong to this lowest level of education category. In the subsequent sections, we delve deeper into exploring the relationship between education and the entrepreneur's attitude toward formalization.

Age and Registration Status

As depicted in Figure 4, the proportion of younger entrepreneurs is higher (20 per cent) among non-registered enterprises compared to that of registered enterprises (15.5 per cent). At first glance, it seems counter intuitive as the younger generation is likely to be digital-savvy.

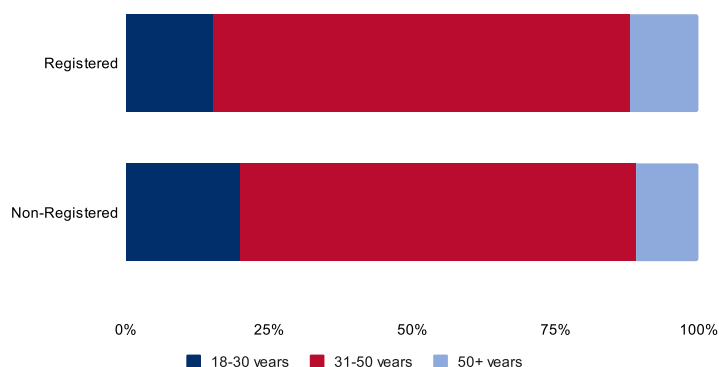


Figure 4: Distribution of Registered and Non-Registered Enterprises on the Basis of Entrepreneur's Age: LEAD Nano Enterprise Survey on Formalization (Sept-Nov, 2023)

However, a crosstab between the age of the entrepreneur and the vintage of the enterprise (Table 2) provides some explanation behind this observation. The proportion of newly formed enterprises which were set up within the last five years is much higher among younger entrepreneurs (61.8 per cent) compared to that of entrepreneurs in the age group 31-50 years (29 per cent) and 50+ years (13.4 per cent). So the enterprises which are at an initial stage and often owned by a younger entrepreneur, are likely not to go for formalization during the initial phase of their business venture.

Table 2: Distribution of Age of Entrepreneur and the Vintage of the Enterprise: LEAD Nano Enterprise Survey on Formalization (Sept-Nov, 2023)

Age of Entrepreneur	n	Vintage of Enterprise (%)				Total
		0-1 years	2-5 years	6-10 years	10+ years	
18-30	280	8.9%	52.9%	21.4%	16.8%	100%
31-50	1,202	2.6%	26.4%	34.3%	36.8%	100%
50+ years	201	1.5%	11.9%	22.9%	63.7%	100%

Empirical studies on enterprise formalization in other countries suggest that the younger age group tends to exhibit higher informality. Young entrepreneurs often “test the waters” before officially registering their businesses, taking time to decide whether to continue in the same business (Moyo, 2022, Ishengoma and Kappel, 2006; Koto, 2015).

Gender and Registration Status

Among 1,682 nano enterprises that we have surveyed, only 123 (7.3 per cent) of them are owned by women. This clearly indicates a gender divide in the context of ownership of enterprises. Our findings are similar to the NSS 73rd round (2015-16) estimates which show that female proprietary enterprises had a share of 8.7 per cent in trading and 7.4 per cent in other services. Figure 5 shows the distribution of gender-based ownership across registered and non-registered cohorts of enterprises. About 11.2 per cent of non-registered enterprises are owned by women compared to only six per cent of registered enterprises are owned by women. This indicates that women-led enterprises are more likely to be informal compared to men-led enterprises. We have explored this further in subsequent sections of logistic regression and TAM analysis.

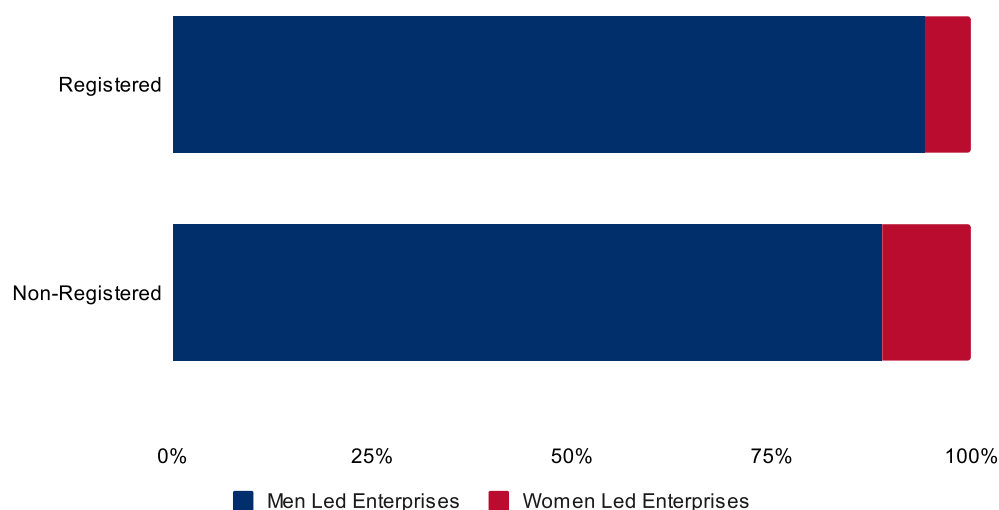


Figure 5: Distribution of Registered and Non-Registered Enterprises on the Basis of Entrepreneur's Gender: LEAD Nano Enterprise Survey on Formalization (Sept-Nov, 2023)

4.2.2 Firm Specific Characteristics and Formalization

Annual Turnover

The survey enquired about turnover of the enterprises in the financial year 2022-23 and focused on nano enterprises with an annual turnover between 10 lakhs and one crore. The composition of the sample reveals that, among registered enterprises, 58 per cent of them have an annual turnover between 10 lakhs and 24.99 lakhs, while among non-registered units, a significantly higher proportion (88 per cent) falls under this turnover bucket of 10-24.99 lakhs (Figure 6). On the other hand, more than 40 per cent of the units in the registered segment have an annual turnover between 25 lakhs and one crore, as opposed to only 12 per cent in the non-registered segment. We find a statistically significant association between informality and lower turnover within the nano segment. This suggests a need for policy measures specifically targeting this stratum for formalization.

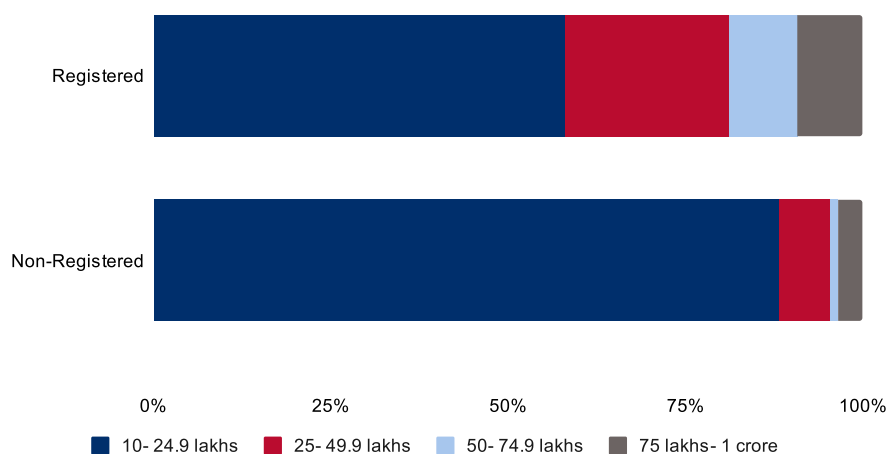


Figure 6: Distribution of Registered and Non-Registered Enterprises Across Enterprise’s Annual Turnover Buckets: LEAD Nano Enterprise Survey on Formalization (Sept-Nov, 2023)

Type of Employment

Registered enterprises employ more workers (paid or unpaid, besides owner) than the unregistered cohort. On an average, 2.7 workers are employed within the registered cohort compared to 1.3 workers among the unregistered enterprises. Approximately 80 per cent of the total workers in both the registered (82 per cent of 3,316 workers) and non-registered categories (81 per cent of 569) are full time employee. However, for the remaining 20 per cent workers, the distribution of employee type is different between registered and non-registered enterprises. There are more contractual employees in the registered enterprise cohort (11 per cent) compared to using family members as workers (seven per cent), whereas 13 per cent of workers in the non-registered enterprises have family members as workers in their enterprise relative to seven per cent family members as employees in the registered cohort.

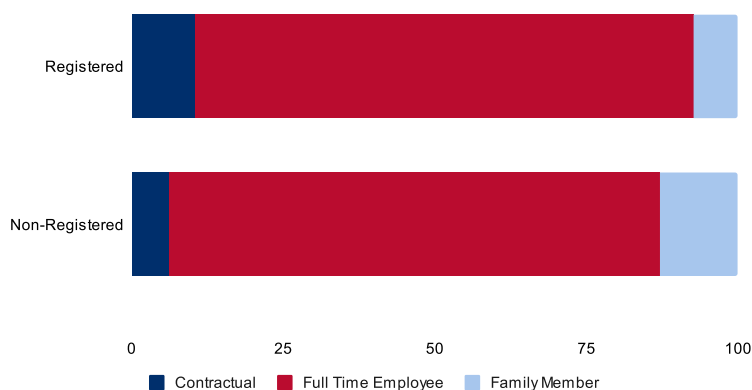


Figure 7: Distribution of Different Type of Employees across Registered and Non-Registered Cohort: LEAD Nano Enterprise Survey on Formalization (Sept-Nov, 2023)

Mode of Payment to Employees

Among both registered and non-registered enterprises, cash is the preferred mode of payment to employees for their daily wages or monthly salary. However, the prevalence of cash-based payment to employees is higher among non-registered enterprises by seven percentage points (Figure 8). Cash payments to employees still persist at all levels of formalization; however, the practice of netbanking-based salary transfer to employee accounts is significantly higher (15.4 per cent) among registered enterprises compared to that of non-registered enterprises (8.8 per cent).

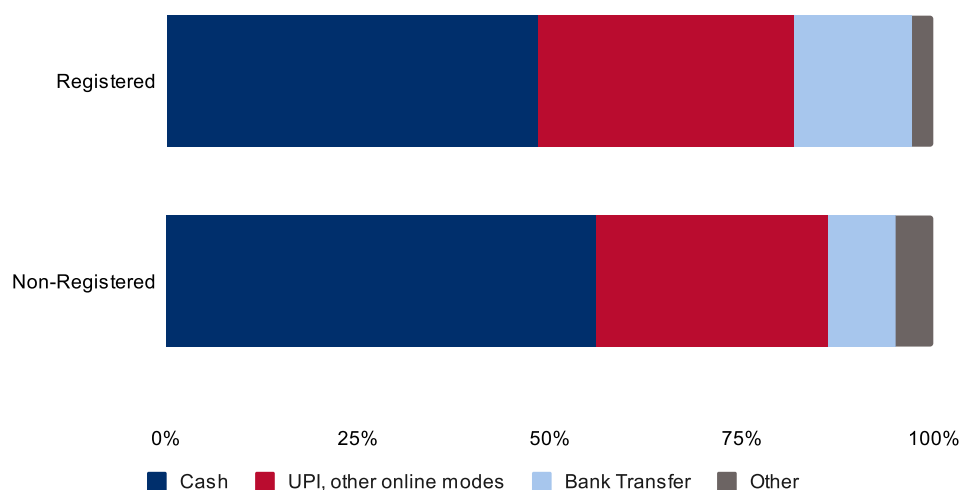


Figure 8: Distribution of Registered and Non-Registered Enterprises on the Basis of Mode of Payment to Employees: LEAD Nano Enterprise Survey on Formalization (Sept-Nov, 2023)

4.3 Adoption of Digital Payments

“The Government’s focus should be on digitalizing the cash payments done in the value chain of enterprises like purchasing raw material from suppliers and also to improve their banking behavior.”

- Founder of a Leading Fintech

The survey Recommendation indicate that the adoption of digital payment services for enterprise-related transactions have effectively reached both registered and non-registered enterprises (Figure 7). In our survey, the definition of digital payments includes payments made/received or money transfer through internet banking (IMPS/RTGS/NEFT)², UPI, digital wallets, eNACH mandate³, debit and credit cards. In Figure 7, we present existing practices regarding the mode of payments for different types of business-related transactions for both registered and non-registered enterprises. Almost an equal proportion of registered (83 per cent) and non-registered (80 per cent) enterprises use digital payments on a daily basis. Prevalence of net-banking and check-based payments, although relatively low, is significantly higher among registered enterprises compared to non-registered cohorts (Figure 9).

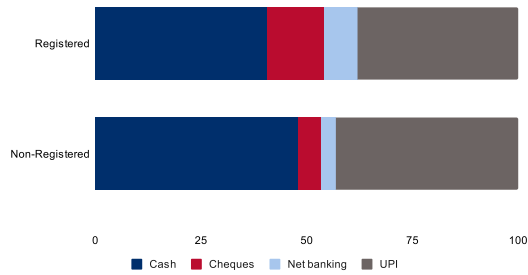
The adoption of digital payment behavior is largely driven by customers as is evident from the difference in two key indicators. The use of digital payments is significantly higher for receiving payments from customers (B2C) compared to its use for transacting with the suppliers (B2B). The trend is similar among registered and non-registered cohorts of enterprises.

We also enquired about the importance of digital payments in the context of business operation and relationship with the customers. A significantly higher proportion of registered enterprises (55 per cent) strongly agree with the statement that digital mode of payments help in increasing trust among customers compared to the beliefs among the non-registered enterprises (43 per cent).

²India has mainly three internet banking methods of transferring money from one bank account to another. These are NEFT: National Electronic Funds Transfer (fund transfer settles in 23 half-hourly batches in a day); RTGS: Real-Time Gross Settlement (in real-time and on a gross basis for large value transactions); IMPS: Immediate Mobile Payment Service (available 24/7 throughout the year including bank holidays, unlike NEFT and RTGS). While NEFT and RTGS were introduced by the Reserve Bank of India (RBI), IMPS was introduced by National Payments Corporation of India (NPCI).

³e-NACH stands for Electronic National Automated Clearing House. It is a way to automatically make payments for different types of recurring utility bills with a bank account.

Non registered enterprises prefer cash and UPI for transaction in comparison to the registered businesses



~80% enterprises use digital methods daily

No difference in the frequency of use of digital payment methods among registered & non registered enterprises

Digital payments are customer driven - fewer enterprises use digital transaction with their suppliers



- 97% of registered and 93% of non registered enterprises reported receiving digital transactions from customers

- 76% of registered and 68% non registered enterprises use digital payment methods for transacting with their suppliers

More than 95% believe that digital payment methods help build trust with the customers, and make transactions quicker

No difference is observed in the perception of registered & non registered enterprises

Figure 9: Adoption of Digital Payment at a Glance: LEAD Nano Enterprise Survey on Formalization (Sept-Nov, 2023)

“Initiatives like e-invoice really helped enterprises to formalize at the B2B level. Such an initiative should be rolled out at the B2C level as well to accelerate formalization.”

- Deepak Kothari, COO of a Leading Fintech ftcash

Along with the digital payment behavior of enterprises, we collected data on the enterprises' record keeping practices, particularly to understand the prevalence of digital record keeping using software like Excel, Tally or any other app. The proportion of digital record keeping practices is significantly higher among the registered enterprises (30 per cent) relative to only 12 per cent of unregistered nano enterprises maintaining their accounts using digital software or apps.

4.4 Perception Towards Business Registration

The survey asked about the entrepreneur's views on integrating all processes of formalization like Udyam, Gumasta, GST, registration with cooperatives or other agencies as a single registration process for the purpose of operating the enterprise. About 61 per cent of registered enterprises strongly agree with this view whereas this proportion is significantly lower for non-registered enterprises (38 per cent). Registered enterprises emphasized the need for a Unified Identification (UID) at all levels of formalization.

Among the non-registered businesses for each of Udyam, Gumasta and GST, we asked about their plan to register with the respective registration process in the near future. Over 50 per cent of the unregistered owners for each of these three licenses, reported that they would prefer not to register on Udyam (54 per cent), Gumasta (53 per cent), or GST (53 per cent).

Non-registered businesses for each of Udyam, Gumasta and GST were also asked about the support they need to onboard themselves with the registration process. Approximately one fifth of them reported that they need some help to be able register with Udyam (19 per cent), Gumasta (19 per cent), and GST (18 per cent). About one third of them mentioned that they would register only if they perceive some benefits from the process.

“The current status of Unique Registration Number (URN) is voluntary in nature. The Government should make it mandatory and integrate this portal with different layers of formality because this will lead to an increase in their financial and market access.”

- Priyanka Vaze, Assistant Vice President - Programs, Haqdarshak

“Currently, the Government has made GST Certificates mandatory to onboard sellers/merchants on our platform. Because of this mandatory compliance we are not able to onboard nano-enterprises or small entrepreneurs/ artisan units etc.”

- Director of a Leading eCommerce Platform

4.5 Awareness and Access to Government Schemes

An argument advocating increased formalization of enterprises, especially in the micro and nano sectors, is that registration would grant them better access to the benefits of government schemes. This is a crucial incentive mechanism for registration, particularly considering the pandemic-induced losses faced by every business, leading them to hope for support from government schemes and the broader ecosystem.

Therefore, we inquired about the operational challenges faced by both registered and non-registered units, including their awareness and access to government schemes. Close to a quarter of both registered (22 per cent) and non-registered (24 per cent) enterprises mentioned their lack of awareness about government schemes. The proportions of enterprises reporting their inability to access government schemes or benefits as a challenge in operating their business are also very similar among both the cohorts. In summary, we did not observe a significant difference in the awareness and access to government schemes between the two groups. Approximately five per cent of both registered and non-registered units expressed similar concerns about business risks such as payment of unofficial rent space to administrative officials, seizure and confiscation of goods. This suggests that entrepreneurs do not perceive any additional benefits from being registered.

“The formalization process should be rolled out on the lines of PMJDY account opening and Aadhar registration in a mission mode. It should be integrated with bank accounts because nano enterprises also should know what benefits they are getting in registering under Udyam.”

- Dr Sumita Kale, CEO and Senior Fellow, Indicus Foundation



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5. Drivers of Registration for Nano Enterprises: Logistic Regression Analysis

We posited that the outcome or dependent variable in this analysis is binary, such as “use” or “non-use” of digital registration. This approach allowed us to estimate the probability of a business being registered on any one of the digital platforms (Udyam, GST, or Shop Act/Gumasta license) based on a set of explanatory variables. The explanatory variables in this case are derived from existing literature and key informant interviews (KIIs).

To identify the factors that lead businesses to become formal, we used logistic regression. This analysis aids in identifying the significant factors contributing to the registration of nano businesses in the sample. We posited that the outcome or dependent variable in this analysis is binary, such as “use” or “non-use” of digital registration. This approach allowed us to estimate the probability of a business being registered on any one of the digital platforms (Udyam, GST, or Shop Act/Gumasta license) based on a set of explanatory variables. The explanatory variables in this case are derived from existing literature and key informant interviews (KIIs). These measurable characteristics of registered and non-registered units include age, gender, education, the level of development of the district, the state rank in Udyam registration number in which the business is located, and annual turnover.

5.1 Choice of Explanatory Variables

In theory, many factors can influence a business's decision to register formally. These factors encompass various aspects, such as the characteristics of the business owners (demographics), the unique features of the business itself (firm-specific attributes), the relative advantages and disadvantages of being registered (formality/informality costs), and broader economic conditions (level of development). Initially, we considered 21 variables in our analysis. However, using a statistical test (chi-squared test) and logical reasoning, we narrowed this down to a final set of 11 key variables that are most relevant to understanding business formalization in this context. These key variables are detailed in Table 3.



Table 3: Selection of Drivers of Formalization for the Logistic Regression Model Based on Literature Review and Evidence

Construct	Item	Source
Annual Turnover	Sufficient sales, growth level of firm	Lewis's (1954) Ishengoma and Kappel, 2006
Age of the firm, Demographic Characteristics of the entrepreneur, age, gender, education	Firms that are more likely to formalize are young and owned by individuals with high levels of education. The key predictors of their level of informality are the characteristics of the entrepreneur and enterprise, rather than their motives or the wider formal and informal institutional compliance environment. Lower degrees of informality are associated with women, older, educated, and higher income entrepreneurs and older enterprises	Ishengoma and Kappel, 2006; Koto 2015, Moyo 2022, La Porta, Lopez-de-Silanes, and Shleifer (2013), Williams, Shahid, Martinez (2015)
Intent of enterprise (Family business, business as an alternative to job)	Many informal entrepreneurs would gladly close their businesses to work as employees in the formal sector if offered the chance. Informal enterprises can be seen as “the disadvantaged segment of a dual labor market in which workers queue for good jobs”	La Porta & Shleifer (2014), (Farrell 2004); (Bruhn and McKenzie, 2013b; Ishengoma and Kappel, 2006); (Fajnzylber and Maloney, 2007; Koto (2015)
Bureaucratic Procedure	The time required to go through all of the required procedures to get registered and the license or registration fees that have to be paid acts as an entry barrier. The number of procedures and the level of efficiency of the offices involved influence the decision to formalize.	(De Mel <i>et al.</i> , 2013; Auriol, 2023) ILO, 2021
Corruption and Government Regulation	Reduced risk of fines, business closure, or bribes; although also formal firms run the risk of having to pay fines or bribes, this risk is much larger for informal firms. Because of their in-formality, these enterprises are at risk of having to pay fines.	ILO, 2021
	Institutional environment variables like corruption, inefficient tax administration and judiciary systems have a significant negative effect on formalization.	Zylfijaj <i>et al.</i> (2020) Farrell (2004), Webb <i>et al.</i> (2014), Saunoris and Sajny (2017) and Sweidan (2017). World Bank (2021)
Per Capita Income	The cure for informality is economic growth. Informality declines although slowly, with development.	La Porta & Shleifer (2014)



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5.2 Results from Logistic Regression

Once the key explanatory variables were identified, we fit the logistic regression model using data from the LEAD nano enterprise survey on formalization (Sept-Nov, 2023). The usual protocol of checking for multicollinearity and goodness of fit was followed. We have fitted seven different models separately using different dissection of the data:

1. One model using data from all four states of Jharkhand, Madhya Pradesh, Maharashtra, and Tamil Nadu
2. Four separate models using data from four different states
3. Two separate models using data from advanced districts and aspirational districts

In Table 4, we present the regression coefficients in original scale, odds ratios and the 95 per cent confidence intervals (CI) of odds ratios based on the model fitted using data from all four states of Jharkhand, Madhya Pradesh, Maharashtra, and Tamil Nadu.

Table 4: Summary of Estimates from Logistic Regression Model with Dependent Variable Being Any Type of Registration: After Fitting the Model Using Data From all Four States From the LEAD Nano Enterprise Survey on Formalization (Sept-Nov, 2023)

Variable	Regression Coefficient	Odds Ratio (OR)	95% CI of OR
(Intercept)	-0.57	0.57	(0.29, 1.12)
Gender (Men owned=0, Women owned=1)	-0.63**	0.53	(0.33, 0.86)
Age of Entrepreneur (Ref: 18-30 years)			
Age (30-50 years)	0.33	1.39	(0.97, 1.99)
Age (50+ years)	0.58*	1.79	(1.07, 2.98)
Education (Ref: Up to 12th)			
Education (Diploma)	0.90***	2.47	(1.61, 3.80)
Education (Graduate and above)	1.37***	3.95	(2.82, 5.53)
Annual Turnover (Ref: 10L to 25L)			
Annual Turnover (Rs.25L-50L)	1.48***	4.38	(2.77, 6.95)
Annual Turnover (Rs.50 L+)	1.24***	3.46	(1.97, 6.06)
Annual Profit (ref: Less than 2.5L)			
Annual Profit (Rs. 2.5L - 10L)	0.60***	1.83	(1.30, 2.57)
Annual Profit (Rs.10L + to 25L)	1.38***	3.97	(1.91, 8.27)
Annual Profit (Rs.25L + to 1Cr.)	2.79*	16.24	(1.90, 139.0)
Age of Firm (Ref: Less than 1 year)			
Age of Firm (1-3yrs)	0.22	1.25	(0.65, 2.41)
Age of Firm (3+ to 5yrs)	0.71*	2.03	(1.05, 3.94)
Age of Firm (5Yrs and above)	0.53	1.71	(0.92, 3.15)
Family Business			
(First gen.=0, Family B.=1)	0.22	1.25	(0.92, 1.68)
Lack of Alternative Employment (No=0, Yes=1)	-0.70**	0.50	(0.31, 0.80)
Inaccessibility to Govt schemes (No=0, Yes=1)	-0.19	0.83	(0.61, 1.13)
Risk of Eviction (No=0, Yes=1)	-0.65***	0.52	(0.36, 0.75)
Loss of Customer Awareness (No=0, Yes=1)	2.21***	9.11	(5.93, 13.99)
District Scale 1 (Aspirational Distr.=0, Advanced Distr.=1)	-0.02	0.98	(0.75, 1.27)
State Scale (Ref: Jharkhand= 0)			
State Scale 1 (Madhya Pradesh)	-0.59**	0.55	(0.36, 0.85)
State Scale 2 (Tamil Nadu)	-0.21	0.81	(0.56, 1.18)
State Scale 3 (Maharashtra)	-2.05***	0.13	(0.076, 0.22)

Note: P value= 0.000 ***, 0.05**, 0.1 *

- This table summarizes results of logistic regression based on data from all four states of Jharkhand, Madhya Pradesh, Maharashtra, and Tamil Nadu with the treatment group being registered on any one portal denoted by 1 and control group of non-registered businesses denoted by 0.
- In this table, the first column shows the predictors. The list is self-explanatory. All of the variables are categorical except for the state per capita income which is included as a control for level of development of states.

- The second column is the estimated beta coefficient of the logit regression, the positive sign of beta coefficient is associated with the odds ratio of greater than one. It implies that as the predictor variable increases, the log-odds of the business being registered increase or it is more likely that the business is registered.
- The negative beta coefficient and odds ratio less than one implies that as the predictor variable increases the odds of the business being registered decrease. Or it is less likely that the business is registered. The last two columns show the 95 per cent confidence intervals (CI) of odds ratios suggesting whether the effect of the predictor is statistically significant or not. If the CI includes the value 1, then the predictor is not statistically significant at 5% level of significance.

Implications of the Estimates: A summary table of interpretation of these Recommendation provides information on the results for state level and district group level analysis. Most of the results based on data from all four states are replicated for the state and district groups with some deviations that are mentioned in the last column of the table (Table 5). The last column presents statistical significance of the predictor under different models.

**Table 5: Interpretation of Estimates from Logistic Regression Model:
Dependent Variable Being Registered on Any One Portal
(Udyam, GST, or Shop Act/Gumasta license)**

Variable	Beta Coefficient	Odds Ratio	Implication	Significance
Gender (Ref. Cat.: Men owned business=0)	Negative	< 1	The likelihood of being registered decreases for a woman-owned enterprise.	All four states combined, separate models for two groups of districts (advanced and aspirational), three state models: Jharkhand, Maharashtra, Tamil Nadu
Age of the Owner (Ref.Cat.: 18-35 Years=0 35-50 yrs=1, 50+ yrs=2)	Positive	> 1	If the owners age is above 35 years the business is more likely to be registered as compared to if the owner age is between 18-35 yrs.	All four states combined, separate models for two groups of districts, and all four separate state models
Education (Ref. Cat.: Up to 12th Grade, Diploma=1, Graduate and above=2)	Positive	> 1	If the level of formal education of the business-owner is Diploma and Graduate and above, the enterprise is more likely to be registered.	All four states combined, separate models for two groups of districts, and all four separate state models
Annual Turnover (Ref. cat. Rs.10L-25L=0 Rs. 25L+-50L=1, Rs. 50L+-75L=2, Rs. 75L-1Cr=3)	Positive	> 1	If the level of annual turnover is above Rs. 25 Lakhs, the enterprise is more likely to be registered.	All four states combined, separate models for two groups of districts, and all four separate state models

Variable	Beta Coefficient	Odds Ratio	Implication	Significance
Annual Profit (Ref. Cat. Rs. 1L-2.5L=0, Rs. 2.5L-10L=1, Rs. 10L-25L=2, Rs. 25L-1Cr=3)	Positive	> 1	If the business earns higher levels of annual profit, then it is more likely to be registered	All four states combined, aspirational districts. Not significant for state level models.
Lack of Alternative Employment Ref. Cat. No=0, Yes=1)	Negative	< 1	If the owner is into business because of not finding a job, then the business is less likely to be registered	All four states combined, aspirational districts, Madhya Pradesh (MP)
Risk of Eviction Ref. Cat. Yes=0, No=1)	Negative	< 1	If the business faces higher risk of eviction from the place of business, then it is less likely to be registered	All four states combined, Advanced States, Jharkhand and MP
Customer Awareness (Ref. Cat. Customer Awareness=0, No customer Awareness=1)	Positive	> 1	If the business has higher customer awareness, then it is more likely to be registered	Significant for all states combined model and both district groups

Note: In addition to the analysis based on all four states, separate analysis is conducted for each data group for advanced and aspirational districts and each of the four states.

5.3 Interpretation of Regression Results

5.3.1 Demographic Characteristics

Gender of the Entrepreneur: In the context of our model, the predictor, gender of the business owner is statistically significant. The predictor gender takes on a value 1, if it is owned by a woman. A negative beta coefficient and odds ratio of less than 1 implies that if a business is owned by a woman, it is less likely to be registered.

These statistical findings suggest that businesses led by women encounter numerous socio-economic barriers when attempting to scale and formalize. It is crucial to approach the interpretation of these results with caution. Interpreting them as suggesting that women-led enterprises remain informal solely because they are led by women would be an inaccurate understanding. Instead, the results provide evidence of a socio-cultural bias in the treatment of enterprises owned by women.

Studies indicate that women-led enterprises often contribute to household income. However, due to the substantial amount of unpaid care-work expected from them, their micro-businesses often get less priority as compared to those owned by men in the same category. This underscores the need for policy attention aimed at empowering women entrepreneurs. The Recommendation show that it is necessary to take special efforts to formalize and integrate women-owned nano enterprises into the mainstream economy, facilitating their ability to scale up.

Age of the Entrepreneur shows a positive coefficient which implies that older entrepreneurs aged 35 and over are more likely to operate formally than younger ones in the reference category of 18-35 years (statistically significant for 50+). This is because according to the data, a high proportion of businesses owned by owners in younger age groups are at a survival stage.

Education, one of the most documented and crucial variables, is significant across the board for all levels. It is positive. The higher the level of formal education of the entrepreneur (including having a professional diploma degree), the more likely it is that the business is registered.

5.3.2 Firm-Specific Characteristics

Annual Turnover: In case of firm-specific variables, for annual turnover, the positive beta and odds ratio of greater than one shows that the enterprises with higher levels of turnover of more than Rs 25 lakhs are more likely to be registered. This calls for steering the incentives for formalization for the nano businesses with lower annual turnover.

Nature of Business: No significant association is found between registration status and whether the entrepreneur is the first-generation entrepreneur or is running a family business.

Annual Profit: For annual profit the enterprises earning higher level of profits are more likely to be registered. These results are not significant for the state-level models.

Forced Entrepreneurship Due to Lack of Alternative Employment: Here, we inquired with the respondents whether they were engaged in their current business due to the absence of any alternative employment. We obtained a statistically significant coefficient with a negative sign. This suggests that the enterprise is less likely to be registered if the owner is in the business because of a lack of alternative dependent employment. This indicates that nano business owners who have entered the business out of necessity, as salaried employment is unavailable, are not inclined to register and may be waiting to shift once they secure employment.

5.3.3 Costs of Informality and Benefits of Formalization

Risk of Eviction: The descriptive findings indicated that 46 per cent of entrepreneurs expect added benefits from registering themselves. Besides direct monetary benefits, there can be indirect non-monetary advantages of registration. One such benefit is that registered businesses do not have to worry about eviction from their place of business or pay bribes to officials to continue their operations. In contrast, non-registered businesses may constantly worry about these legal actions. Therefore, the variable "Risk of Eviction and Payment to Officials" indicates the indirect costs of informality. Here, the negative coefficient suggests that if owners report lower risks of eviction and fewer concerns about government action, the business is more likely to be registered. In other words, non-registered enterprises must contend with the indirect costs of informality in the form of concerns about legal action, as revealed by the survey Recommendation .

Customer Awareness About Registration: The survey asked whether customers request a proof of registration and avoid consumption of service if it is not provided. This question was included for both registered as well as non-registered categories. The results show that the customer awareness about registration status of the enterprise is a statistically significant variable with positive beta coefficient (and odds ratios greater than one) showing that, if a business has higher customer awareness compared to the reference category where customer trust is 0, it is more likely to be registered. So, this indicates that consumer-awareness campaigns can prove very effective to bring about formalization as customers asking for a proof of registration will induce the businesses to formalize.

"The lack of awareness about the formalization process, multiple registration requirements, and benefits hinders participation."

- Priyanka Vaze, Assistant Vice President - Programs, Haqdarshak

6. Decoding the Behavioral Traits of Formalization

Going further, to be able to arrive at our goal of providing recommendations on implementation of digital formalization, it is crucial to understand the behavioral intentions of an entrepreneur to adopt digital registration platforms. The decision to use a digital portal for registration will be influenced by the intention of the nano entrepreneur to use it.

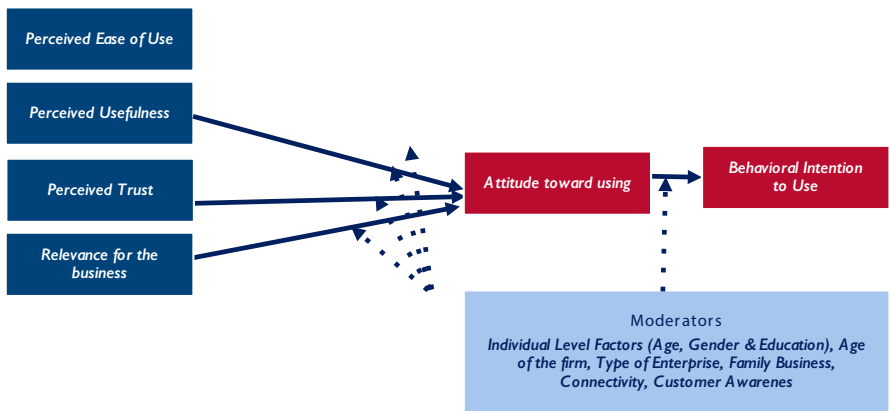
The findings from logistic regression revealed important information on the drivers of formalization, by identifying the factors that increase the likelihood of an enterprise to get registered. The decision to use a digital portal for registration will be influenced by the intention of the nano entrepreneur to use it. The intention to use the portal is shaped by the attitude towards the portal and the attitude is formed by a combination of latent constructs or non-measurable perceptions.

In order to unpack the complex behavioral process of adopting digital technology, we use the Technology Acceptance Model (TAM) - a variant of Partial Least Squares Structural Equation Modeling (PLS-SEM). This approach is well documented and commonly used in the literature for analyzing research questions involving latent factors in adoption of digital technology (Chuttur, 2009; Davis, 1989; Scherer et al, 2019).

6.1 Conceptual Framework of Technology Acceptance Model (TAM)

Figure 10 illustrates the conceptual framework of the Technology acceptance model (TAM). In our model, we have identified four latent constructs based on a rigorous review of the literature:

1. **Perceived Usefulness:** This is the degree to which the person believes that using the particular system would be more efficient as compared to the conventional non-digital way of paperwork by visiting the concerned office for registration.
2. **Perceived Ease of Use:** This trait is defined as the degree to which the person believes that using the particular system would be free of effort.
3. **Perceived Trust:** According to studies, trust in digital platforms is an important determinant of use (Gefen et al, 2003). In India although the registration portals are provided by the Government, this variable represents confidence in disclosing information on the digital portal. This quantifies the concern about sharing the information online. It implies trust in governing organizations not only regarding the digital platform but overall confidence in governance and a belief that the use of data will be efficient.
4. **Perceived Relevance:** Relevance for business is positively associated with usefulness and trust in governance. Perceived relevance is the perception that the use of digital portals will result in increased revenue and business performance due to its efficiency and usefulness. It captures perception about improved business conditions resulting from its use.



Note:(Purnamasari et al 2020; Najib and Fahma, 2020; Siregar et al, 2017; Naseer and Prabhakar, 2017);Behavioral factors (Venkatesh and Davis, 1989);Variables like subjective norms, image, job relevance, output quality and result demonstrability (Venkatesh and Davis,1996)

Figure 10: Technology Acceptance Model - Conceptual Framework

These latent constructs are shaped through the interplay of various observable factors, known as moderators. Examples of these moderators include age, gender, education, the age of the firm, awareness of regulations, price value, performance in terms of revenue, etc. The model will analyze and verify the hypothesized association between the moderators and each of the latent variables. For example, perceived ease of use is positively associated with age and education level. Perceived trust is associated with awareness about the regulations.

After the identification of these latent constructs, a structured survey tool was designed with a total of 23 statements to capture perceptions of the respondent on each of the latent constructs as illustrated in the conceptual framework (Figure 8). Each of these 23 statements have five-point Likert-scale response options: 1. Strongly Agree; 2. Agree; 3. Neutral; 4. Disagree; 5. Strongly Disagree. The survey tool for this model is designed based on the prior literature related to the TAM for the digital adoption by the small businesses. Table 6 provides the details on the statements in the survey tool and the sources are presented in the last column to cite the a priori basis for formulating these statements.



Photo Credit: LEAD at Krea University

Table 6: Technology Acceptance Model Specification for Enterprises to Use Udyam Portal

Construct	Statements in the survey tool of LEAD Nano Enterprise Survey on Formalization (Sept-Nov, 2023)	Source
Perceived Usefulness	"I have accomplished the registration process quickly using the online Udyam portal" - Udyam_PU1 "I can manage my registration process more efficiently by using the Udyam Portal" - Udyam_PU2 "I can complete my license/certificate activities conveniently through the Udyam Portal" - Udyam_PU3 "Udyam Portals have improved the functioning of the registration activity" - Udyam_PU4 "Overall, I find Udyam Portals useful for carrying out the registration process" - Udyam_PU5 "In general, I find Udyam Portals advantageous" - Udyam_PU6	Li and Lai (2011) Giovanis <i>et al.</i> (2012); Cheng <i>et al.</i> (2006)
Perceived Ease of Use	"It is easy to use the UDYAM portal" - UDYAM_PEOU 1 "Learning to use the UDYAM portal is easy" - UDYAM_PEOU 2 "I find it easy to remember how to use the UDYAM Portal for registration" - UDYAM_PEOU 3 "Overall, I find the use of the UDYAM Portal easy" - UDYAM_PEOU 4	Cheng <i>et al.</i> (2006); Giovanis <i>et al.</i> (2012)
Perceived Trust	"I believe that the UDYAM Portal for registration is trustworthy" - UDYAM_PT1 "I trust in the UDYAM Portal" - UDYAM_PT2 "I feel assured that legal and technological structures adequately protect me" - UDYAM_PT3	Gefen <i>et al.</i> (2003)
Perceived Relevance	"Registration of enterprise through the UDYAM Portal can help in increasing my monthly income" - UDYAM_PR1 Enterprise registration through the UDYAM Portal can help in improving my business revenue" - UDYAM_PR2 "Enterprise registration through the UDYAM Portal can help strengthen my business position in the market" - UDYAM_PR3	Prihanto, <i>et al</i> 2020 Yuniarta, & Purnamawati.2021 Subawa <i>et al</i> 2020
Attitude	"The UDYAM Portal has the ability to fulfill the registration task" - UDYAM_ATT1 "In my opinion, it is desirable to use the UDYAM Portal for registration of businesses" - UDYAM_ATT2 "I think it is good for me to use the UDYAM Portal for registering my business" - UDYAM_ATT3 "Overall, my attitude towards the UDYAM Portal is favorable" - UDYAM_ATT4	Li and lai (2011)
Intention to use	"I will use the UDYAM Portal on a regular basis in the future" - UDYAM_BI1 "I will frequently use the UDYAM Portal in the future" - UDYAM_BI2 "I will strongly recommend others to use the UDYAM Portal" - UDYAM_BI3	Li and lai (2011)

To illustrate - Perceived usefulness of the Udyam portal is captured by responses to “I have accomplished the registration process quickly by using the online Udyam portal.” Perceived ease of use is captured with statements like “Learning to use the Udyam portal is easy” and “I remember how to use the Udyam portal.”

The respondent marks the responses to each of these statements on a five-point Likert scale of strongly agree to strongly disagree.

6.2 Findings from the TAM Model

For the TAM analysis, data on registered units are utilized, comprising information from a total of 1247 registered units that are enrolled in one or more of the three digital registration portals—GST, Gumasta, and Udyam. As the analysis focuses on examining the behavioral intention to use the digital portals, data on non-registered units is not relevant for this specific analysis.

TAM analysis is conducted separately for GST, Gumasta and Udyam portals and using different dissections of the data: One model using data from all four states of Jharkhand, Madhya Pradesh, Maharashtra, and Tamil Nadu; Four separate models using data from four different states; Two separate models using data from advanced districts and aspirational districts. The data is analyzed with the smart PLS software.

In this section, we present findings for Udyam portal registration based on the model that uses data from all four states. Currently, there is a great policy thrust to increase registrations on Udyam as it is a voluntary registration. GST is a registration on the tax portal and Gumasta license is valid mainly for businesses that have brick and mortar shops. Also, it is observed that the units that are registered with Udyam are ‘graduated in formality’ i.e. those are also registered with GST and Gumasta. Hence, we focus on understanding the behavioral intentions of an entrepreneur to adopt the Udyam registration platform.

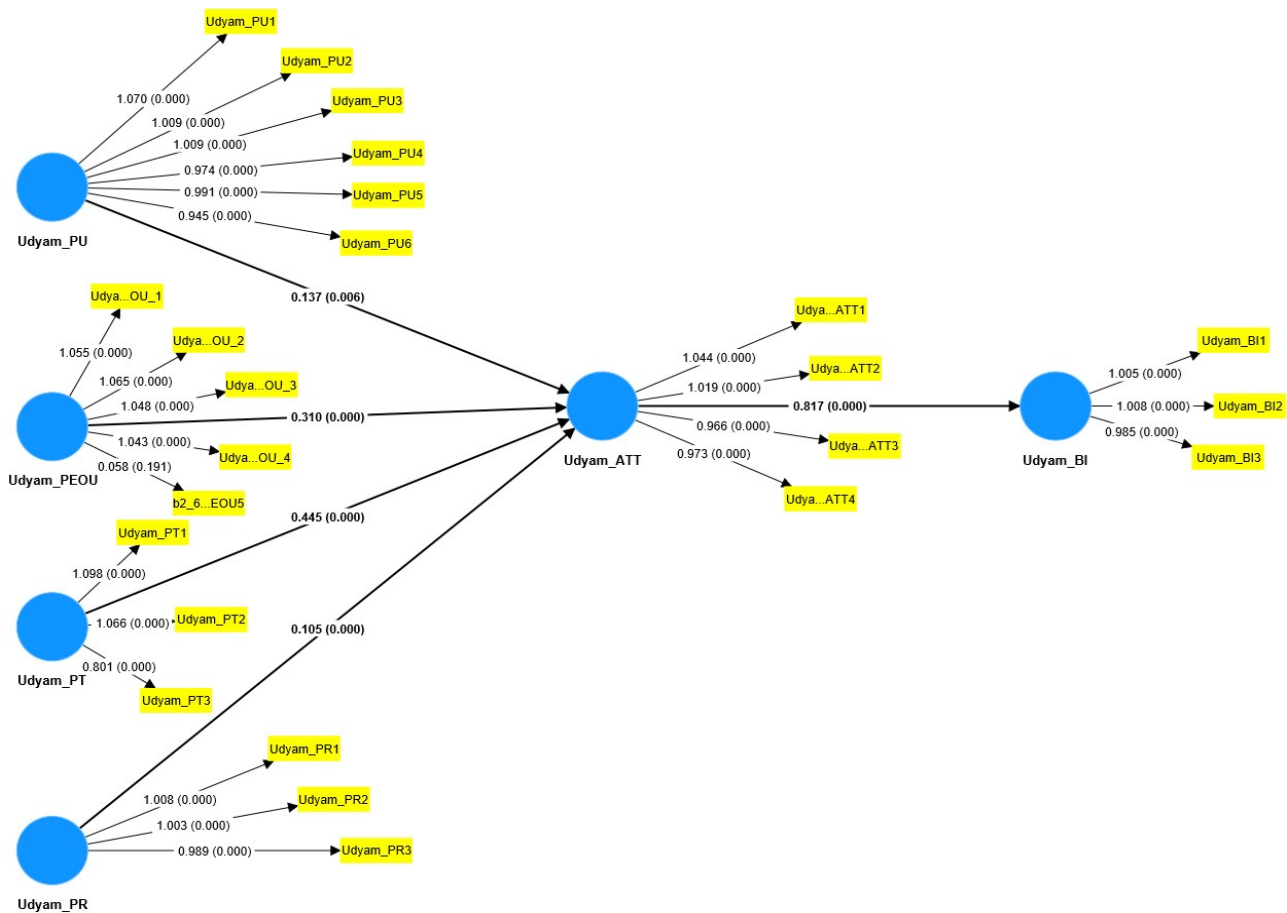


Figure 11: TAM Results from Smart PLS Software for Udyam Registered Enterprises: Based on Data from the LEAD Nano Enterprise Survey on Formalization (Sept-Nov, 2023)

Figure 11 provides a summary of parameter estimates at a glance. Here, blue circles show the latent variables, yellow boxes show the statements that go into the estimation of the coefficients. The arrows from the constructs to the other latent variables represent the interaction or association between the constructs. The numbers on the arrows show the path coefficients, and the p-values are shown in parenthesis.

We can see that the path coefficient for attitude strongly influences the intention to use digital portals with a significant beta coefficient of 0.81. Similarly, though all four latent constructs have statistically significant influences on attitude, out of these, perceived ease of use (PEOU) and perceived trust (PT) have stronger influence.

6.3 Moderating Effects of Background Characteristics

The relationships between latent constructs are influenced by observable factors known as moderators. The effects of moderators can be negative, meaning they dampen the relation, and if a moderator is positive, it enhances these relationships between latent constructs.

Key Recommendation on Moderating Effects

- Age has a negative moderating effect on the relationship between perceived relevance and attitude to use. For an older entrepreneur a positive perception on the relevance of the Udyam platform will not always ensure a positive attitude to use the Udyam platform.
- Customer awareness positively moderates the relationship between attitude and behavioral intent to use.
- Family business positively moderates the relationship between perceived relevance and attitude.
- Gender has a negative moderating effect on the relationship between attitude and behavioral intent to use Udyam.

Overall, these findings highlight the importance of considering moderators when analyzing technology adoption behavior. Different background characteristics can influence how individuals perceive and use digital platforms, and these factors need to be considered for effective intervention strategies.

6.4 Interpretation of TAM Findings

The TAM analysis shows that the behavioral intention of a nano entrepreneur to use the voluntary digital registration portal is strongly influenced by attitude. From the entrepreneurs' perspective, the two most important factors forming their attitude toward the digital portals are:

- Perceived Ease of Use: How easy and intuitive the portal is to navigate and use.
- Perceived Trustworthiness: The level of trust and security the portal inspires.

Based on these findings, efforts to improve the registration portal should prioritize enhancing user-friendliness by making the portal easier to navigate and understand for users with varying levels of technical expertise. It should also focus on building trust and security by implementing measures to demonstrate the portal's reliability and data protection to potential users.

The study also highlights the influence of measurable variables such as gender and customer awareness on attitude, ultimately impacting the intention to use the portal. Therefore, it is important to consider developing initiatives to address specific challenges and concerns faced by women entrepreneurs regarding digital registration. In addition, targeted consumer awareness campaigns need to be implemented to raise awareness among customers about the importance of registering with nano businesses, creating a demand for using the portal.



Photo Credit: Mansi Midha/Getty Images/Images of Empowerment

7. Recommendations

By focusing on these key areas and addressing the specific needs of different user groups, policy measures can become more effective in promoting the adoption of voluntary digital registration portals among nano entrepreneurs. LEAD nano enterprise survey on formalization.

With the goal of initiating discussion on the uptake of nano enterprises on Government formalization platforms, this study has undertaken a rigorous analysis of data collected from the primary survey, viz, LEAD nano enterprise survey on formalization. The following section draws attention to the need for course correction in digital adoption and the use of formalization platforms. Based on the findings, the following actionable reforms are recommended to incentivize formalization of nano businesses through the use of digital platforms.

7.1 Reclassification of Micro Segment

Reclassifying the micro segment into distinct categories of “nano” from within the micro enterprises to develop target interventions that address unique challenges of informality faced by them. Additionally, tax incentives could be introduced to dispel the fear of compliance burden that may come along with business formalization.

Key Finding

- From the 73rd (2015-16) round NSSO it can be estimated that more than 70 per cent of nano enterprises (10 Lakhs to 1 Crore) are informal enterprises.
- Our analysis clearly shows higher informality at lower levels of annual turnover.

The current classification of micro enterprises encompasses a diverse range of businesses, potentially masking the specific needs and challenges faced by smaller nano enterprises within this category. Existing policy for formalization does not recognize the heterogeneity that exists within the micro segment.

Qualitative interaction with industry experts revealed that they offer tax breaks or other benefits to encourage formalization and dispel fear of increased tax burden. Fintech unsecured loans based on limited formalization data pose risks for both lender and borrower.

Actionable Suggestions

One potential incentive could be the introduction of a tax holiday for newly registered nano enterprises. Offering a five-year tax exemption would provide significant financial relief and alleviate the initial burden of formalization, making it a more attractive option for nano businesses. Additionally, by formalizing, these enterprises would gain access to various benefits and opportunities available only within the formal economy, such as increased access to credit, greater market visibility, and improved legal standing.

“Enterprises are not opting for formalization because they want to stay under the tax radar, they see no benefit of getting formalized.”

- Parmesh Shah, Global Lead, The World Bank

7.2 Target Initiatives for Specific Stage of Formalization

The thrust of the formalization initiative must be calibrated according to the level of formalization.

Key Finding

Our survey reveals that the nano enterprise sector is not homogeneous. They can be categorized as follows:

1. Completely Informal Enterprises: not registered on any of the portals - mostly survival stage businesses – new firms often owned by young entrepreneurs
2. Self-Employed and Hyperlocal Enterprises: these are also completely informal enterprises often without a growth mindset
3. Partially Formalized: registered on the mandatory platforms e.g. those who need to comply with GST registered on GST, those having brick and mortar shops registered under Gumasta - Ready to formalize
4. Formalized Enterprises: These enterprises are registered on the mandatory platforms as well as voluntary registration portals like Udyam.

“Currently, nano enterprises are not only hesitant to register themselves in URN but those with eligible turnover to register on GST are not registering. This issue can only be solved by bringing awareness. Behavioral change is required and trust needs to be developed.”

- Dr Sumita Kale, CEO and Senior Fellow, Indicus Foundation

Actionable Suggestions

The strategy for designing a behavioral change campaign should vary depending on the level of formality within enterprises. The following distinct approaches are needed for enterprises that are entirely informal, those prepared to formalize, and those at the partially formalized stage with mandatory registration:

1. Survival Stage Business: Create awareness about registration and incentivization through fringe benefits emphasizing support, skills development and subsidized sources for registered units
2. Self-Employed and Hyperlocal Enterprises: Government should focus on block-level digital incubation centers and digital registry of such nano enterprises to graduate them into formalization
3. Ready to Formalize: Provide registration assistance at point of business

“Formalization of nano-enterprises should be revolutionized on the lines of Unique identification number i.e., Aadhar for individual identification in India.”

- Founder of a Leading Fintech

7.3 Need for a Gender Sensitive Policy

Introduce special initiatives for women-owned enterprises.

Key Finding

- Women owned enterprises are less likely to be formal
- Gender roles act as a dampening moderator affecting attitude to behavioral intent

Actionable Suggestions

The Recommendation from the Logit and TAM analysis show that women entrepreneurs' attitude toward digitalization is positive but does not translate into getting registered due to socio-cultural barriers. Hence, it would be useful to create policies with a gender lens to promote women led enterprises such as:

1. Provide incentives by targeting specific challenges faced by women entrepreneurs. Examples of incentives for women owned registered businesses could be subsidies for child care centers, medical insurance, safety and security at business premises.

2. Include women-led enterprises under the priority sector lending (PSL) to enable access to blended finance products tailored to address their specific needs and challenges.
3. Relaxation in eligibility criteria of government procurement norms for goods and services, to promote women led enterprises under this segment.

“Government should use a gender lens while formulating policies for nano enterprises as most of such enterprises are run by women but not owned by women, women ownership should be incentivized by creating more women entrepreneurs.”

- Priyanka Vaze, Assistant Vice President - Programs, Haqdarshak

7.4 Phygital Approach Toward Formalization

Physical and digital intervention should go hand in hand as there is a need for change in behavior of these enterprises.

Key Finding

- Survey Recommendation show that 28 per cent of the respondents are ready to register with some handholding support.
- Primary responsibility of formalization is on the District Industry Centers (DICs), but it is not very effective in transforming such enterprises.
- While transitioning businesses into formal entities has been difficult, promoting the self-voluntary Universal Registration Number (URN) process could be a valuable strategy. However, raising awareness about the benefits of URN remains crucial, as many enterprises are currently unaware of the advantages it offers.

“Block level & District level digital incubation centers should be developed with a new institutional setup by forming a Special Purpose Vehicle (SPV) at the national and state level, like initiatives of NSDC, SRLMs and NRLM initiatives of Gol India, mainly focusing on nano enterprises.”

- Vikas Singh, Head, Srijan Incubation Center, Government of Madhya Pradesh

Actionable Suggestions

1. While Udyam registration is a voluntary process, implementing campaigns to reach out to entrepreneurs and support them in the registration process would be a highly effective initiative.
2. Government institutions at the district and block levels, such as District Industry Centers (DICs), Community Service Centers (CSCs), and local bodies, can play a crucial role in facilitating the onboarding of enterprises onto digital registration platforms. The extensive network of these local public bodies can be utilized for effective outreach along with non-Government stakeholders like NGOs, industry associations, SHGs.
3. Potential of Fintech and e-commerce players as data aggregators must be utilized.
4. Youth fellowships can be launched for young IT and business students for handholding of nano enterprises to register on digital platforms.

7.5 Adopt Consumer-Led Strategy

Customer awareness can play a crucial role in formalizing nano businesses.

Key Finding

- 40 per cent of the registered enterprises stated that the customer asks for proof of registration before availing any goods or services.
- The cost of informality from a business perspective is the lack of customer trust in unregistered informal businesses, identified as a significant factor in our analysis.

Actionable Suggestions

Until now, the formalization policy has not tapped into this market-related factor. The policy has primarily focused on providing access to platforms and persuading businesses to register. However, the Recommendation of this study highlights that customer awareness can play a crucial role in formalizing nano businesses.

Customer awareness campaigns to inform customers on the formalization status of their goods and service provider and to promote the use of services from registered businesses could be one of the most effective strategies. This is especially true in the context of those enterprises that are in the 'ready to formalize' category. These campaigns aim to educate customers about the risks associated with informal enterprises and emphasize the benefits of engaging with formal registered enterprises. Additionally, addressing the social aspect of formality, such as better worker conditions, can encourage customers to request registrations from businesses and motivate owners to formalize their enterprises.

7.6 Integration of all Registration Processes into a Single Window System

Implementing a unified system, whether through a strengthened URN or a National Enterprise Identity Card, will significantly enhance the ease of doing business for nano-enterprises in India.

Key Finding

- Multiple channels of formalization lead to overlap, higher costs and complicated implementation leading – reflected in perceived trust in the system and governance being a significant variable in our TAM analysis.
- KII and our analysis repeatedly pointed at the need for single window registrations to introduce a UID for nano entrepreneurs.

“This single window can act as a digital registry of such nano enterprises and also as a network of incubation centers, mentors, sources of information, experts of enterprise promotion. Even the promotional schemes of different ministries at the national and state level can be integrated in this portal.”

- Parmesh Shah, Global Lead, The World Bank

Actionable Suggestions

The fragmented and cumbersome landscape of nano-enterprise registration and formalization in India hinders their growth and participation in the formal economy. To address this challenge, our study recommends the establishment of a unified system for nano-enterprise formalization, offering two potential pathways:

1. Strengthening the Unique Registration Number (URN) Process: This approach leverages the existing URN system, transforming it into a comprehensive one-stop shop for nano-enterprise registration. The URN platform would be integrated with all relevant registration and licensing authorities, streamlining the process and minimizing administrative burdens.
2. Implementing a National Enterprise Identity Card (NEIC): Alternatively, a National Enterprise Identity Card (NEIC) could be introduced. This would function as a single window network platform, serving as a digital registry containing all essential enterprise information. The NEIC system would be seamlessly integrated with other registration and operational licenses required for nano-enterprise operation.

7.7 Establish a ‘National Council for Formalization of Nano-Enterprises’

To channelize discussed initiatives there is a need of creating a council or corporation like NSDC with a corresponding ministry at the central and state level. This will act as an implementing body for creating a single window system or digital platforms to issue NEIC and to establish a dialogue between and within relevant departments and ministries like MSME, Commerce & Industries and also a network of incubation centers,

mentors, sources of information, experts of enterprise promotion. Even the promotional schemes of different ministries at the national and state level can be integrated.

“Government intent is also required as governments need to strengthen the institutional framework and also to provide specific benefits for formalizing.”

- Expert from a Think Tank

Key Finding

- Establish seamless dialogue:
 - Between various layers of Government
 - Between Government departments and private players
 - For Re-classification of the sector, Integration of platforms and strengthening the URN process

Actionable Suggestions

1. A council for nano enterprise formalization will develop strategies and policies for NEIC and also monitor NEIC's initiatives and implementation.
2. A dialogue between and within relevant departments and ministries at the national and state level will initiate the above-mentioned recommendations.



Photo Credit: LEAD at Krea University



Photo Credit: Mansi Midha/Getty Images/Images of Empowerment

8. Conclusion

Over the past decade, the government has dedicated significant efforts to the digital transformation and development of MSMEs in India. Aligned with the overarching goal of complementing these initiatives, this study seeks to give voice to the perspectives of service sector nano entrepreneurs using the digital formalization platforms. One of the contributions of this study is collection and documentation of representative data from various regions of India, encompassing both developed and less developed districts. A recurring theme evident in both survey responses and key informant interviews is that all these regions boast good internet connectivity, and entrepreneurs do not encounter barriers to digitalization. However, it was observed that the presence of multiple registration points creates confusion and inertia among business owners. Their perception revolves around increased paperwork, bureaucracy, and unnecessary hassle in reporting their business. Because of this they remain unconvinced about the benefits of formalization. Moreover, those willing to register seek human assistance not only for the registration process but also for discussions and debates about registering their business.

As a result, this report recommends that an effective formalization policy should involve designing a single-point digital registration platform with a unique enterprise ID. Implementation should focus on outreach through human interaction, and onboarding should include corrective actions, emphasizing a reduction in paperwork with specific benefits targeted at women and the self-employed. Lastly, achieving the ultimate objective of formalization in this sector requires a paradigm shift in approach. This entails establishing a dialogue and collaborative synergy among all stakeholders, including government departments at the state and local levels, non-government development agencies, and private sector firms.

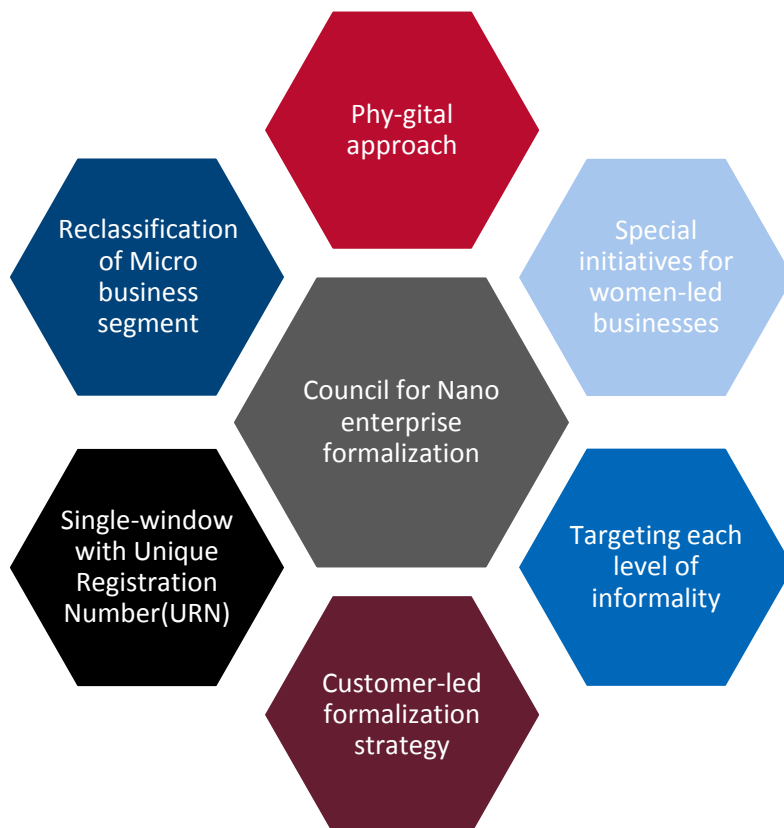


Figure 12: Seven Point Agenda - Saptasutri for Formalization of Service Sector Nano Businesses in India

References

- Buteau, Sharon, Gupta, Abhishek, and Vijay, Sanjana (2022), 'Multidimensional Impact of Finance on Microenterprises', (Chennai: LEAD at Krea University).
- Buteau, Sharon, Gupta, Abhishek, and Hariharan, Varun (2023), 'Impact of Access to Finance on Nano Enterprises: Baseline report', (Chennai: LEAD at Krea University).
- Bruhn Miriam, McKenzie David (2013), Using administrative data to evaluate municipal reforms: an evaluation of the impact of Minas Fácil Expresso, *Journal of Development Effectiveness*, volume 5, 2013- Issue 3
- Cheng, T. E., Lam, D. Y., & Yeung, A. C. (2006). Adoption of internet banking: an empirical study in Hong Kong. *Decision support systems*, 42(3), 1558-1572.
- Chuttur, Mohammad (2009), 'Overview of the technology acceptance model: Origins, developments and future directions'.
- Davis, Fred D (1989), 'Perceived usefulness, perceived ease of use, and user acceptance of information technology', *MIS quarterly*, 319-40.
- De Mel, S., McKenzie, D., & Woodruff, C. (2013). The demand for, and consequences of, formalization among informal firms in Sri Lanka. *American Economic Journal: Applied Economics*, 5(2), 122-150.
- Esther K. Ishengoma and Robert Kappel (2006), 'Economic Growth and Poverty: Does Formalisation of Informal Enterprises Matter?', GIGA Working Papers, MPRA Paper No. 1456.
- Fajnzylber, P., & Maloney, W. F. (2005). Labor demand and trade reform in Latin America. *Journal of International Economics*, 66(2), 423-446.
- Farrell, D. (2004) The Hidden Dangers of the Informal Economy. *McKinsey Quarterly*, 3, 27-37.
- Gaarder, Edwin and Doorn, Judith van (2021), 'Enterprise formalization: an introduction'.
- Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in Online Shopping: An Integrated Model. *MIS Quarterly*, 27(1), 51-90. <https://doi.org/10.2307/30036519>
- Gennaioli, Nicola, Rafael LaPorta, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2013. "Human Capital and Regional Development." *Quarterly Journal of Economics* 128 (1): 105-164.
- Giovanis, A. N., Binioris, S., & Polychronopoulos, G. (2012). An extension of TAM model with IDT and security/privacy risk in the adoption of internet banking services in Greece. *EuroMed Journal of Business*, 7(1), 24-53.
- Government of India (2022), Forty Sixth Report, Standing Committee on Finance, Strengthening Credit Flows to MSME Sector; https://loksabhadocs.nic.in/lssccommittee/Finance/17_Finance_46.pdf
- ILO (2015), 'Small and medium-sized enterprises and decent and productive employment creation.—International Labour Conference', 104th Session.—Report IV: Geneva.—2015. [Electronic resource].—URL: http://www.ilo.org/wcmsp5/groups/public/---ed_norm/---relconf/documents/meetingdocument/wcms_358294.pdf (accessed: 15.05. 2020).
- ILO (2021), Enterprise Formalization: An Introduction, Thematic Brief 1/2021
- Koto, P. S. (2015). An empirical analysis of the informal sector in Ghana. *The Journal of Developing Areas*, 93-108.
- La Porta, Rafael, and Andrei Shleifer. 2014. "Informality and Development." *Journal of Economic Perspectives*, 28 (3): 109-26.

LEWIS, W.A. (1954), *Economic Development with Unlimited Supplies of Labour*: The Manchester School, 22: 139-191.

MoMSME (2023a), 'Role of MSME Sector in the Country', (Delhi: <https://pib.gov.in/PressReleaselframePage.aspx?PRID=1946375>).

--- (2023b), 'MSME Annual Report 2022-23', (New Delhi: Ministry of Micro, Small and Medium Enterprises).

Murthy, S.V. Ramana (2019), 'Measuring informal economy in India—Indian experience', Seventh IMF Statistical Forum, Washington, DC.

Moyo, B. (2022), "Factors affecting the probability of formalizing informal sector activities in Sub Saharan Africa: evidence from World Bank enterprise surveys", *African Journal of Economic and Management Studies*, Vol. 13 No. 3, pp. 480-507.

Nagaraj, R and Kapoor, Radhicka (2022), 'What is 'Formalisation' of the Economy? India's quest to shrink its informal sector', *The India Forum*.

Natu Prihanto, Y. J. (2021). Technology Acceptance Model (TAM) Approach in the Financial Services Platform for Msme Sector. *Conference Series*, 3(1), 385–397. Retrieved from <https://adi-journal.org/index.php/conferenceseries/article/view/375>

NSSO (2017), 'Key Indicators of Unincorporated

Non-Agricultural Enterprises (Excluding Construction) in India: NSS 73rd ROUND', (New Delhi: Ministry of Statistics and Programme Implementation, Government of India).

Omidyar Network and BCG (2018), 'Credit Disrupted: Digital MSME Lending in India'.

Perry, G., Maloney, W., Arias, O., Fajnzylber, P., & Mason, A. (2007). Saavedra-Chanduvi (2007). *Informality: Exit and Exclusion*. World Bank Report.

Purnamawati, I. G. A., & Yuniarta, G. A. (2021). Loan Restructuring, Human Capital and Digital towards MSME Performance in the COVID-19 Pandemic. *APMBA (Asia Pacific Management and Business Application)*, 10(2), 177-192.

PwC (2023), 'The Indian payments handbook – 2022–2027', (PricewaterhouseCoopers Private Limited).

Saunoris, J.W., & Sajny, A. (2017). Entrepreneurship and economic freedom: cross-country evidence from formal and informal sectors. *Entrepreneurship & Regional Development*, 29(3-4), 292-316.

Scherer, Ronny, Siddiq, Fazilat, and Tondeur, Jo (2019), 'The technology acceptance model (TAM): A meta-analytic structural equation modeling approach to explaining teachers' adoption of digital technology in education', *Computers & education*, 128, 13-35.

Sharma, Manoj, et al. (2023), 'Cracking the credit code for nano and microenterprises: Challenges faced and potential solutions, December 2023', (MicroSave Consulting).

Shahid, M. S., Williams, C. C., & Martinez, A. (2020). Beyond the formal/informal enterprise dualism: Explaining the level of (in)formality of entrepreneurs. *The International Journal of Entrepreneurship and Innovation*, 21(3), 191-205

Sweidan, O. (2017). Economic freedom and the informal economy. *Global Economy Journal*, 17(4), 20170002.

Subawa, N. S., Widhiasthini, N.W., & Mimaki, C. A. (2020, February). An empirical study of E-marketplace acceptance in MSMES under the constructs of effort expectancy, social influence and facilitating condition factors. In *Proceedings of the 2020 The 6th International Conference on E-Business and Applications* (pp. 116-120).

The World Bank (2021), *Doing Business*, External Panel Review

Unni, Jeemol (2018), 'Formalization of the informal economy: Perspectives of capital and labour', The Indian Journal of Labour Economics, 61, 87-103.

Webb, J.W., Ireland, R. D., & Ketchen Jr, D. J. (2014). Toward a greater understanding of entrepreneurship and strategy in the informal economy. Strategic Entrepreneurship Journal, 8(1), 1-15.

Zylfijaj, K., Nikoloski, D., & Tournois, N. (2020). The impact of the business environment on the formalization of informal firms. The case of Kosovo. Comparative Southeast European Studies, 68(4), 505-529.



