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STRUCTURAL TRANSFORMATION, PRODUCTIVITY, AND LOAN-TAKING AMONG INFORMAL ENTERPRISES IN INDIA: EVIDENCE FROM NSS AND ASUSE

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ABSTRACT

The informal sector is crucial for employment generation and economic activity in India. This paper explores changes in the structure, economic performance, employment, and access to finance of non-agricultural informal enterprises, using nationally representative data from the National Sample Survey (2010-11 and 2015-16) and the Annual Survey of Unincorporated Sector Enterprises (2021-22 and 2025). Through descriptive and comparative analysis, the evolution over time of the characteristics and performance of the enterprises is examined. The evidence indicates a steady structural transformation in the informal sector, rather than a move towards formalization, with trade and services gaining importance, whereas manufacturing losing relative position. Despite an increase over time in labor productivity and gross value added per enterprise, employment changes have been considerable, falling from 2015-16 to 2021-22 and then rising significantly by 2025. The analysis reveals that external loan-taking has remained low, with nearly 90 percent of the enterprises reporting no external loans, especially women, rural, and own-account enterprises. Overall, the results suggest a coexistence of limited external loan-taking with small and uneven productive capacities. The paper makes a contribution to the literature on the informal economy in India by providing an inter-temporal perspective of the sector over more than ten years and demonstrating the need for policies that promote financial inclusion, enterprise productivity, and structural transformation to promote inclusive growth.

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INTRODUCTION

The informal sector continues to play a major role in India's production and employment, despite experiencing high and sustained economic growth and structural transformation as well as policy efforts toward formalization. ASUSE 2025 estimates that 79.2 million unincorporated non-agricultural enterprises in India employ 128.1 million workers. Classical development theory anticipated the gradual movement of labour out of traditional sectors into modern formal employment (Lewis, 1954); studies now find labour in developing countries increasingly engaged in informal non-farm activities (Charmes, 2019). In India, structural transformation has occurred more significantly in the informal sector, particularly through trade, services, and household enterprises (Papola & Sahu, 2020; Sahu & Behera, 2025). India's informal enterprises are diverse, ranging from small, subsistence-oriented own-account enterprises to establishments with hired workers. Own-account enterprises are, however, the most prevalent, comprising 86.6 percent of enterprises in 2025. Variations in size, ownership, sector, and resource endowments lead to differences in productivity, employment, and growth potential (La Porta & Shleifer, 2016; Kesar, 2024). Limited possession of capital, low use of technology, and weak integration into institutions constrain productivity growth (Erumban *et al*., 2024; Murthy, 2019). Financial constraints reinforce these limitations, as inadequate collateral, financial records, and institutional linkages restrict access to formal credit, particularly among own-account, women-owned, and rural enterprises (Beck, Demirgüç-Kunt, & Maksimovic, 2005; Reserve Bank of India, 2022; MicroSav, 2024). Despite extensive research on informal employment, productivity, and financial inclusion, relatively limited evidence examines the structural evolution of informal enterprises by considering enterprise composition, productivity, employment, and financial access together. Much of the literature focuses on individual survey rounds or specific dimensions of informality (Erumban *et al*., 2024; Raveendran & Vanek, 2020). This study addresses this gap by analysing these dimensions across four nationally representative enterprise surveys: NSS 67th Round (2010–11), NSS 73rd Round (2015–16), ASUSE 2021–22, and ASUSE 2025. Using harmonised annual estimates and GVA recalculated at constant prices, the paper provides an intertemporal assessment of structural and economic changes among India's unincorporated non-agricultural enterprises. The paper is organised as follows. Section 2 reviews the relevant literature, Section 3 presents the data and methodology, Sections 4–7 examine structural transformation, economic performance, employment and labour productivity, and loan-taking, respectively, Section 8 discusses implications and policy directions, and Section 9 concludes.

LITERATURE REVIEW

The contemporary literature views informality as a persistent and heterogeneous component of developing economies rather than a homogeneous or transitional category. Early dualist approaches regarded the informal sector as a low-productivity absorber of labour excluded from formal employment (Hart, 1973; International Labour Organization, 1972). More recent evidence highlights substantial differences in enterprise size, productivity, capital accumulation and growth potential, including within India (La Porta & Shleifer, 2014; Kesar, 2024). The structuralist view highlights the links between informal enterprises and formal production via subcontracting, segmented markets, and distribution networks, while the institutional, or legalist, perspective emphasizes the regulatory and compliance conditions under which informal production takes place (Moser, 1978; Chen, 2012; DeSoto, 1989). Evidence from India shows informal enterprises concentrated in relativelylow-entry activities and that integration into broader production systems does not automatically bring about productive upgrading (Erumban *et al*., 2024; Kesar, 2024). Resource constraints involving capital, skills, and market opportunities further shape enterprise performance (MicroSave, 2024). Recent studies emphasize considerable heterogeneity within the informal sector. Own-account enterprises generally operate with limited hired labour, whereas establishments tend to operate at a larger scale and have greater accumulation possibilities. Differences in productivity, assets, market orientation, and growth potential have been documented across these enterprise types (Bhattacharya & Kesar, 2018, 2020; Kesar & Bhattacharya, 2020; Kesar, 2024). Enterprise characteristics are also associated with differences in the degree of informality and productive capacity (Posti, Maiti, & Patra, 2025). Productivity research further identifies enterprise size, capital, technology, infrastructure and organisational characteristics as important correlates of performance (La Porta & Shleifer, 2014; OECD, 2019; IMF, 2020). Evidence from repeated NSS cross-sections shows a positive association between firm size and productivity, while differences in accumulation possibilities exist between household enterprises and establishments (Posti & Maiti, 2025; Kesar, 2024). Firm characteristics and infrastructure also contribute to productivity differences between informal and formal firms (Rabbani & Raj, 2024). Finance represents another important dimension of enterprise performance. Limited collateral, documentation, and financial records can constrain institutional borrowing among informal enterprises (Beck, Demirgüç-Kunt, & Maksimovic, 2005). Indian evidence points to particular constraints among small, rural and female-owned enterprises (Reserve Bank of India, 2022; MicroSave, 2024). However, financial access and actual loan-taking are distinct concepts; non-borrowing does not necessarily imply complete financial exclusion. Accordingly, this study focuses on the sources and patterns of external loan-taking. Informal enterprises are also closely associated with structural transformation. Labour leaving agriculture may be absorbed into informal manufacturing, trade and services rather than formal industrial employment (Papola & Sahu, 2020; Sahu & Behera, 2025). Informal enterprises are particularly concentrated in relatively low-entry activities such as trade, transport, repair, personal services and small-scale manufacturing (Charmes, 2019; Ghani, Kerr, & O'Connell, 2016; Erumban *et al*., 2024). Sector, location, enterprise type and scale therefore remain important dimensions of enterprise heterogeneity. Despite these contributions, the literature remains fragmented across productivity, employment, finance and informality. There is comparatively limited evidence examining enterprise composition, ownership, sectoral and spatial distribution, employment, GVA, productivity, capital intensity and external loan-taking together across successive nationally representative surveys. Evidence is also limited on how borrowing patterns vary across enterprise characteristics and survey periods. This study addresses these gaps through an intertemporal assessment of unincorporated non-agricultural enterprises using the NSS 67th Round (2010–11), NSS 73rd Round (2015–16), ASUSE 2021–22 and ASUSE 2025. It brings together enterprise structure, productivity, employment, capital intensity and external loan-taking, while distinguishing formal, informal and mixed sources of borrowing. The study therefore provides an integrated assessment of structural change, productive performance and financing patterns among India's unincorporated non-agricultural enterprises.

Data and Methodology

Data and Variable Description: The analysis uses nationally representative enterprise-level aggregates from the NSS 67th Round (2010–11), NSS 73rd Round (2015–16), ASUSE 2021–22 and ASUSE 2025, covering unincorporated non-agricultural enterprises in manufacturing, trade and services. Monetary variables are recalculated to ensure inter-round comparability. In this paper, "informal enterprises" refers specifically to the unincorporated non-agricultural enterprises covered by these surveys and not to the broader ILO definition of informal employment or the informal economy.

Table 1. Data Description

Variables	Source	Units	Variable Description
Gross Value Added	NSSO, ASUSE, author recalculation	₹ billion / constant prices	Value of output after deducting intermediate consumption; used to measure enterprise output and productivity.
Emp[1]loyment	NSSO, ASUSE	Number of workers (millions)	Persons engaged, including hired workers, unpaid family labour and working owners; used to measure labour absorption and enterprise size.
Capital Assets	NSSO, ASUSE	Rupees(₹)	Fixed productive assets used by enterprises; capital per enterprise and per worker indicate capital intensity.
Loan-Taking	NSSO, ASUSE; author's classification	source-wise classification	External borrowing classified into formal, informal, and mixed sources based on enterprise responses.

Source: Author's formulation based on NSSO and ASUSE data

Analytical Framework: The study examines informal enterprises in terms of structural characteristics, resource endowments and labour use. Enterprise type and sector represent structural characteristics, capital assets and loan-taking represent resource endowments, and employment captures labour use and enterprise scale. These dimensions are examined in relation to output and productivity, consistent with evidence linking productivity differences within informal enterprises to capital and financing conditions (Kesar, 2024; Erumban *et al*., 2024).The key indicators used in the analysis are summarized below. The empirical analysis is mainly descriptive and comparative. Trends in the number of enterprises, sectoral composition, output, employment and loan-taking situations across rounds are observed, and some sectoral and enterprise-type comparisons and ratio-based indicators are employed for structural and productivity comparisons. Since this is an intertemporal study rather than a causal estimation analysis, the results should be understood as mostly descriptive patterns and association relations.[2]

[1]Where survey information was reported for a 30-day reference period, the estimates were annualized by multiplying the corresponding monthly estimate by 12.

[2]Monetary values are converted to constant Prices using WPI measured with 2011-12 as the base year.

[3]Note: The four survey rounds are broadly comparable in their coverage of unincorporated non-agricultural enterprises, but differences exist in sampling design, coverage, reference periods, classification systems, questionnaires, and estimation procedures. ASUSE 2025 also introduced methodological changes. Therefore, the study uses harmonised broad-sector indicators and survey weights and interprets the estimates as broad intertemporal patterns rather than within-enterprise changes. Following MoSPI's guidance, inter-round comparisons are made with due caution.

Table 2. Productivity Indicators and Analytical Measures

Indicator	Formula	Analytical Use
Gross Value Added per Enterprise	$\frac{GVA}{Number\ of\ Enterprises}$	Measures average output and enterprise scale.
Labour Productivity	$\frac{GVA}{Number\ of\ Workers}$	Measures output generated per worker.
Capital Productivity	$\frac{GVA}{Capital\ Assets}$	Measures output generated per unit of capital.
Capital Intensity	$\frac{Capital\ Assets}{Number\ of\ Workers}$	Measures productive capital available per worker.
Average Employment per Enterprise	$\frac{Total\ Employment}{Number\ of\ Enterprises}$	Measures labour absorption and enterprise size.

Source: Author's formulation based on NSSO and ASUSE data

Structural Transformation of Informal Enterprises

Size and Sectoral Composition: The informal enterprise sector shows considerable structural persistence coexisting with gradual sectoral reorientation. The number of enterprises increased from 57.5 in 2010–11 to 79.2 in 2025. Trade remained a significant activity of firms, while services registered significant growth, especially in 2025. In comparison, the manufacturing sector contracted between 2015–16 and 2021–22 but revived in 2025. Overall, a mixed pattern can be observed in the importance of the above activities: trade and services gained significance, while manufacturing experienced modulated fluctuations.

Ownership and Gender Composition: Proprietary enterprises continued to dominate, reflecting the predominantly individual and household-based organisation of informal activity. However, the share of male-owned proprietary enterprises declined, while female-owned proprietary enterprises increased between 2010–11 and 2021–22. Partnership-based enterprises remained limited, indicating relatively little organisational diversification.

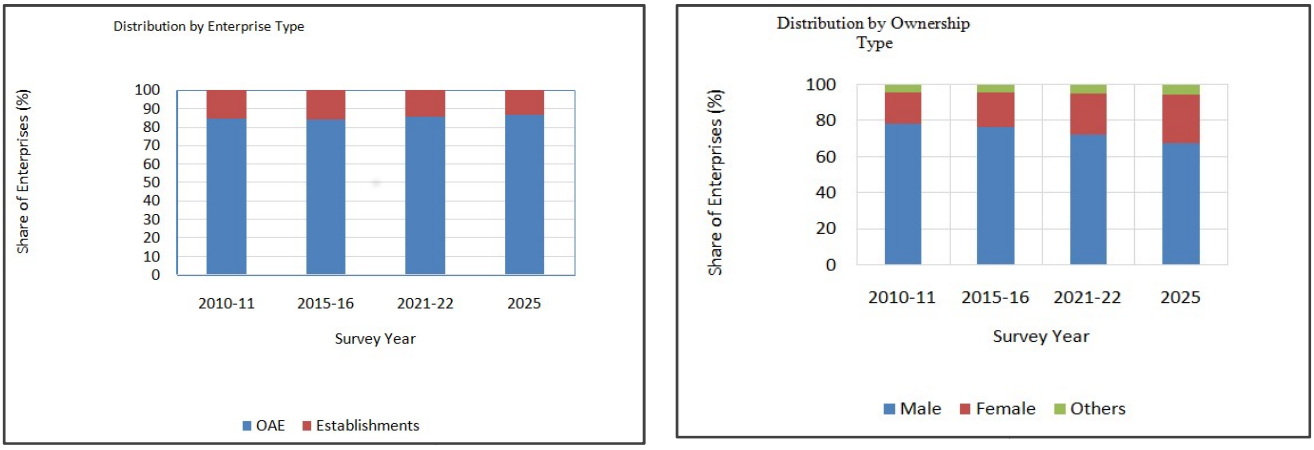
Rural–Urban Distribution and Enterprise Type: Informal enterprises maintained a strong rural presence throughout the study period, with rural enterprises increasing further by 2025. Urban enterprises showed greater variation across rounds. The sector therefore remains geographically dispersed but strongly rooted in rural economic activity. Own-account enterprises (OAEs) remained dominant, accounting for more than four-fifths of enterprises and reaching 86.6 percent in 2025. The continued predominance of OAEs indicates that informal activity remains largely organised around self-employment and household-based production.

Table 3. Structural Composition of InformalEnterprises in India (Millions)

Indicator	2010–11	2015–16	2021–22	2025
Total enterprises	57.50	62.32	59.70	79.25
Manufacturing	17.32	19.84	16.77	21.45
Trade	20.96	23.41	22.37	24.22
Services	19.22	20.07	20.56	33.58
Rural enterprises	30.81	32.44	33.17	42.39
OAEs (%)	84.63	84.17	85.85	86.6

Source: NSSO and ASUSE surveys (Author'scompilation).

Economic Performance of Informal Enterprises: Economic performance is assessed through changes in output, productivity and capital intensity across survey rounds. GVA measures value added, while GVA per enterprise, GVA per worker and capital per worker capture productivity and resource intensity.



Source: Author

Figure 1. Distribution of Enterprises by Enterprise Typre & Ownership Type

GVA and Productivity Trends: Aggregate GVA increased from ₹6,845.58 billion in 2010–11 to ₹10,504.20 billion in 2015–16, declined to ₹9,612.96 billion in 2021–22, and rose to ₹12,854.7 billion in 2025. Trade remained an important contributor, while services expanded substantially and became the largest contributor by 2025. Manufacturing followed a more uneven trajectory, declining after 2015–16 before

recovering in 2025. GVA per enterprise increased from ₹1,18,696 in 2010–11 to ₹1,61,666 in 2021–22 and ₹1,63,031 in 2025. GVA per worker increased from ₹63,398 to ₹99,144 and ₹1,00,993 over the same period, indicating an overall improvement in labour productivity.

Capital Intensity: Capital intensity showed greater variation. Capital per worker increased from ₹97,941 in 2010–11 to ₹1,24,263 in 2015–16, declined to ₹1,15,342 in 2021–22, and increased sharply to ₹2,05,849 in 2025. Average assets per enterprise declined from ₹3,35,521 to ₹3,07,843 between 2010–11 and 2021–22 before recovering to ₹3,32,625 in 2025. In 2025, services recorded the highest aggregate GVA and capital per worker, while trade had the highest GVA per enterprise. Manufacturing recorded the lowest GVA per enterprise. Average employment remained low across sectors, ranging from 1.51 workers in services to 1.76 in trade.

Table 4. Productivity Indicators of Informal Enterprises in India

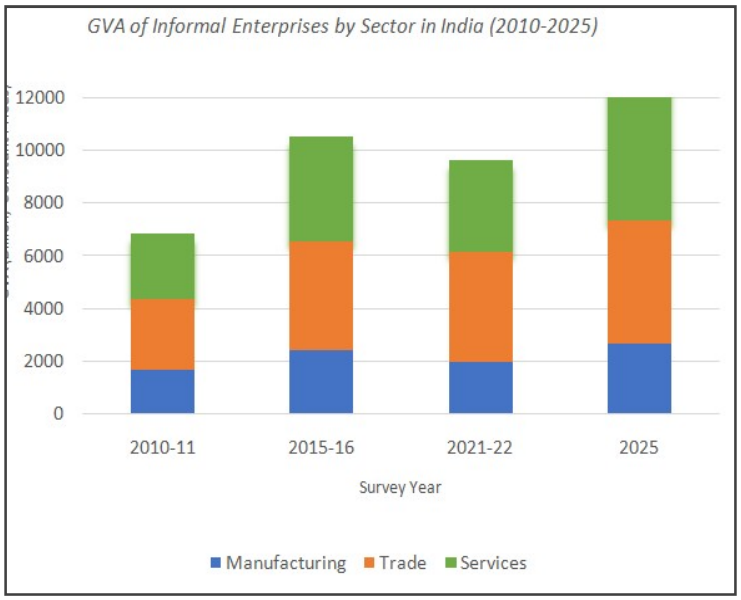
Indicator	2010-11	2015-16	2021-22	2025
GVA per Enterprise (₹)	1,18,696	1,65,818	1,61,666	1,63,031
GVA per Worker (₹)	63,398	94,568	99,144	1,00,993
Capital per Worker (₹)	97,941	1,24,263	1,15,342	2,05,849
Average Assets per Enterprise (₹)	3,35,521	3,18,913	3,07,843	3,32,625

Source: NSSO and ASUSE surveys (Author's compilation).

Table 5: Sectoral Comparison of Informal Enterprise Performance (2025).

Indicator	Manufacturing	Trade	Services
GVA (₹ Billion)	2662.8	4703.9	5488.0
GVA per Enterprise (₹)	1,24,132	1,94,254	1,65,383
Capital per Worker (₹)	1,27,066	2,07,292	2,58,971
Average Employment per Enterprise	1.63	1.76	1.51

Source: NSSO and ASUSE surveys (Author's compilation).



***Source: -** Author.*

Figure 2. GVA of Informal Enterprises by Sector in India (2010-2025)

Employment and Labour Productivity Changes; Employment generation is a major economic function of the informal sector in India. Changes in employment and labour productivity therefore provide important evidence on the sector's labour absorption capacity and economic performance.

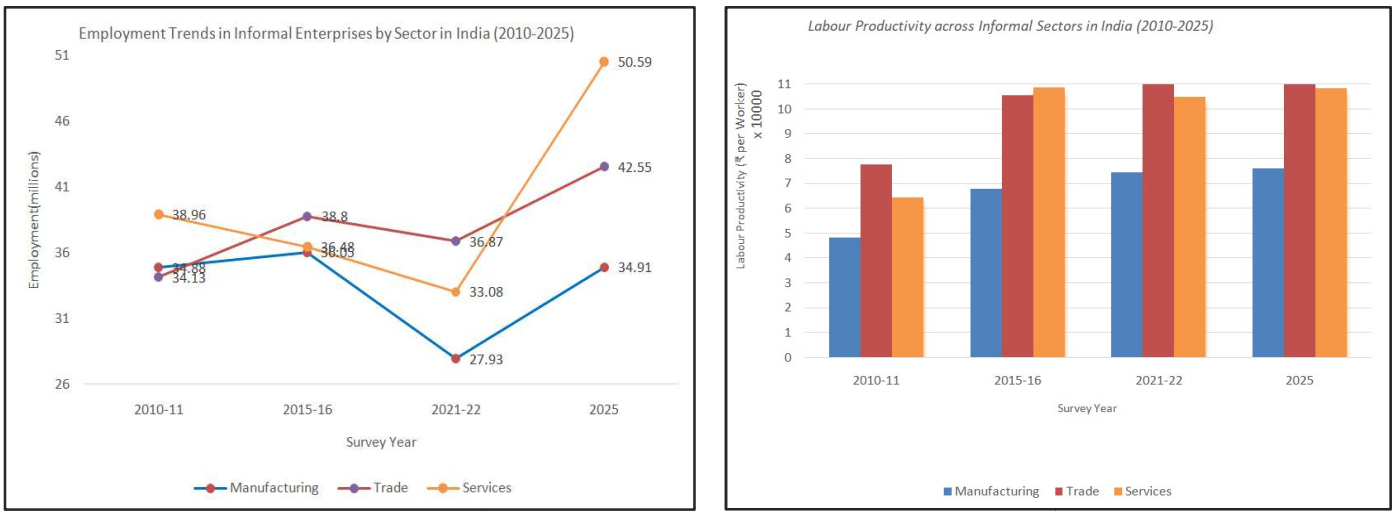
Workforce Trends: Total employment increased from 107.98 million workers in 2010–11 to 111.27 million in 2015–16, declined to 97.89 million in 2021–22, and rose substantially to 128.05 million in 2025. The decline during 2015–16 to 2021–22 was followed by a strong expansion by 2025, with trade remaining an important source of employment.

Labour Productivity: Labour productivity increased from ₹63,397 per worker in 2010–11 to ₹95,008 in 2015–16, ₹98,203 in 2021–22 and ₹1,00,894 in 2025. Thus, productivity continued to improve even during the period of declining employment. Trade and services generally recorded higher productivity than manufacturing, reflecting differences in production structures and resource requirements. Average employment per enterprise declined from 1.87 workers in 2010–11 to 1.64 in 2021–22 and 1.63 in 2025, confirming the continued predominance of very small, own-account and household-based enterprises. Overall, informal enterprises experienced both substantial employment expansion by 2025 and rising labour productivity, while average employment per enterprise remained low. This indicates continued fragmentation and limited enterprise-level employment capacity.

Table 6: Employment and Labour Productivity Indicators in Informal Enterprises by Sector (Millions)

Sector	2010-11	2015-16	2021-22	2025
Total Employment (Million)	107.98	111.27	97.89	128.05
Labour Productivity (₹/Worker)	63,398	94,568	99,144	1,00,993
Average Employment per Enterprise	1.87	1.75	1.64	1.63

Source: NSSO and ASUSE surveys (Author's compilation).



Source: - Author.

Figure 3. Employment Trends and Labour Productivity in Informal Enterprises by Sector in India (2010-2025)

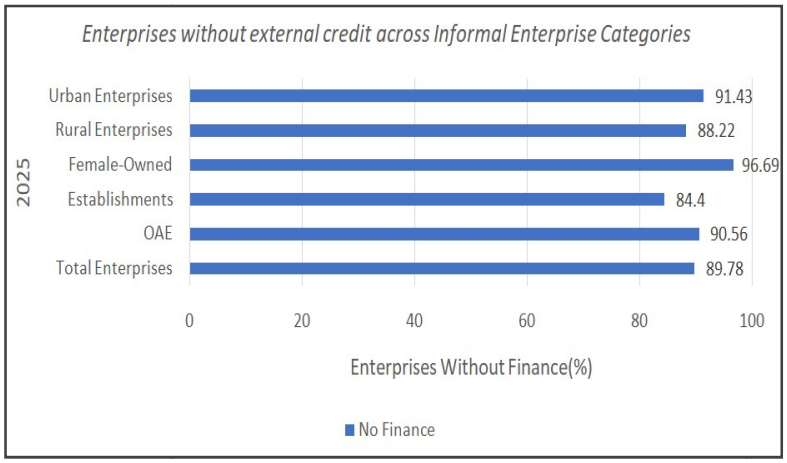
Loan-Taking and Source of External Finance among Informal Enterprises: External loan-taking remained limited among informal enterprises. The share of enterprises taking no external loan declined from 89.70% in 2010–11 to 85.80% in 2015–16, before increasing to 89.30% in 2021–22 and 89.78% in 2025. Formal loan-taking rose from 5.50% to 6.40% between 2010–11 and 2015–16, then declined to 6.05% in 2021–22 and 5.63% in 2025. Informal borrowing increased from 4.40% in 2010–11 to 6.90% in 2015–16, declined to 4.16% in 2021–22, and recovered slightly to 4.40% in 2025. Enterprises using both sources accounted for less than 1% throughout and fell to 0.19% in 2025. Overall, external borrowing remained a relatively small component of enterprise financing.

Loan-taking also varied across enterprise characteristics. Establishments employing hired labour generally reported higher borrowing than own-account enterprises. Borrowing by female owners and in rural enterprises was less common than in the other enterprise groups. These variations may reflect differences in enterprise scale, asset ownership, documentation, and institutional connectivity, although the descriptive evidence does not establish causal relationships.

Table 7. Access to Finance among Informal Enterprises in India (%)

Finance Source	2010-11	2015-16	2021-22	2025
No Finance	89.70	85.80	89.30	89.78
Formal Credit	5.50	6.40	6.05	5.63
Informal Credit	4.40	6.90	4.16	4.40
Both	0.40	0.90	0.45	0.19

Source: NSSO and ASUSE surveys (Author's compilation).



Source: *Author.*

Figure 4. Enterprises without external credit across Informal Enterprise Categories

DISCUSSION AND POLICY IMPLICATIONS

Structural Transformation and Informality

These results seem to imply slow restructuring of India's informal sector rather than formalization of it. Trade and services have gained relative importance, while manufacturing has seen a more uneven path. However, these changes have largely occurred within the informal economy. The continued dominance of own-account enterprises, which account for more than four-fifths of enterprises, points to limited enterprise scaling and continued reliance on small-scale production and self-employment. Structural change has, therefore, not been accompanied by a significant shift in enterprises towards larger-scale or formal activity.

Employment, Productivity and Enterprise Pattern: The findings reveal a mixed trend with improving labour productivity and high volatility in employment levels. GVA per worker under this survey exhibited a consistent upward trend across survey rounds, while the cross-sectional average of employment per enterprise declined from 1.87 workers per enterprise in 2010–11 to 1.63 in 2025. Total employment, on the other hand, exhibited a big rise to 128.05 million in 2025, while it declined during 2015–16 to 2021–22. The evidence thus does not seem to suggest a trend of declining employment generation over the entire period. Instead, we find productivity improvements reported to have taken place despite the continued trend of enterprises being predominantly of very small size. The simultaneous presence of rising productivity and low employment per enterprise shows the weak employment expansion potential from individual informal enterprises.

External Finance and Enterprise Performance: Loan-taking remains limited among informal enterprises, with nearly nine out of ten enterprises reporting no external loan in 2025. Both formal and informal loans accounted for only a small proportion of enterprises. The descriptive analysis also reveals differences in borrowing by enterprise characteristics, with own-account, female, and rural enterprises tending to borrow less.

Policy Implications: The observed concentration of enterprises at very small scales suggests scope for policies that facilitate access to shared production and technology facilities.First, a productivity-oriented credit mechanism could link small loans with productive investments in machinery, technology, and working capital, accompanied by basic enterprise support. Second, a digital enterprise credit profile based on consented transaction and business records could help lenders assess enterprises that lack conventional financial histories or collateral. Third, greater use of movable productive assets as collateral could be explored to ease credit constraints among micro-enterprises with limited fixed property. Given the predominance of own-account enterprises, shared production and technology facilities could provide small manufacturing enterprises with access to machinery, testing, storage, and technical services without requiring large individual investments. Targeted support for women-owned and rural enterprises could combine simplified borrowing procedures with business-development assistance. At the local level, a district-based enterprise support framework could coordinate finance, skills, technology, infrastructure, and market-access services according to the characteristics of informal enterprises. Finally, stronger mechanisms for market access, timely payments, and enterprise resilience could support sustained enterprise growth. Developing anintertemporal system for tracking borrowing, investment, employment, productivity, and enterprise survival would also improve the evaluation of such interventions. These measures would shift policy attention from formalization alone towards improving the productive capacity, resilience, and growth potential of informal enterprises.

Limitations: The study has several limitations. First, the analysis is based on repeated cross-sectional surveys and therefore does not track the same enterprises over time. Second, differences in survey design, coverage, and reference periods across NSS and ASUSE rounds require caution in interpreting intertemporal changes as pure changes in enterprise behaviour. Third, the descriptive analysis identifies associations and trends but does not establish causal effects of finance on enterprise performance. Finally, the use of unincorporated enterprises as the empirical representation of informality does not capture all dimensions of informal economic activity.

CONCLUSION

This paper examined the structural characteristics, economic performance, employment patterns, and loan-taking behaviour of informal non-agricultural enterprises in India using NSS and ASUSE survey data. The findings indicate that the sector remains predominantly composed of micro-scale own-account enterprises, while trade and services have gained relative importance. Manufacturing has shown a more uneven trajectory across the survey rounds. Although labour productivity and output per enterprise improved over time, employment performance varied considerably, with average employment per enterprise remaining low. The analysis also shows that most informal enterprises did not take external loans, with formal and informal borrowing remaining limited across all survey rounds. Loan-taking varies considerably across enterprise characteristics, particularly by enterprise type, gender, and location.

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