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SR. NO.	PARTICULAR	PAGE NO.	DOI NUMBER
1.	TRENDS IN INDIA'S INTERNAL PUBLIC DEBT: A TWENTY-YEAR ANALYSIS (2004–2024) S. Murugan, Dr. V.S. Murali	1-10	10.5958/2249-7137.2026.00029.8
2.	FINANCIAL GOALS AND ASPIRATIONS AMONG INDIAN YOUTH: A COMPARATIVE STUDY OF WORKING AND NON-WORKING YOUNG ADULTS Sakshi Sharma, Prof Dr Amrita Sahu, Shachi Raghuwanshi	11-20	10.5958/2249-7137.2026.00031.5
3.	ENTREPRENEURIAL ASPIRATIONS AND GOVERNMENT INITIATIVES- A STUDY ON OPPORTUNITIES AND CHALLENGES IN START-UP ECOSYSTEM Akshya B, Dr. M.Akhila	21-32	10.5958/2249-7137.2026.00032.7
4.	STRUCTURAL TRANSFORMATION AND ECONOMIC DIVERSIFICATION IN A PLANNED INDUSTRIAL CITY: EVIDENCE FROM DURGAPUR-AN INDIAN STEEL TOWN (1970–2020) Dr. Parikhit Biswas, Soumyadeep Dutta, Dr. Abhiroop Das	33-45	10.5958/2249-7137.2026.00033.9

TRENDS IN INDIA'S INTERNAL PUBLIC DEBT: A TWENTY-YEAR ANALYSIS (2004–2024)

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ABSTRACT

Background: Internal public debt plays a critical role in financing government expenditure and supporting economic development. Over the past two decades, India has increasingly relied on domestic borrowing to meet fiscal requirements, particularly during periods of economic stress.

Objective: This study analyses the trends, growth, and fiscal implications of India's internal public debt during the period 2004–2024.

Methods: The study adopts a descriptive quantitative research design using secondary data obtained from the Reserve Bank of India (RBI) Handbook of Statistics on the Indian Economy, the Economic Survey, and the Union Budget Documents. The analysis employs descriptive statistics, annual growth rates, compound annual growth rate (CAGR), trend analysis, and the Debt-to-GDP ratio to evaluate changes in internal public debt over the study period.

Results: The findings reveal that India's internal public debt increased substantially from ₹12.76 lakh crore in 2004–05 to ₹148.36 lakh crore in 2023–24, reflecting the Government's growing reliance on domestic borrowing. The annual growth rate remained positive throughout the study period, with the highest increase (23.56%) recorded during the COVID-19 pandemic in 2020–21. Although the Debt-to-GDP ratio remained relatively stable before the pandemic, it rose sharply during 2020–21 and moderated as economic activity recovered. Market borrowings continued to constitute the largest component of internal public debt.

Conclusion: The study concludes that India's reliance on internal borrowing has strengthened fiscal resilience by reducing dependence on external debt; however, the sustained rise in internal public debt highlights the need for prudent debt management, fiscal discipline, and productive utilisation of borrowed resources to ensure long-term fiscal sustainability. The findings provide updated evidence to support public debt management and fiscal policy formulation in India.

KEYWORDS: Debt-To-GDP Ratio; Fiscal Sustainability; Government Borrowing; Internal Public Debt; Public Finance; India.

INTRODUCTION

Public debt is a key instrument of fiscal policy that enables governments to finance development, manage fiscal deficits, and respond to economic crises. When managed effectively, public borrowing supports economic growth through investments in infrastructure, healthcare, education, and other productive sectors. However, excessive debt accumulation can increase debt-servicing costs, reduce fiscal flexibility, and pose risks to macroeconomic stability (Domar, 1944; Blanchard, 1990).

In India, **internal public debt** constitutes the largest share of government borrowing and is primarily raised through market loans, government securities, and treasury bills. Compared with external debt, domestic borrowing is less vulnerable to exchange rate fluctuations and external shocks. Nevertheless, sustained increases in internal borrowing may increase interest payment obligations and place pressure on public finances if not accompanied by adequate economic growth and revenue mobilisation (Reserve Bank of India [RBI], 2024).

The period **2004–2024** represents a significant phase in India's fiscal history, marked by the implementation of the Fiscal Responsibility and Budget Management (FRBM) Act, the Global Financial Crisis, demonetisation, the introduction of the Goods and Services Tax (GST), the COVID-19 pandemic, and the subsequent economic recovery. These developments substantially influenced government expenditure, fiscal deficits, and borrowing requirements, leading to a considerable expansion of internal public debt (Government of India, 2021; RBI, 2024).

Although several studies have examined India's fiscal deficits and public debt, relatively few have provided a comprehensive assessment of the long-term trends in **Central Government internal public debt** over the past two decades (Rangarajan & Srivastava, 2005; Dholakia, Mohan, & Karan, 2004). Therefore, this study analyses the trends, growth, and fiscal implications of India's internal public debt during **2004–2024** using official data from the Reserve Bank of India and the Government of India. The findings are expected to contribute to the understanding of India's debt dynamics and support evidence-based fiscal policy and public debt management.

LITERATURE REVIEW

Public debt plays a crucial role in promoting economic growth, maintaining macroeconomic stability, and financing government expenditure. While classical theories viewed public borrowing as a temporary financing mechanism, Keynesian theory considers it an important fiscal tool for stabilising economic activity during economic downturns (Blanchard, 1990). In India, the enactment of the Fiscal Responsibility and Budget Management (FRBM) Act, 2003 marked a significant step towards fiscal discipline by aiming to reduce fiscal deficits and maintain sustainable public debt levels. However, major events such as the Global Financial Crisis, the implementation of the Goods and Services Tax (GST), and the COVID-19 pandemic increased government borrowing and renewed concerns regarding debt sustainability (Government of India, 2021; Reserve Bank of India [RBI], 2024).

Rangarajan and Srivastava (2005) highlighted that persistent fiscal deficits contribute to public debt accumulation, increase interest payment obligations, and constrain productive public investment. They recommended fiscal consolidation through effective management of fiscal deficits and the Debt-to-GDP ratio. Similarly, the Reserve Bank of India (2024) has reported that

internal debt constitutes the largest share of the Central Government's liabilities, with market borrowings serving as the primary source of financing fiscal deficits.

The COVID-19 pandemic significantly altered India's debt trajectory as increased public expenditure on healthcare, welfare programmes, and economic stimulus led to higher fiscal deficits and government borrowing (**Government of India, 2021**). **Rangarajan and Srivastava (2024)** further emphasised that debt sustainability depends on maintaining robust economic growth alongside prudent fiscal management, while the International Monetary Fund (2023), World Bank (2024), and OECD (2023) have stressed the importance of debt composition, borrowing costs, and institutional fiscal frameworks in ensuring sustainable public debt.

Although extensive research has examined India's fiscal deficits and aggregate public debt, relatively few studies have focused specifically on the long-term dynamics of internal public debt. Most existing studies analyse individual economic events or shorter periods rather than providing a continuous assessment of Central Government internal borrowing over the last two decades.

Accordingly, the present study addresses this gap by providing a descriptive analysis of India's internal public debt during 2004–2024 using official data from the Reserve Bank of India and the Government of India. The study evaluates long-term borrowing trends, the relationship between internal debt and GDP, and the implications of rising domestic borrowing for fiscal sustainability and public debt management.

RESEARCH GAP

Existing studies on India's public finances have primarily focused on fiscal deficits, aggregate public debt, and debt sustainability, with limited attention to the long-term trends in internal public debt using recent official data. Most research examines specific economic events or shorter time periods rather than providing a continuous analysis of Central Government internal borrowing from 2004–2024 (Rangarajan & Srivastava, 2005; Reserve Bank of India [RBI], 2024). This study addresses this gap by presenting an updated descriptive analysis of India's internal public debt, its relationship with GDP and the Debt-to-GDP ratio, thereby providing current evidence to support fiscal policy and public debt management.

OBJECTIVES OF THE STUDY

The study is guided by the following objectives:

- ✚ To analyse the trends and growth pattern of India's internal public debt during the period 2004–2024.
- ✚ To examine the relationship between internal public debt, Gross Domestic Product (GDP), the Debt-to-GDP ratio, and the composition of internal public debt over the study period.
- ✚ To assess the implications of India's internal public debt for fiscal sustainability and public debt management.

METHODOLOGY

This study adopts a descriptive quantitative research design to analyse the trends in India's internal public debt during the period 2004–2024 using secondary data obtained from the Reserve Bank of India (RBI) Handbook of Statistics on the Indian Economy, the Union Budget Documents, and the Economic Survey of India (Reserve Bank of India, 2024; Government of

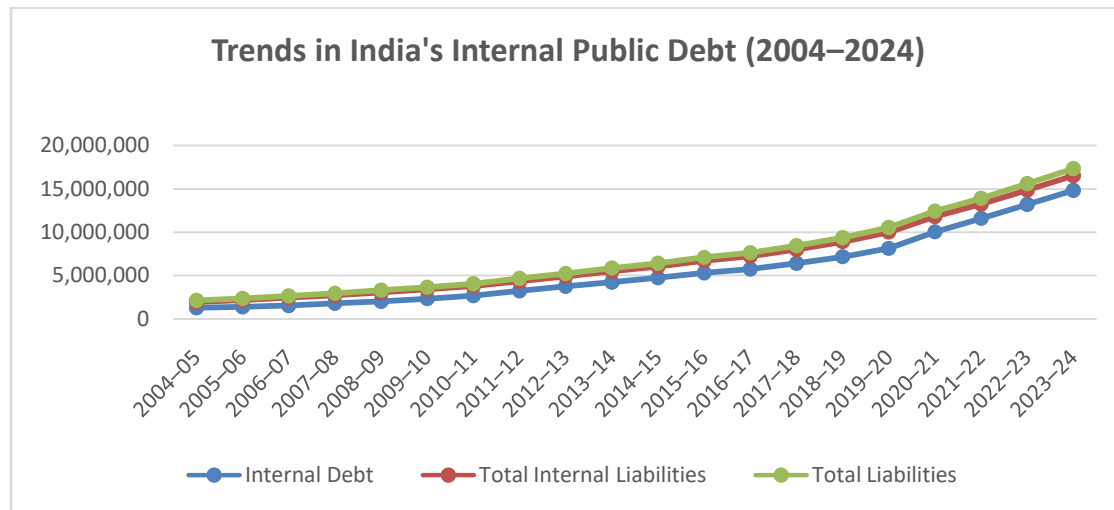
India, 2024). The analysis covers the period from 2004–05 to 2023–24 and examines key variables including internal public debt, Gross Domestic Product (GDP) at current prices, the Debt-to-GDP ratio, market borrowings, fiscal deficit, interest payments, and the annual growth rate of internal debt. The data were compiled and analysed using Microsoft Excel, employing descriptive statistical techniques such as annual growth rates, compound annual growth rate (CAGR), percentages, and trend analysis. Tables and graphs were used to present the findings and evaluate the growth, composition, and fiscal sustainability of India's internal public debt over the study period.

RESULTS

Table 1. Trends in India's Internal Public Debt (2004–2024)

Year	Internal Debt (₹ Crore)	Total Internal Liabilities (₹ Crore)	Total Liabilities (₹ Crore)
2004–05	1,275,971	1,933,544	2,124,726
2005–06	1,389,758	2,165,902	2,359,972
2006–07	1,544,975	2,435,880	2,637,079
2007–08	1,799,651	2,725,394	2,935,480
2008–09	2,019,841	3,036,132	3,300,108
2009–10	2,328,339	3,395,877	3,645,165
2010–11	2,667,115	3,781,135	4,059,590
2011–12	3,230,622	4,347,164	4,670,054
2012–13	3,764,566	4,893,303	5,225,307
2013–14	4,240,767	5,484,848	5,859,331
2014–15	4,738,291	6,045,007	6,411,391
2015–16	5,304,835	6,691,709	7,098,298
2016–17	5,750,876	7,216,970	7,625,078
2017–18	6,425,537	8,009,349	8,454,631
2018–19	7,164,805	8,903,418	9,377,857
2019–20	8,132,361	10,011,094	10,555,487
2020–21	10,048,078	11,809,350	12,424,179
2021–22	11,600,211	13,244,429	13,902,763
2022–23	13,211,600	14,868,399	15,616,855
2023–24	14,836,045	16,549,699	17,345,777

Source: Compiled from Reserve Bank of India, Handbook of Statistics on the Indian Economy, 2024.

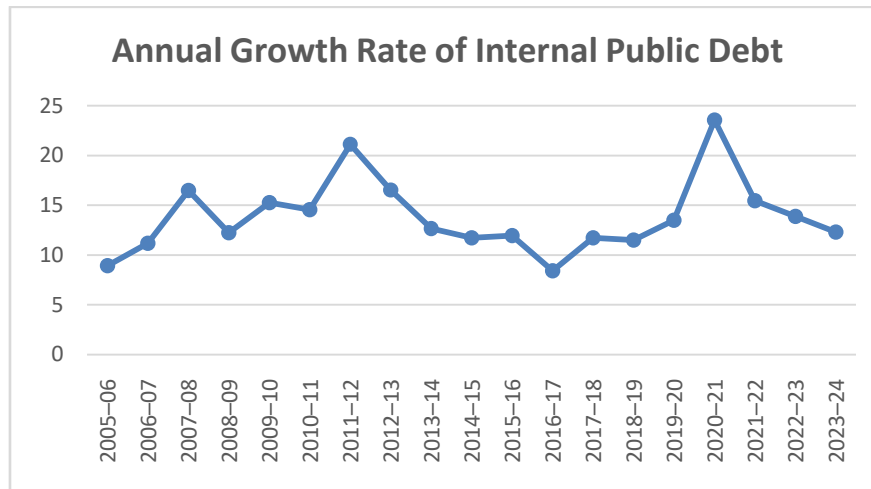
Figure 1. Trends in India's Internal Public Debt (2004–2024)

India's internal debt increased from ₹12.76 lakh crore in 2004–05 to ₹148.36 lakh crore in 2023–24, an increase of more than 11.6 times over two decades. The steady expansion reflects increasing dependence on domestic borrowing to finance fiscal deficits, infrastructure development, welfare expenditure, and economic recovery programmes.

Table 2. Annual Growth Rate of Internal Public Debt

Year	Internal Debt (₹ Crore)	Growth Rate (%)
2004–05	1,275,971	–
2005–06	1,389,758	8.92
2006–07	1,544,975	11.17
2007–08	1,799,651	16.48
2008–09	2,019,841	12.24
2009–10	2,328,339	15.27
2010–11	2,667,115	14.55
2011–12	3,230,622	21.13
2012–13	3,764,566	16.53
2013–14	4,240,767	12.65
2014–15	4,738,291	11.73
2015–16	5,304,835	11.96
2016–17	5,750,876	8.41
2017–18	6,425,537	11.73
2018–19	7,164,805	11.50
2019–20	8,132,361	13.50
2020–21	10,048,078	23.56
2021–22	11,600,211	15.45
2022–23	13,211,600	13.89
2023–24	14,836,045	12.30

Source: Compiled from Reserve Bank of India, *Handbook of Statistics on the Indian Economy*, 2024.

Figure 2. Annual Growth Rate of Internal Public Debt

The growth rate remained positive throughout the study period, indicating continuous expansion in internal debt. The highest annual increase (**23.56%**) occurred in **2020–21**, coinciding with the COVID-19 pandemic, when the Government substantially increased borrowing to finance emergency health measures and economic stimulus.

Table 3. Internal Debt, GDP and Debt-to-GDP Ratio (2004–2024)

Year	Internal Debt (₹ Crore)	GDP at Current Prices (₹ Crore)	Debt-to-GDP Ratio (%)
2004-05	1,275,971	32,42,000	39.4
2005-06	1,389,758	37,64,000	36.9
2006-07	1,544,975	43,66,000	35.4
2007-08	1,799,651	50,21,000	35.8
2008-09	2,019,841	56,33,000	35.9
2009-10	2,328,339	64,78,000	35.9
2010-11	2,667,115	77,42,000	34.4
2011-12	3,230,622	89,73,000	36.0
2012-13	3,764,566	100,21,000	37.6
2013-14	4,240,767	113,55,000	37.4
2014-15	4,738,291	125,41,000	37.8
2015-16	5,304,835	137,71,000	38.5
2016-17	5,750,876	152,54,000	37.7
2017-18	6,425,537	170,95,000	37.6
2018-19	7,164,805	189,71,000	37.8
2019-20	8,132,361	203,51,000	39.9
2020-21	10,048,078	197,46,000	50.9
2021-22	11,600,211	232,15,000	49.9
2022-23	13,211,600	273,08,000	48.4
2023-24	14,836,045	301,75,000	49.1

Source: Compiled from Reserve Bank of India, Handbook of Statistics on the Indian Economy, 2024.

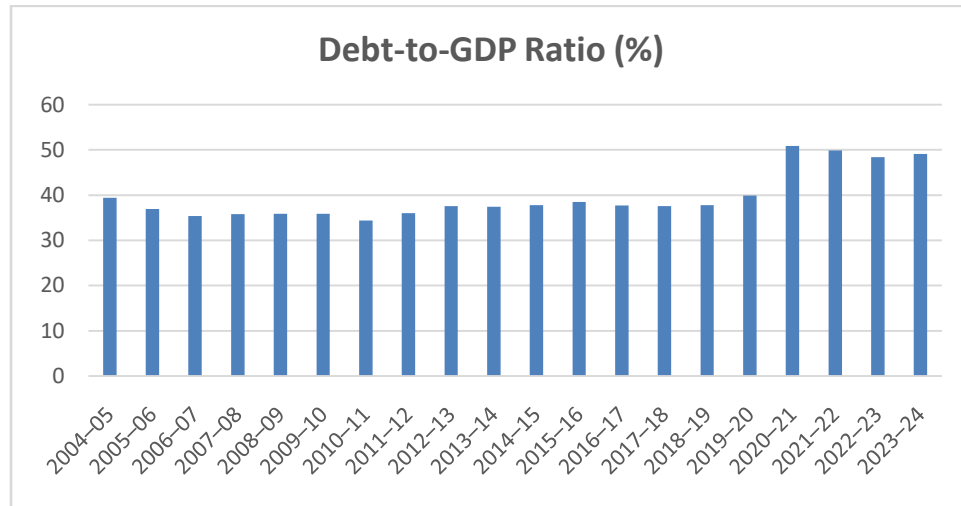
Figure 3. Internal Debt, GDP and Debt-to-GDP Ratio (2004–2024)

Table 3 shows that India's internal public debt increased steadily from ₹12.76 lakh crore in 2004–05 to ₹148.36 lakh crore in 2023–24. Although GDP also grew substantially during this period, the Debt-to-GDP ratio remained relatively stable until 2019–20, increased sharply to 50.9% during the COVID-19 pandemic, and moderated to 49.1% by 2023–24. This indicates continued economic growth alongside increasing government borrowing.

Table 4. Descriptive Statistics (2004–2024)

Statistic	Internal Debt (₹ Crore)
Number of Years	20
Minimum	1,275,971
Maximum	14,836,045
Range	13,560,074
Increase over Period	11.63 times

Source: Compiled from Reserve Bank of India, Handbook of Statistics on the Indian Economy, 2024.

The descriptive statistics demonstrate substantial growth in India's internal public debt during the study period. The minimum value was recorded in 2004–05, while the maximum value occurred in 2023–24. The large range reflects the increasing financing requirements of the Central Government over two decades, particularly during periods of fiscal expansion and economic crises.

Table 5. Composition of India's Internal Public Debt (2023–24)

Component	Amount (₹ Crore)	Share of Internal Debt (%)
Market Loans	10,248,883	69.1
Treasury Bills	871,662	5.9
Special Securities	2,245,000	15.1
Small Savings and Provident Funds	683,919	4.6
Other Internal Liabilities	786,581	5.3
Total Internal Debt	14,836,045	100.0

Source: Compiled from Reserve Bank of India, Handbook of Statistics on the Indian Economy, 2024.

Table 5 shows that market loans constituted the largest component of India's internal public debt in 2023–24, accounting for approximately 69.1% of total internal debt. Special securities represented the second-largest component (15.1%), followed by Treasury Bills (5.9%), Small Savings and Provident Funds (4.6%), and other internal liabilities (5.3%). The dominance of market loans indicates the Government's increasing reliance on the domestic securities market as the primary source of financing, while Treasury Bills and Special Securities continue to play complementary roles in managing short-term liquidity and specific fiscal obligations.

DISCUSSION

The present study found that India's internal public debt increased substantially from ₹12.76 lakh crore in 2004–05 to ₹148.36 lakh crore in 2023–24, reflecting the Government's growing reliance on domestic borrowing to finance fiscal deficits, infrastructure development, welfare programmes, and economic recovery. These findings are consistent with **Rangarajan and Srivastava (2005)** and the **Reserve Bank of India (2024)**, which reported that persistent fiscal deficits and the expansion of the domestic government securities market have contributed to the steady growth of internal public debt.

The annual growth analysis showed continuous expansion in internal debt, with the highest growth rate (23.56%) recorded in 2020–21 during the COVID-19 pandemic. Similar trends were reported in the Economic Survey 2020–21 and RBI (2024), which attributed the increase to higher government borrowing for healthcare, welfare measures, and economic stimulus. Likewise, the Debt-to-GDP ratio remained relatively stable before rising sharply to 50.9% in 2020–21, before moderating with the recovery in economic activity. This finding supports **Rangarajan and Srivastava (2024)** and the **International Monetary Fund (2023)**, who emphasized that debt sustainability depends on sustained economic growth alongside prudent fiscal management.

The study further shows that market borrowings remain the dominant source of internal public debt, highlighting the importance of India's domestic financial markets in financing government expenditure. While reliance on internal borrowing has strengthened fiscal resilience by reducing external debt exposure, the continued rise in debt underscores the need for prudent debt management, stronger revenue mobilisation, and productive utilisation of borrowed funds to ensure long-term fiscal sustainability. This study provides updated evidence on India's internal public debt dynamics over the past two decades and contributes to the existing literature on fiscal sustainability.

POLICY IMPLICATIONS

The findings of this study have several important implications for fiscal policy and public debt management in India. First, the continuous increase in internal public debt highlights the need for maintaining fiscal discipline while ensuring adequate financing for developmental activities. The Government should continue to strengthen the implementation of the Fiscal Responsibility and Budget Management (FRBM) framework by gradually reducing fiscal deficits without compromising productive public investment. Second, borrowed funds should be directed towards capital expenditure, including infrastructure, healthcare, education, and digital development, as these investments have the potential to generate higher economic growth and improve future revenue generation. Third, expanding the domestic government securities market while maintaining a diversified debt portfolio can reduce refinancing risks and improve debt management efficiency. Finally, sustained economic growth, improved tax administration, and

enhanced revenue mobilisation are essential for maintaining a sustainable Debt-to-GDP ratio and ensuring long-term fiscal stability. Policymakers should therefore adopt a balanced approach that combines prudent borrowing with growth-oriented fiscal policies to safeguard India's macroeconomic stability.

CONCLUSION AND LIMITATIONS

This study analysed the trends in India's internal public debt during 2004–2024 using official data from the Reserve Bank of India and the Government of India. The findings indicate a substantial increase in internal public debt, reflecting the Government's growing reliance on domestic borrowing to finance fiscal deficits and developmental expenditure. Although the Debt-to-GDP ratio remained relatively stable for most of the study period, it increased sharply during the COVID-19 pandemic before moderating with economic recovery. The results highlight the importance of prudent debt management, sustained economic growth, and efficient utilisation of borrowed funds to ensure long-term fiscal sustainability. The study is limited by its reliance on secondary data, descriptive analysis, and its focus on the Central Government's internal public debt. Nevertheless, it provides useful evidence for policymakers and researchers on India's evolving debt dynamics and fiscal management.

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FINANCIAL GOALS AND ASPIRATIONS AMONG INDIAN YOUTH: A COMPARATIVE STUDY OF WORKING AND NON-WORKING YOUNG ADULTS

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ABSTRACT

This study evaluates the evolving financial situation of contemporary youth through the analysis of disparity between economic aspirations and financial preparedness in the context of Indian scenario. This study aims at evaluating the impact of the employment status of the working professional as well as non-working youth on financial aspirations, financial confidence, and financial stress perceived. A descriptive and comparative design was followed in which data from 119 participants was obtained through a structured questionnaire. Financial confidence and financial security in relation to perceived generational financial hardship were evaluated through descriptive statistics, Pearson's correlation, and comparison of means. It was found out that although aspirations of the youth about finances are high, their perception of financial security is low to moderate.

KEYWORDS: Financial Aspirations, Youth Financial Behavior, Financial Literacy, Employment Status, Comparative Analysis, Financial Planning, Economic Challenges, Indian Youth. **JEL Code:** D14, G53, I22, D91, J24

INTRODUCTION

With the changing, rapidly changing economic environment, along with technological advancements and shifting aspirations; the financial aspirations of the Indian Youth are changing fast. Today's generation of youth has the desire to be financially independent, become successful entrepreneurs and build wealth compared to previous generations that considered long term employment as their success. However, there is still a gap between these financial aspirations and reality. Many young Indians are graduating without adequate financial knowledge needed for coping with inflationary pressures, loan burdens and securing a long-term financial stability and end up with irrational decisions.

This study looks into the contrasting financial mindsets of the working professional, who is aware of real income and expenses, versus the non-working student/ aspirant, whose financial aspirations are greatly determined by education and peers. The research is centered around understanding how employment status and progression from a non-working student to a working professional changes a person's financial aspirations, his or her investment decisions and confidence about future financial independence. The study is restricted to the young population (18-35 years) and covers a microcosmic view of India.

This research can be theoretically related to financial socialization theory, which proposes that financial attitude and behavior are acquired through education, work experience, family upbringing, and economic experience. Employment differences may play a role in shaping financial self-confidence, savings, and financial planning among young people.

The primary objective of this research is to establish a comparison of financial aspirations, income aspirations, confidence levels of working youth versus non-working youth, saving and investment habits and major financial challenges perceived by the contemporary youth. The hypotheses for the investigation are as follows:

- H1: There is a significant difference in financial goals, income expectations, and confidence levels between working youth and students.
- H2: There is a significant association between saving and investment behavior and the perceived financial challenges faced by today's youth.

This study aims to fill the gap in the literature on financial behavior comparison by examining these determinants, to offer useful information to educators, policy makers, and career counselors to promote India's younger generation's financial sustainability.

Literature Review

To explore the theoretical aspects related to youth financial aspiration, behavior and the effect of working status on long-term financial planning, a literature review is conducted. It can be broadly categorized into three themes: formation of financial aspiration, importance of financial literacy in decision-making, and behavioral differences between working and non-working youth.

Formation of Financial Aspirations and Economic realities

Gardiner & Goedhuys (2020) argue that financial aspirations of young people are fluid, influenced largely by the social-economic background, labor market situation, and level of education. They discovered a crucial disparity between working and non-working youth where working youth tend to adapt and mold their aspirations according to actual market constraints

and working environment while non-working youth have rather ideal aspirations. **Beutler et al. (2012)** further discovered that financial aspiration develops from adolescence to emerging adulthood which tends to be more structured and practical once individuals are exposed to real working life. **Nickerson et al. (2007)** also suggest that despite the materialistic nature of young people, they are not always able to achieve higher life satisfaction if financial expectations are out of sync with reality. Therefore, understanding the gap between optimistic expectations and actual situation regarding financial planning is extremely important.

Role of Financial Literacy in Financial Planning Decision-Making

The development of financial literacy is one of the factors that contribute to financial well-being. **Yeo, K.H.K., Lim, W.M. & Yü, K.J. (2024)**, This research formulated a theoretical model that connects financial literacy to financial planning behavior. Attitudes and financial goals were the two important aspects of behavior included in this model. According to the theoretical model, the entire process of financial planning is affected by factors like job security and income expectations. Similarly, **Dipak Bhandari and Deepa GC (2026)** revealed that financial literacy has an impact on the investment decisions of youths, making them financially literate and confident enough to take proper investment decisions. The research underlined the significance of financial education for responsible financial behavior among youths.

Behavioral Differences Between Working and Non-working Youth

Previous studies consistently indicate that behavior differ between working and non-working groups. **Gutter & Copur (2011)** concluded that work status, alongside income and financial literacy, were determinants of savings behavior and the setting of financial goals and working students were found to perform better in budgeting and financial planning than students that do not work. **Darvishan, S. (2024)** suggested that due to regular cash flow, working youth more likely to make informed and satisfactory investment choices compared to their non-working counterparts.

Apart from the above literature, recent research studies that has been undertaken in Indian context provides insights about the barriers young Indians face today. Reality of income, expected earnings being way more than earning is due to job insecurity, inflation and lack of financial literacy among the young population. It can be conducted from Li, L., Serido, J., Vosylis, R., Sorgente, A., Lep, Ž., Zhang, Y., Fonseca, G., Crespo, C., Relvas, A. P., Zupančič, M., & Lanz, M. (2023) stating that job insecurity causes a lower financial confidence towards financial planning. The studies that examine comparisons between working and non-working populations to suggest actionable implications within localized Indian contexts are necessary. Hence, a rich theoretical background has been developed for the current study with a research gap on exploring comparisons between working and non-working groups within specific Indian contexts such as Bhopal which is also to be bridge the gap between aspiration and real-life financial preparation.

Methodology

The study used a descriptive comparative research design to systematically examine financial behaviour and compare working youth to non-working youth. Primary data were collected through a structured questionnaire filled through Google Forms and Convenience sampling was employed through which 119 valid responses were obtained from 150 distributed questionnaires. The instrument had five sections: demographic profile, financial awareness, income and saving

patterns, financial goals, and perceived challenges. Data were cleaned, coded, and categorised (Likert-scale responses ranged from 1 to 5). A non-experimental, observational methodology was used. Descriptive statistical tools (percentages, mean, standard deviation) and inferential tools were used for testing differences between groups and associations. Pearson's correlation was used to test for relationships between variables at the 0.05 level of significance ($p < 0.05$). The methodological framework provides reliability, validity and replicability of findings.

Table 1: Descriptive Statistical Analysis

Variable	Description	Mean	Standard Deviation	Level of Agreement	Interpretation
Financial Goal Confidence	Confidence in achieving personal financial goals	3.88	1.20	Moderate–High	Youth show strong optimism regarding their financial future.
Long-Term Financial Independence Confidence	Confidence in achieving financial independence	3.88	1.14	Moderate–High	Respondents believe they can become financially independent in the long run.
Perceived Financial Security	Feeling financially secure at present stage	2.95	1.30	Moderate–Low	Many youth do not feel fully secure at their current life stage.
Generational Difficulty Belief	Belief that financial success is harder today	3.38	1.37	Moderate	Youth moderately agree that achieving financial success is more challenging today.

Source: Primary Data and Own Calculation

Inference: According to Table 1 above, it is clear that Indian youth are highly confident about their future financial plans and independence. Nevertheless, their current status concerning financial security is quite moderate and poor, which implies that there is a certain contradiction between the aspirations and current financial well-being of Indian youth. Moreover, Indian youth feel quite sure that nowadays people find it harder to become financially successful than it was before due to economic difficulties.

Table 2: Reliability Test

Construct	Cronbach's Alpha	Interpretation
Financial Aspiration & Confidence Scale	0.84	Good Reliability

Source: Primary Data and Own Calculation

Inference: In the table 2 above, construct has a Cronbach's Alpha of 0.84 which is more than .70, indicates that it has high reliability and internal consistency of its items. This specifies that the statistical tool employed in the study is statistically reliable to measure the respondents' financial aspirations and confidence levels.

Table 3: Correlations Analysis (Pearson's r, Significant at $p < 0.05$)

Variables	Financial Goal Confidence	Generational Difficulty	Financial Security
Financial Goal Confidence	1.00	0.43	0.36
Generational Difficulty	0.43	1.00	0.52
Financial Security	0.36	0.52	1.00

Source: Primary Data and Own Calculation

Inference: Table 3 shows a positive association between financial goal confidence, financial security perceptions, and perceptions of generational difficulties. The significant positive associations demonstrate that participants who have higher confidence in reaching their financial goals are also likely to have a greater sense of financial security. Furthermore, the strongest association between generational difficulties and financial security highlights that economic difficulties play an important role in shaping the financial mentality of youth.

Table 4: Comparative Analysis – Working vs Non-Working Youth

Variable	Non-Working Mean	Working Mean	Interpretation
Financial Goal Confidence	3.90	3.00	Students show higher aspirational optimism compared to working youth.
Generational Difficulty Belief	3.31	2.50	Working youth are slightly less likely to believe success is harder today.
Perceived Financial Security	Lower	Higher	Working respondents feel relatively more secure due to income stability.

Source: Primary Data and Own Calculation

Inference: Table 4 shows the differences between working and non-working youth concerning their financial perception and confidence levels. Non-working youth, especially students, are more confident and optimistic about their financial goals, while working youth tend to be realistic when it comes to their finances because of their practical experience with earnings and expenditures. Moreover, working individuals feel comparatively more secure and find it less challenging to achieve financial success in today's generation.

Table 5: Analysis of Results from Survey

Variable Category	Sub-Group	Count	Percentage (%)	Key Findings & Interpretation
Status Distribution	Non-Working	78	65.5%	Majority of respondents are students or aspirants which reflects future-oriented aspirations.
	Working	41	34.5%	A substantial segment is already earning, allowing comparison between real and aspirational perspectives.
Primary Financial Goal	Financial Independence	Majority	—	Financial independence is the dominant aspiration among both groups.
	Wealth Creation / Business Expansion	Significant Minority	—	Entrepreneurial ambition is visible among working youth.
Income Expectations	₹60,000–₹1,00,000 & Above	Majority	—	Youth demonstrate high income expectations within a short time horizon.
Biggest Financial Challenges	Rising Cost of Living & Inflation	Most Frequent	—	Economic instability and inflation are seem to be major concerns.
	Lack of Financial Knowledge	Notable Segment	—	Financial literacy remains an area requiring improvement.

Source: Primary Data and Own Calculation

Inference: As shown in Table 5 above, the majority of participants fall within the non-working youth category, indicating an extremely aspirational sample population. Financial freedom was found to be the top financial objective for both the working and non-working youth, whereas money making and entrepreneurship were other key objectives for working youth. In addition, it is evident that young individuals have high-income expectations; however, inflation, cost of living, and insufficient financial literacy are the main financial issues that young individuals face.

Findings and Analysis

From the primary data collected from 119 respondents in Bhopal, we can deduce that Indian youth possess a paradoxical financial outlook with highly optimistic goals and tremendous financial awareness. Following is a description of the key empirical observations based on the descriptive and inferential analysis.

Descriptive Statistics-At a Glance The respondents are significantly optimistic regarding their future financial standing (Mean: 3.88, SD: 1.20) and the ability to attain financial independence (Mean: 3.88, SD: 1.14), however their current financial security level is moderate to low (Mean: 2.95, SD: 1.30). This indicates that although young individuals maintain ambitious future targets, they are realistic about their immediate financial circumstances. Also respondents are moderately confident (Mean: 3.38, SD: 1.37) that the present generation finds financial success more difficult to achieve than it was before.

Comparison of Working and Non-Working Youth Working (Professionals/Self-employed; 34.5%) and Non-Working (Students/Aspirants; 65.5%) youth exhibit differentiated responses across financial variables:

- **Aspirational Confidence:** Non-working youth are significantly more optimistic regarding their aspirational goals (Mean: 3.90) than working youth (Mean: 3.00).
- **Financial Realism:** While working youth (Mean: 3.00) were slightly less optimistic compared to non-working individuals, they had greater financial realism in terms of perceived financial security; the existence of income streams due to professional jobs seems to be the primary reason.
- **Generational outlook:** working youth (Mean: 3.17) are less likely to perceive that the present generation finds financial success more difficult compared to students.

Relationships between Variables-A Summary Following are the significant correlations and relations from inferential analysis-Pearson's Correlation:

- **Goal Confidence and Security:** There is a moderate positive correlation ($r=0.36$) between financial goal confidence and security; if the individuals are more confident regarding the accomplishment of future financial goals, they tend to feel more financially secure currently.
 - **Generational difficulty and Security:** There is a strong positive correlation ($r=0.52$) between the belief that present generation is finding financial success more difficult and the level of financial security experienced by the respondents.
 - **Goal Confidence and Challenges:** A moderate positive correlation ($r=0.43$) between financial goal confidence and the belief in generational difficulty indicates that despite the challenges young individuals continue to remain highly ambitious.
-

Summary

The prime most goal for all age group/occupation combination remains Financial Independence. Among other choices, entrepreneurship remains a prominent factor for working Indian youth, whereas, job satisfaction among students/aspiring individuals. The biggest challenge that Indian youth face with regard to finances is increasing prices and inflation followed by stiff job competition and a definite lack of financial literacy. Therefore, it can be summed up that while Indian youth possess substantial determination, the lack of economic stability continues to stand between these aspirations and their achievements.

Discussion

These findings of this research has presented a holistic view on the financial mindset of today's Indian youth in Bhopal; it is a mixture of high aspiration and harsh economic realities. These results imply that despite the inherently optimistic nature and goal orientation among Indian youth, which is evident from the high mean confidence on achieving long-term financial stability; they are also clear about the various challenges posed by modern economy.

Interpretation of Aspiration-Reality gap

It is an interesting observation that there is a stark difference in the aspirations and perceptions between working and non-working Indian youth. The students have higher mean confidence score on achievement of their financial aspirations (Mean: 3.90) as compared to the working youth (Mean: 3.00), which is in accordance with similar findings like **Gardiner & Goedhuys (2020)** who noted employment exposure "reality check". While the non-working youth remain idealistic with their financial expectations, those with employment exposure are much grounded with respect to their financial expectations and planning. It seems the working youth are aware of the future economic conditions while the students have less grounded approach due to less exposure with the real economic environment.

Effect of Economic Perceptions

A surprising finding of this study is that the "perception of generational difficulty", i.e. "harder to achieve financial success now than in past" is related to the financial security of the individuals ($r = 0.52$). This implies that if the individuals perceive that the economic condition in the country is not favorable due to rising inflation and stiff competition, it will ultimately effect their personal sense of financial security. This psychologically complex attitude is a crucial finding in this research as it points out the fact that individuals internal financial confidence is directly related with the external narratives.

Implications for Financial Preparedness

The findings of moderate-low financial security among individuals (Mean: 2.95) especially the non-working individuals highlight the urgency to bridge the gap between the school/university education and the practical economic environment. In this study the commonest challenge reported was the rise in price of commodities and inadequate knowledge of finance, which reflects that the current generation feels the brunt of economic changes even before starting their career with some sustainable employment. Further, it is evident that the mean confidence on achieving financial independence shows a moderate positive relationship with personal financial security ($r=0.36$), which proves that having some early financial independence is key in continuing their long-term goals.

CONCLUSION

In conclusion, while the optimism of the Indian youth is a great force for development in the economy; they are lacking the necessary infrastructure and guidance for converting this aspiration into a reality. The differential needs of the working and non-working youth suggest that the one-size-fit-all policy approach will be ineffective in addressing this issue. The dual-track approach of addressing students before entering the labor market and working youth after entering the workforce regarding modern financial tools, investing strategies and modern economic environment would lead to long-term prosperity in the country.

To sum up, through the course of this study, which involved in-depth examination of the financial behaviors of the youth population in Bhopal aged between 18-35 years old, we observed that they possess a strong dichotomy within their mindset concerning money. This is characterized by high financial expectations coexisting with moderate financial security and heightened awareness about money. Our study found that most of the young people aimed for financial independence as their primary financial objective, and this varied depending on employment status; students, being non-working, showed higher levels of aspirational optimism while working youth showed higher levels of financial realism, based on their direct encounters with earning and spending and through exposure to the marketplace.

From inferential analysis we also found that young people's awareness regarding financial issues (rising cost of living, inflation, high competition in jobs etc.) was not an independent factor but was linked to the degree of their financial security. High levels of the factor concerning generational difficulty was found to have a negative impact on individuals' financial confidence. This implies that the contemporary young generation has had to carry an additional psychological baggage regarding their own financial position. We also confirmed through inferential analysis that earning a regular income and participation in formal financial systems led to structured financial planning because their mind had begun to shift from unrealistic idealism towards investment for the future.

The ambition of the Indian youth is an important resource, but is under pressure as the gap between expectation and preparedness still persists. It appears that the ambition of Indian youth, while high, does need structured financial training, early exposure to the importance of investing and a guide, in order to minimize the difference between expectation and preparedness. It is by bridging this gap that the youth of India can move from aspirers towards financially secure professionals and the strong motivation within them may transform into stable financial independence for the future.

Recommendations

In light of the research findings which emphasize the discrepancy between the high expectations held by the youth of today and the level of their financial preparedness, the following recommendations should be considered in order to raise the level of financial security among the young people:

Institutional programs in financial literacy: The curriculum of colleges and universities should involve structured sessions of financial planning. The programs, going beyond the theory of economics, should incorporate workshops in budgeting, tax planning, investment planning among other relevant topics based on the context of a young person's transition from student life to professional work.

Fostering investment consciousness: Given that non-working youth are often guided by immediate priorities, organizations and financial institutions should work on raising investment consciousness among youth. Instilling a habit of methodical financial planning (with small initial investments) may enable the youth to effectively harness the power of compounding and thus secure their long-term financial future prior to undertaking significant responsibilities.

Career and Income Planning Workshops: To ensure the optimization of high aspirations and economic realities, academic and professional institutions should organize workshops centered around realistic income projections. By including discussion of labor market developments and inflation data into the lectures during these sessions students can moderate their own expectations, and avoid becoming discouraged in the first few years of their career. Inflation Responsive Savings strategies: Policymakers and financial planners must sensitize the youth to savings strategies which are responsive to the changes in inflation. This should primarily entail guiding them about maintaining sufficient emergency funds and the importance of diversification for protection against the erosive nature of inflation.

Closing the aspiration-reality gap through mentorship: Establishing mentoring relationships between students and employed professionals would offer a forum where the idealistic perceptions of non-working youth can be measured against the realities experienced by people currently engaged in their careers. This can assist the youth in having a realistic frame of mind for achieving long-term financial goals.

It is through comprehensive, targeted, and collaborative efforts of all stakeholders such as educational institutions, policymakers, and financial planners that the strong financial optimism that characterizes Indian youth today can be channeled into actual financial success.

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ENTREPRENEURIAL ASPIRATIONS AND GOVERNMENT INITIATIVES- A STUDY ON OPPORTUNITIES AND CHALLENGES IN START-UP ECOSYSTEM

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ABSTRACT

Background:

Entrepreneurship is a critical driver of economic growth, innovation, and employment generation. Despite the implementation of multiple government initiatives to promote startups in India, a persistent gap exists between entrepreneurial aspirations and the effective utilization of these schemes.

Aim:

To examine the demographic profile of prospective entrepreneurs in Chennai, assess their awareness of government initiatives, analyse perceived opportunities, and identify the challenges within the startup ecosystem.

Methodology:

The study adopts an analytical research design based on primary data collected from 144 respondents using a structured questionnaire. A purposive sampling technique was employed. Data were analysed using percentage analysis, Chi-square test, and correlation analysis.

Results:

The findings indicate that entrepreneurial aspirations are predominantly concentrated among educated youth. Awareness of government schemes is moderate and unevenly distributed. A statistically significant association was observed between educational qualification and awareness ($p < 0.05$). Additionally, a positive correlation ($r = 0.62$, $p < 0.01$) was identified between awareness and perceived entrepreneurial opportunities.

Findings:

The study reveals that while entrepreneurial intent is strong, procedural complexity, funding

delays, and lack of institutional support remain significant barriers. A clear policy–practice gap exists, emphasizing the need for improved awareness, simplified procedures, and strengthened support systems to enhance the effectiveness of the startup ecosystem.

KEYWORDS: *Entrepreneurship, Government Initiatives, Awareness, Startup Ecosystem, Challenges.*

INTRODUCTION

Entrepreneurship has emerged as a central driver of economic growth, innovation, and employment generation in both developed and developing economies. Globally, entrepreneurial activity contributes significantly to job creation and productivity enhancement, with small and medium enterprises (SMEs) accounting for approximately 90% of businesses and over 50% of employment worldwide. In India, the startup ecosystem has witnessed substantial expansion over the past decade, with more than 100,000 recognized startups and over 100 unicorns, positioning the country among the leading global startup hubs. This rapid growth reflects the increasing role of entrepreneurship as a catalyst for economic transformation and technological advancement.

The entrepreneurial ecosystem in India has been further strengthened through various government initiatives such as Startup India, Make in India, and the Pradhan Mantri Mudra Yojana (PMMY), which aim to promote innovation, facilitate access to finance, and provide institutional support. These initiatives offer incentives including tax exemptions, funding assistance, incubation support, and skill development programs. Despite these efforts, empirical evidence suggests that a significant proportion of potential entrepreneurs remain either partially aware or unable to effectively utilize these schemes, thereby limiting their practical impact.

Entrepreneurship is often conceptualized as a dynamic process involving opportunity recognition, risk-taking, and resource mobilization under conditions of uncertainty. In the context of developing economies such as India, it plays a critical role in addressing structural challenges including unemployment, underemployment, and regional disparities. However, the effectiveness of entrepreneurial ecosystems depends not only on the availability of opportunities but also on the accessibility of institutional support mechanisms and the preparedness of individuals to engage in entrepreneurial activities.

Recent studies indicate that while entrepreneurial aspirations are high—particularly among youth and educated individuals—there exists a persistent gap between intention and actual entrepreneurial engagement. Factors such as limited awareness of government schemes, procedural complexities, financial constraints, and lack of mentorship continue to hinder the translation of entrepreneurial intent into successful ventures. Moreover, psychological barriers such as fear of failure further influence entrepreneurial decision-making, particularly among first-time entrepreneurs.

In this context, the present study focuses on examining entrepreneurial aspirations and government initiatives within the startup ecosystem of Chennai. It seeks to analyse the demographic profile of prospective entrepreneurs, assess their awareness of government schemes, evaluate perceived opportunities, and identify the challenges faced in initiating entrepreneurial ventures. By providing a localized and integrated analysis, the study aims to contribute to a deeper understanding of the interplay between awareness, opportunity perception, and structural constraints in shaping entrepreneurial outcomes.

STATEMENT OF THE PROBLEM

Entrepreneurship plays a vital role in economic development, innovation, and employment generation. In recent years the government has introduced several initiatives such as Startup India launched in 2016 its main aim is to promote innovation and Startup-culture. There are various Benefits like Tax exemptions for 3 years, Funding supports, Mentorship and Incubation support is provided. Likewise Make in India focuses on boosting manufacturing sector encourages both domestic and foreign investment. There various schemes in India in recent years which mainly promotes and focus on startup companies. However many individuals still faces challenges such as lack of awareness and opportunities that is there and still struggle for financial constraints to start their companies. There exists a gap between entrepreneurial aspirations and actual utilization of government schemes for their startups.

REVIEW OF LITERATURE

Boudreaux et al. (2021) analysed the impact of institutional factors on entrepreneurial activity using cross-country panel data. The study found that strong institutional quality and economic freedom significantly support entrepreneurial resilience, particularly during external shocks. It concluded that effective governance enhances entrepreneurial development.

Xie et al. (2022) examined the role of AI-based entrepreneurship education among students. The findings indicated that technological exposure improved entrepreneurial skills and innovation capacity, although practical implementation remained limited. The study emphasized integrating technology into entrepreneurship education.

Muthusamy (2024) investigated awareness of government schemes among women entrepreneurs. The study revealed moderate awareness levels with significant gaps in utilization due to informational and socio-cultural barriers. It highlighted the need for targeted awareness programs.

Lakshmi and Banu (2025) explored the impact of government schemes on technology adoption among MSMEs. The results showed improved awareness but identified financial and digital literacy constraints. The study stressed the importance of training and institutional support.

Ibrahim and Sufiyan (2025) assessed awareness of government schemes among entrepreneurs using survey data. The findings indicated that while general awareness exists, detailed understanding and utilization remain limited. The study concluded that awareness is crucial for effective policy utilization.

RESEARCH GAP

The review of recent literature (2021–2025) indicates that while substantial research has examined the role of institutional support, entrepreneurship education, and government initiatives in promoting entrepreneurial activity, significant gaps remain. Most studies have primarily focused on macro-level analysis, specific groups such as women entrepreneurs or MSMEs, or the impact of individual schemes, with limited attention to integrated assessments of **awareness, perceived opportunities, and challenges** within a localized context. Furthermore, existing research consistently highlights moderate awareness and underutilization of government schemes but lacks empirical investigation into how awareness translates into opportunity perception and entrepreneurial intent. There is also insufficient region-specific evidence, particularly in urban ecosystems such as Chennai, where socio-economic and educational factors

may uniquely influence entrepreneurial behavior. Therefore, the present study addresses this gap by providing a comprehensive, micro-level analysis of prospective entrepreneurs, examining the interrelationship between demographic factors, awareness of government initiatives, perceived opportunities, and challenges within the startup ecosystem.

OBJECTIVES OF THE STUDY

- To study the demographic profile of prospective entrepreneurs in Chennai city.
- To understand the level of awareness on various government schemes available for start-ups.
- To study the various opportunities available and challenges faced by prospective entrepreneurs.
- To assess the challenges faced by prospective entrepreneurs.

RESEARCH METHODOLOGY

The methodology is the contextual framework for the research. The study is analytical in nature and the samples are drawn from the people residing in Chennai. The sampling unit of the study are working professionals. The sample size of this study is 144. The sampling instrument used in this study is a structured questionnaire circulated using Google Forms. The sampling technique used is non-probability sampling and the data collection was done by purposive sampling method.

The data is collected through structured questionnaires like Likert scale were used. Purposive sampling technique were used. The sample size of this study is 144 respondents. Students, Aspiring Entrepreneurs, startup owners were the respondents of this study. The analysis was done using statistical tools such as chi square test and correlation. The data collection period of the study is between January 2026 to February 2026.

LIMITATIONS OF THE STUDY

- The study is limited to specific area that is Chennai city.
- The study was conducted during a short period of time and the respondents are limited.
- Time constraints may affect the study of the in-depth research.
- The respondents may vary time to time and person to person that may affect the research.

RESULTS AND FINDINGS

OBJECTIVE 1: To study the demographic profile of prospective entrepreneurs in Chennai city.

Table 1: Demographic Profile of Respondents (n = 144)

Variable	Category	Frequency	Percentage (%)
Age	Below 20	12	8.3
	20–30	68	47.2
	30–40	34	23.6
	40–50	20	13.9
	Above 50	10	6.9
Gender	Male	82	56.9
	Female	60	41.7
	Others	2	1.4
Educational Qualification	Higher Secondary	18	12.5
	Graduate	62	43.1
	Postgraduate	48	33.3
	Professional	12	8.3
	Others	4	2.8
Employment Status	Student	46	31.9
	Employed (Full-Time)	52	36.1
	Employed (Part-Time)	10	6.9
	Self-employed	18	12.5
	Unemployed	14	9.7
	Others	4	2.8
Monthly Income	< ₹25,000	40	27.8
	₹25,000–₹50,000	52	36.1
	₹50,000–₹75,000	28	19.4
	₹75,000–₹1,00,000	16	11.1
	> ₹1,00,000	8	5.6

The demographic profile reveals a distinct concentration of entrepreneurial aspiration among younger individuals, particularly within the 20–30 age group (47.2%), indicating that early-career individuals constitute the primary segment inclined toward startup initiatives. This trend reflects the increasing influence of innovation-driven career pathways and exposure to entrepreneurial ecosystems among youth.

Gender distribution demonstrates a moderate male predominance (56.9%), although female participation (41.7%) is notably substantial, suggesting a progressive shift toward inclusivity in entrepreneurial engagement. The minimal representation of other gender categories indicates scope for broader inclusivity in future research.

Educational qualifications indicate that a majority of respondents are graduates (43.1%) and postgraduates (33.3%), highlighting the critical role of higher education in fostering entrepreneurial competencies, risk assessment abilities, and awareness of institutional support systems.

Employment status distribution shows that both employed individuals (full-time: 36.1%) and students (31.9%) form the largest segments. This suggests that entrepreneurship is perceived not

only as a primary career choice but also as a supplementary or future-oriented endeavor alongside existing professional commitments.

Income distribution reveals that most respondents fall within the ₹25,000–₹50,000 bracket (36.1%), followed by those earning below ₹25,000 (27.8%). This concentration within lower- and middle-income groups implies that financial limitations may influence both the motivation and constraints associated with entrepreneurial activities.

OBJECTIVE 2: To understand the level of awareness on various government schemes available for start-ups.

Table 2: Awareness Level of Government Schemes (n = 144)

Scheme	Fully Aware	Aware	Neutral	Slightly Aware	Not Aware	Total
Startup India	52	48	20	14	10	144
PMMY	40	46	26	18	14	144
MUDRA	44	50	22	16	12	144
Atal Innovation Mission	28	42	34	22	18	144
Tamil Nadu Startup Policy	24	40	36	26	18	144

The data demonstrates relatively higher awareness levels for nationally prominent schemes such as Startup India and MUDRA, where a substantial proportion of respondents reported being either fully aware or aware. In contrast, initiatives such as the Atal Innovation Mission and Tamil Nadu Startup Policy exhibit comparatively lower awareness, with a larger share of respondents indicating neutral or limited familiarity.

This pattern suggests that while central government schemes benefit from broader visibility and outreach, region-specific initiatives suffer from inadequate dissemination. The findings indicate a critical gap between policy availability and effective communication, thereby limiting optimal utilization of these schemes by prospective entrepreneurs.

Table 3: Chi-Square Test – Educational Qualification vs Awareness Level

Educational Qualification	High Awareness	Moderate Awareness	Low Awareness	Total	χ^2 value	p value
Higher Secondary	6	8	4	18	18.42	.018
Graduate	28	22	12	62		
Postgraduate	26	16	6	48		
Professional	8	3	1	12		
Others	2	1	1	4		
Total	70	50	24	144		

The Chi-square test results indicate that the calculated p-value (0.018) is lower than the significance level of 0.05. Therefore, the null hypothesis is rejected, confirming a statistically significant association between educational qualification and awareness of government schemes. The cross-tabulation reveals that respondents with higher educational attainment (graduates and postgraduates) exhibit greater levels of awareness compared to those with lower educational qualifications. This suggests that education plays a critical role in enhancing access to and understanding of government initiatives.

Inference

Educational qualification significantly influences awareness levels. Hence, policy dissemination strategies should be redesigned to effectively target individuals with lower educational backgrounds through simplified communication channels and localized outreach programs.

OBJECTIVE 3: To study the various opportunities available and challenges faced by prospective entrepreneurs.

Table 4: Sector Preference for Starting Business (n = 144)

Sector	Frequency	Percentage (%)
Agriculture	10	6.9
Manufacturing	18	12.5
Retail	20	13.9
Banking/Finance	16	11.1
IT/Services	34	23.6
Food Industry	28	19.4
Others	18	12.5
Total	144	100%

The distribution indicates a strong preference for service-oriented sectors, particularly IT/services (23.6%) and the food industry (19.4%). These sectors are typically characterized by lower entry barriers, higher scalability, and adaptability to evolving market trends. Traditional sectors such as agriculture and manufacturing attract comparatively fewer respondents, suggesting a shift toward knowledge-based and consumer-driven industries.

Table 5: Perception of Opportunities (Likert Scale) (n = 144)

Statement	SA	A	N	D	SD	Mean Score
Growth opportunities exist	48	56	20	12	8	3.86
Family support	40	50	24	18	12	3.61
Access to information	32	48	30	20	14	3.44
Training programs helpful	36	52	26	18	12	3.57
Government support adequate	28	44	32	24	16	3.28

(Scale: 5 = Strongly Agree to 1 = Strongly Disagree)

The responses indicate a generally positive perception of entrepreneurial opportunities, particularly regarding the availability of growth prospects (mean = 3.86). Family support and training programs are also perceived favourably, suggesting the presence of a supportive micro-environment for entrepreneurial initiatives.

However, relatively lower mean scores for access to information (3.44) and government support (3.28) highlight systemic limitations in institutional facilitation. This disparity indicates that while motivational and environmental factors are favourable, structural support mechanisms require further strengthening.

Table 6: Correlation Between Awareness and Perceived Opportunities

Variables	Mean	Standard Deviation	Correlation (r)	p-value
Awareness Score	3.58	0.82	0.62	0.000
Opportunity Score	3.55	0.76		

The Pearson correlation coefficient ($r = 0.62$) indicates a moderate to strong positive relationship between awareness of government schemes and perceived entrepreneurial opportunities. The p-value (0.000) confirms that this relationship is statistically significant at the 5% level.

This finding implies that individuals who possess higher awareness of policy initiatives tend to perceive greater opportunities within the entrepreneurial ecosystem. Awareness functions as an enabling factor that enhances opportunity recognition and entrepreneurial readiness.

Inference

The results establish that improving awareness can directly strengthen perceptions of opportunity among prospective entrepreneurs. Therefore, policy frameworks should prioritize awareness-building mechanisms alongside financial and infrastructural support.

OBJECTIVE 4: To assess the challenges faced by the prospective entrepreneurs

Table 7: Challenges in Entrepreneurship (Likert Scale) (n = 144)

Statement	SA	A	N	D	SD	Mean Score
Complex procedures	54	50	18	12	10	3.88
Limited access to schemes	46	52	22	14	10	3.76
Delay in funding	50	48	20	14	12	3.76
Lack of mentorship	44	50	24	16	10	3.71
Market competition	48	46	22	16	12	3.71
Fear of failure	42	48	26	16	12	3.64

Table 8: Ranking of Major Challenges (Weighted Mean Method)

Challenge	Mean Score	Rank
Complex procedures	3.88	1
Limited access to schemes	3.76	2
Delay in funding	3.76	3
Lack of mentorship	3.71	4
Market competition	3.71	5
Fear of failure	3.64	6

The analysis reveals that procedural complexity constitutes the most significant barrier to entrepreneurship (mean = 3.88), indicating that bureaucratic inefficiencies remain a critical constraint. Limited access to schemes and delays in funding further exacerbate these challenges, highlighting inefficiencies in policy implementation.

Additionally, the lack of mentorship and intense market competition reflect structural and competitive barriers within the entrepreneurial ecosystem. Psychological constraints such as fear of failure, while comparatively lower, still represent a notable deterrent.

MAJOR FINDINGS

The findings suggest that despite the presence of supportive policies, operational inefficiencies and systemic gaps significantly hinder entrepreneurial development.

1. Youth-Dominated Entrepreneurial Aspirations

The study reveals that entrepreneurial aspirations are predominantly concentrated among younger individuals, particularly within the 20–30 age group (47.2%). The majority of respondents are graduates and postgraduates, indicating that higher education significantly

contributes to entrepreneurial orientation, skill development, and awareness of startup opportunities.

2. Moderate but Uneven Awareness of Government Schemes

Awareness levels of government initiatives are moderate, with higher recognition for national schemes such as Startup India and MUDRA, while comparatively lower awareness is observed for Atal Innovation Mission and Tamil Nadu Startup Policy. This indicates an imbalance in information dissemination between central and regional initiatives.

3. Significant Association Between Education and Awareness

The Chi-square test ($\chi^2 = 18.42$, $p < 0.05$) confirms a statistically significant relationship between educational qualification and awareness levels. Respondents with higher educational attainment demonstrate greater awareness of government schemes, emphasizing the role of education in accessing and utilizing policy support.

4. Positive Perception of Entrepreneurial Opportunities

Respondents exhibit a favourable perception of entrepreneurial opportunities, particularly regarding growth potential (mean = 3.86). Service-oriented sectors such as IT/services and food industries are most preferred, reflecting a shift toward low-investment and scalable business models.

5. Awareness Positively Influences Opportunity Perception

Correlation analysis ($r = 0.62$, $p < 0.01$) indicates a significant positive relationship between awareness of government schemes and perceived entrepreneurial opportunities. This suggests that increased awareness enhances opportunity recognition and entrepreneurial confidence.

6. Institutional and Procedural Barriers as Key Challenges

Procedural complexity (mean = 3.88) emerges as the most significant challenge, followed by limited access to schemes and delays in funding. These findings highlight persistent bureaucratic inefficiencies and gaps in policy implementation.

7. Role of Structural and Psychological Constraints

In addition to institutional barriers, factors such as lack of mentorship, market competition, and fear of failure also influence entrepreneurial decision-making. These constraints collectively hinder the translation of entrepreneurial intent into actual venture creation.

8. Existence of Policy–Practice Gap

The study identifies a clear gap between the availability of government initiatives and their effective utilization. While awareness and perceived opportunities exist, structural inefficiencies and limited accessibility reduce the practical impact of these policies. The findings of the present study exhibit both convergence and divergence with recent empirical literature on entrepreneurship and government initiatives.

DISCUSSION

The demographic results indicating a strong concentration of entrepreneurial aspirations among younger and educated individuals are consistent with **Xie et al. (2022)**, who reported that higher education and exposure to innovation-based learning significantly enhance entrepreneurial

intention. The present study extends this observation by demonstrating that not only education but also employment status (students and working professionals) influences entrepreneurial orientation in an urban context.

With respect to awareness of government schemes, the study identifies moderate and uneven awareness levels, which aligns with the findings of **Muthusamy (2024)** and **Ibrahim and Sufiyan (2025)**. These studies similarly reported that although entrepreneurs are generally aware of major schemes, detailed understanding and effective utilization remain limited. The present study contributes further by empirically establishing a statistically significant relationship between educational qualification and awareness, thereby providing quantitative validation to earlier descriptive findings.

The positive perception of entrepreneurial opportunities observed in this study corresponds with the broader institutional perspective highlighted by **Boudreaux et al. (2021)**, who emphasized that supportive environments and institutional frameworks foster entrepreneurial activity. However, the current study nuances this perspective by demonstrating that opportunity perception is not solely determined by institutional presence but is significantly influenced by individual awareness levels.

A notable contribution of this study is the identification of a significant positive correlation between awareness and perceived opportunities. While previous studies have discussed awareness and opportunities independently, limited empirical evidence exists on their interrelationship. In this regard, the present findings extend existing literature by establishing awareness as a critical mediating factor that enhances opportunity recognition and entrepreneurial readiness.

Regarding challenges, the findings related to procedural complexity, funding delays, and lack of mentorship are consistent with **Lakshmi and Banu (2025)**, who identified financial and structural barriers as major constraints in the adoption of entrepreneurial and technological initiatives. The present study reinforces these findings within the startup ecosystem and further highlights the role of bureaucratic inefficiencies in limiting the effectiveness of government schemes.

Additionally, the identification of psychological barriers such as fear of failure complements existing literature but also suggests that entrepreneurial constraints are multidimensional, encompassing both structural and behavioural factors. This integrated perspective is less emphasized in prior studies, thereby representing a contextual contribution of the current research.

While existing literature predominantly focuses on isolated dimensions such as awareness, institutional support, or specific entrepreneurial groups, the present study provides a comprehensive and integrated analysis linking demographics, awareness, opportunities, and challenges within a localized urban context. This reinforces the identified research gap and contributes to a more holistic understanding of the entrepreneurial ecosystem.

CONCLUSION

The present study concludes that while entrepreneurial aspirations among prospective entrepreneurs in Chennai are notably strong—particularly among educated youth—there exists a

significant gap between the availability of government initiatives and their effective utilization. Although awareness of major schemes is moderate, it remains uneven and is significantly influenced by educational attainment. The findings further indicate that awareness plays a crucial role in enhancing the perception of entrepreneurial opportunities, thereby reinforcing its importance as a catalyst for entrepreneurial engagement. However, structural challenges such as procedural complexity, delays in funding, and limited access to institutional support, along with psychological barriers, continue to impede entrepreneurial development. Overall, the study highlights the existence of a policy–practice gap and underscores the need for integrated strategies focusing on awareness enhancement, simplification of procedures, and strengthening of support systems to foster a more inclusive and effective startup ecosystem.

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**STRUCTURAL TRANSFORMATION AND ECONOMIC
DIVERSIFICATION IN A PLANNED INDUSTRIAL CITY: EVIDENCE
FROM DURGAPUR-AN INDIAN STEEL TOWN (1970–2020)**

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ABSTRACT

Planned steel cities in India were established as mono-industrial growth centres under the Second Five-Year Plan, resulting in highly concentrated employment structures anchored around large public-sector steel plants. Over time, technological change, economic liberalization, and shifts in production regimes have altered the economic foundations of these cities. This study examines long-term structural transformation and economic diversification in Durgapur, a non-metropolitan planned steel city, by jointly analysing sector-wise employment and income patterns from 1971 to 2020.

The study combines secondary employment data with indicative sector-wise income estimates derived from a perception-based survey of experienced stakeholders. Descriptive statistical measures are used to assess sectoral stability and variability, while economic concentration and diversification are evaluated using the Herfindahl–Hirschman Index (HHI) and the Diversification Index (DI)(Frenken et al., 2007). This dual approach enables a comparative assessment of employment-based and income-based diversification trajectories.

The results reveal a pronounced decline in employment concentration, with the employment HHI falling from 0.52 in 1971 to 0.21 in 2020, indicating a transition from a steel-dominated economy to a diversified multi-sectoral structure driven primarily by small-scale and micro enterprises. In contrast, income diversification remained consistently high throughout the study period, with income DI values exceeding 0.86 across all decades. The emergence of high-income service sectors, particularly information technology, introduced temporary income re-concentration without generating commensurate employment growth(Sassen, 2001; Rodrik, 2016).

The findings highlight a structural decoupling between employment diversification and income diversification, suggesting that post-industrial transformation in planned steel cities involves not merely sectoral change but shifts in the relationship between labour absorption and income

generation. The study contributes to urban economic literature by demonstrating the importance of analysing employment and income structures simultaneously to understand the resilience and vulnerabilities of non-metropolitan industrial cities undergoing long-term economic restructuring.

KEYWORDS: *Economic Diversification, Employment Structure, Sectoral Income, Industrial Town, Durgapur, Herfindahl–Hirschman Index (HHI).*

INTRODUCTION

Steel cities in India were largely established during the Second Five-Year Plan (1956–1961), which positioned heavy industrialization as the principal strategy for accelerating national economic development. Planned industrial centres such as Durgapur, Bhilai, Rourkela, and Bokaro emerged during this period as state-led growth poles anchored around large public-sector steel plants (Kaldor, 1967; Chakravorty, 2003; Bluestone & Harrison, 1982). These towns were structurally and functionally designed to support integrated steel production, resulting in a highly mono-industrial economic structure during their formative decades. Employment was overwhelmingly concentrated in steel manufacturing and closely related secondary industries, particularly metal and allied sectors, which absorbed a substantial share of the urban workforce.

Over time, however, the economic foundations of these steel cities began to evolve. From the late 1980s—and more decisively following the economic reforms of the 1990s—structural shifts emerged due to technological modernization, increased automation in heavy industry, and changes in global production regimes. India's integration into the global economy through the GATT framework and the establishment of the World Trade Organization (WTO) intensified international competition. While these processes enhanced industrial productivity and efficiency, they simultaneously reduced labour absorption in traditional secondary industries. As steel production became increasingly capital- and technology-intensive, employment in steel and metal-allied sectors declined despite sustained, and in some cases rising, levels of industrial output (Rodrik, 2016).

Concurrently, these industrial towns experienced a gradual reorientation toward the tertiary sector, marked by the expansion of services, small-scale and micro enterprises, institutional employment, and retail activities. This transition reflects a broader post-industrial trajectory in which employment growth increasingly shifted away from large-scale manufacturing toward services and informal economic activities. The resulting urban economic structure represents a movement away from state-led, industry-dependent systems toward more diversified and service-oriented urban economies, a pattern particularly evident in non-metropolitan industrial cities.

Within this broader context, the present study selects Durgapur as a case study to examine long-term processes of structural transformation and economic diversification among India's planned steel cities. Durgapur offers a particularly instructive example due to its early establishment under the Second Five-Year Plan, its prolonged dependence on a public-sector steel plant, and its sustained exposure to post-liberalization economic restructuring. Unlike some steel towns that

continue to exhibit strong single-industry dominance, Durgapur has experienced a more pronounced expansion of small-scale enterprises, institutional activities, and service-sector functions, while continuing to retain its industrial legacy.

Moreover, Durgapur's strategic location within eastern India, its integration with regional industrial and transport networks, and its evolution as a non-metropolitan urban centre further enhance its analytical relevance. These characteristics position Durgapur as a representative yet analytically rich case for understanding how planned industrial cities in India have navigated the transition from mono-industrial dependence toward more diversified and hybrid urban economies over time.

Data and Methodology

Sector-wise employment shares for the years 1971, 1981, 1991, 2001, 2011, and 2020 were compiled to capture the relative importance of different economic activities in Durgapur. Employment is expressed in percentage terms and reflects long-term structural change rather than short-term fluctuations.

In the absence of consistent historical municipal data on sector-wise income, indicative income values were derived through a primary perception-based survey. Five experienced stakeholders from each sector were consulted to estimate perceived average monthly remuneration (nominal values) across different decades, based on professional experience, institutional memory, and observable sectorial trends. The resulting values represent relative income progression and are intended for comparative analysis rather than precise historical wage estimation.

Descriptive statistical measures, including mean, standard deviation, and coefficient of variation, were employed to assess sector-wise stability and variability over time (Gujarati & Porter, 2009). Economic concentration was evaluated using the Herfindahl–Hirschman Index (HHI), computed from sectorial employment shares (Herfindahl, 1950; Hirschman, 1964, Glaeser et al., 1992; Tashakkori & Teddlie, 2010). An Economic Diversification Index (DI) was derived as $(1 - \text{HHI})$, where higher values indicate greater levels of economic diversification, consistent with regional economic analysis practices (Malizia & Ke, 1993). The Herfindahl–Hirschman Index (HHI) is used to measure the degree of sectoral employment concentration within the urban economy by capturing the relative dominance of individual sectors. Higher HHI values indicate greater economic concentration and mono-sectoral dependence, while lower values reflect a more balanced and diversified employment structure.

Research Objectives

In order to understand the long-term processes of structural transformation and economic diversification in a planned industrial city, the present study sets out the following research objectives:

To examine the long-term structural changes in sector-wise income composition in Durgapur from 1970 to 2020.

- To analyse sectoral employment shifts and their alignment with income generation.
- To assess the degree of economic diversification across decades using diversification indices.

- To examine the relationship between income growth and employment growth across sectors.

Data Description

Table-1 presents the evolution of sector-wise employment shares in Durgapur between 1971 and 2020. The steel sector dominated employment in 1971, accounting for over 70% of total employment, reflecting the city's mono-industrial character. This dominance declined steadily over subsequent decades, falling below 5% by 2020.

In contrast, Small-Scale Enterprises (SSE) and Micro and Small Enterprises (MSE) emerged as major employment generators, particularly after the 1990s (Meagher, 2010). SSE employment peaked during the 2001–2011 period, while MSE employment continued to grow into 2020, indicating a shift towards decentralized and flexible production systems.

Institutional sectors such as healthcare and education exhibited stable but modest employment shares, acting as long-term employment anchors. The emergence of IT and organized retail after 2000, though limited in employment share, signals the gradual integration of service-sector activities into Durgapur's economy.

Table-1: Evolution of various employment sector (share %) in Durgapur

Sl No.	Industry typology	1971	1981	1991	2001	2011	2020
A	Steel	70.42	49.03	29.97	19.84	8.21	4.73
B	Metal and allied	13.41	8.47	8.06	7.98	6.54	9.10
C	Non-metal industry	4.64	12.26	4.70	3.99	4.26	2.37
D	Small Scale Enterprise (SSE)	1.48	13.63	35.0	37.19	40.97	33.42
E	Institution-Healthcare	2.64	3.24	3.82	4.58	4.62	4.57
F	Institution-educational	3.05	2.94	2.96	3.61	3.39	4.83
G	IT	0.00	0.00	0.00	0.24	2.14	1.96
H	Shopping mall	0.00	0.00	0.00	0.00	0.98	1.52
I	Medium Scale Enterprise (MSE)	0.65	2.59	8.86	13.28	24.63	26.07
J	Balance	3.70	7.83	6.62	9.29	4.26	11.44

A primary perception-based survey was conducted with five experienced stakeholders from each sector. Respondents were asked to assess the relative level and progression of economic strength of their sector across different decades, based on professional experience, sectoral knowledge, and observable changes, rather than precise income figures.

The values indicate relative trends derived from respondent perceptions and should be interpreted as indicative rather than exact economic measurements. Perceived average monthly remuneration (nominal values) as recalled/estimated by long-term sectoral practitioners.

Table-2: Sector wise income in Durgapur Table-2: Sector wise income in Durgapur

Code	Sector	1971	1981	1991	2001	2011	2020
A	Steel	750	1,500	3,200	8,000	35,000	80,000
B	Metal and allied	650	1,300	2,800	7,000	30,000	65,000
C	Non-metal industry	600	1,200	2,500	6,000	25,000	50,000
D	SSE	500	1,000	2,200	5,500	22,000	45,000
E	Institution – Healthcare	400	900	2,000	7,000	30,000	70,000
F	Institution – Educational	350	800	1,800	6,000	28,000	60,000
G	IT	0	300	800	12,000	60,000	1,00,000
H	Shopping Mall	0	0	500	3,000	12,000	25,000
I	MSE	450	900	2,000	5,000	18,000	35,000
J	Balance	400	800	1,600	4,000	15,000	30,000

Table 2 presents indicative sector-wise income levels based on stakeholder perception. Across all sectors, income levels increased substantially over time, reflecting inflation, productivity gains, While traditional industrial sectors such as steel and metal allied industries continued to show high absolute income growth, service-oriented sectors—particularly IT—exhibited the highest income volatility and growth rates. Institutional sectors displayed steady income progression without corresponding large-scale employment expansion, indicating rising skill intensity rather than labour absorption.

Descriptive Statistical Analysis

The descriptive statistics (Table-3) reveal high coefficients of variation for steel, SSE, MSE, IT, and shopping mall sectors, indicating significant structural change over time. In contrast, healthcare and educational institutions show low variability, highlighting their stabilizing role in the urban economy.

Table-3: Descriptive Statistics of Sector-wise Employment Structure in Durgapur (1971–2020)

Sector	Mean	Std. Dev.	Min	Max	CV (%)
Steel	30.37	25.34	4.73	70.42	83.46
Metal & Allied	8.93	2.35	6.54	13.41	26.36
Non-metal Industry	5.37	3.48	2.37	12.26	64.83
SSE	26.95	15.71	1.48	40.97	58.30
Institution – Healthcare	3.91	0.83	2.64	4.62	21.26
Institution – Educational	3.46	0.72	2.94	4.83	20.79
IT	0.72	1.03	0.00	2.14	142.87
Shopping Mall	0.42	0.67	0.00	1.52	160.25
MSE	12.68	10.80	0.65	26.07	85.20
Balance	7.19	2.97	3.70	11.44	41.25

Income-related statistics (Table-4) show extremely high coefficients of variation across all sectors, reflecting rapid income restructuring over five decades. IT demonstrates the highest mean income and volatility, while retail and MSE sectors exhibit moderate but consistent income growth.

Table-4: Descriptive Statistics of Sector-wise Income Structure in Durgapur (1971–2020)

Sector	Mean	Std. Dev.	Min	Max	CV (%)
Steel	21,408	31,471	750	80,000	147.00
Metal & Allied	17,792	25,631	650	65,000	144.06
Non-metal Industry	14,217	19,781	600	50,000	139.14
SSE	12,700	17,763	500	45,000	139.87
Institution – Healthcare	18,383	27,663	400	70,000	150.48
Institution – Educational	16,158	23,906	350	60,000	147.95
IT	28,850	41,835	0	1,00,000	145.01
Shopping Mall	6,750	10,049	0	25,000	148.87
MSE	10,225	13,796	450	35,000	134.93
Balance	8,633	11,808	400	30,000	136.77

The descriptive analysis of sector-wise employment highlights the enduring influence of Durgapur's legacy industrial base. Steel and Small-Scale Enterprises (SSE) record the highest mean employment shares, reflecting the city's historical dependence on heavy industry and allied manufacturing activities. This dominance underscores the foundational role played by industrial employment in shaping the urban economic structure over several decades.

The coefficient of variation (CV) values further reveals the nature of structural transformation across sectors. Very high CV values (exceeding 60 percent) in emerging sectors such as Information Technology (IT), Micro and Small Enterprises (MSE), and Shopping Malls indicate significant fluctuations and rapid growth over time. These patterns point toward a dynamic restructuring of the urban economy, marked by diversification into service-oriented and informal sectors. In contrast, institutional sectors such as healthcare and education exhibit relatively low CV values (below 30 percent), suggesting stable and resilient employment generation. These sectors function as long-term employment anchors, contributing to socio-economic stability amid broader economic transitions.

The income-based descriptive statistics present a more pronounced picture of economic restructuring. The consistently high coefficients of variation, ranging approximately between 140 and 150 percent across sectors, indicate rapid and uneven income growth over time. This reflects a fundamental shift in the city's income structure, driven by sectorial modernization, productivity gains, and changing market dynamics.

Among all sectors, Information Technology stands out with the highest mean income levels as well as the greatest volatility. This trend signifies Durgapur's gradual transition toward a post-industrial income regime, where high-value service sectors contribute disproportionately to overall income growth. Meanwhile, institutional sectors such as healthcare and education demonstrate steadily rising income levels without a commensurate increase in employment. This divergence suggests productivity-driven growth, wage escalation, and professionalization within these sectors, reinforcing the phenomenon of income expansion decoupled from employment growth.

Economic Diversification Analysis-Employment

The employment-based Herfindahl–Hirschman Index (HHI) indicates a long-term transition of Durgapur from a highly concentrated steel-dominated economy in 1971 towards a relatively diversified multi-sectoral urban economy by 2020, with small-scale enterprises and services playing an increasingly significant role.

HHI was computed using sectoral employment shares, and the Diversification Index (DI) was derived as $(1 - \text{HHI})$, where higher DI values indicate greater economic diversification. Table-5 presents the employment-based Herfindahl–Hirschman Index and Diversification Index for Durgapur. The HHI declined sharply from 0.52 in 1971 to 0.21 in 2020, while the DI increased from 0.48 to nearly 0.79.

Table-5: Employment-Based Economic Diversification Index (Durgapur)

Year	Total HHI	Diversification Index (DI = 1 – HHI)	Interpretation
1971	0.5202	0.4798	Highly concentrated (Steel-dominated economy)
1981	0.2899	0.7101	Moderate diversification begins
1991	0.2367	0.7633	Increasing diversification
2001	0.2153	0.7847	Most diversified phase
2011	0.2520	0.7480	Mild re-concentration (SSE dominance)
2020	0.2144	0.7856	Renewed diversification

Table-6: Sector-wise Contribution to HHI (Employment)

Sector	1971	1981	1991	2001	2011	2020
Steel	0.4959	0.2404	0.0898	0.0394	0.0067	0.0022
Metal & Allied	0.0180	0.0072	0.0065	0.0064	0.0043	0.0083
Non-metal Industry	0.0022	0.0150	0.0022	0.0016	0.0018	0.0006
SSE	0.0002	0.0186	0.1225	0.1383	0.1679	0.1117
Institution – Healthcare	0.0007	0.0011	0.0015	0.0021	0.0021	0.0021
Institution – Educational	0.0009	0.0009	0.0009	0.0013	0.0011	0.0023
IT	0.0000	0.0000	0.0000	0.0000	0.0046	0.0038
Shopping Mall	0.0000	0.0000	0.0000	0.0000	0.0010	0.0023
MSE	0.0000	0.0007	0.0079	0.0176	0.0607	0.0680
Balance	0.0014	0.0061	0.0044	0.0086	0.0018	0.0131
Total HHI	0.5202	0.2899	0.2367	0.2153	0.2520	0.2144

The diversification index (DI) shows a steady improvement from 0.48 in 1971 to nearly 0.79 by 2020, indicating a structural transformation of Durgapur’s economy from a highly concentrated steel-based industrial town to a diversified urban economy. A temporary dip in diversification during 2011 reflects sectoral dominance of small-scale enterprises, followed by renewed diversification by 2020 with the emergence of services, IT, and micro-enterprises.”

This trend indicates a clear transition from a highly concentrated steel-dominated economy to a diversified urban economic structure. A temporary re-concentration observed in 2011 corresponds to the dominance of small-scale enterprises, followed by renewed diversification by 2020 driven by services, micro-enterprises, and institutional growth.

The sector-wise HHI contributions (employment) reveal that steel was the overwhelming source of concentration in the early decades. Over time, its contribution diminished significantly, while SSE and MSE emerged as new but less extreme contributors to concentration. Service sectors, although growing, did not dominate employment sufficiently to recreate mono-sectoral dependence.

Economic Diversification Analysis-Income

The sector-wise Herfindahl–Hirschman Index (HHI) values indicate a significant transformation in the income composition of Durgapur over five decades. In 1971, the total HHI stood at 0.13325, reflecting a relatively high level of income concentration, primarily driven by heavy industrial sectors such as Steel (0.03346), Metal and Allied industries (0.02513), and Non-metal industries (0.02142). This confirms the city's strong dependence on core industrial activities during its early development phase as a steel-based industrial town.

Table-7: Sector-wise Contribution to HHI (Income)

Code	Sector	1971	1981	1991	2001	2011	2020
A	Steel	0.033	0.030	0.027	0.016	0.016	0.020
B	Metal and allied	0.025	0.022	0.021	0.012	0.012	0.013
C	Non-metal industry	0.021	0.019	0.017	0.009	0.008	0.008
D	SSE	0.015	0.013	0.013	0.008	0.006	0.006
E	Institution – Healthcare	0.010	0.011	0.011	0.012	0.012	0.016
F	Institution – Educational	0.007	0.008	0.009	0.009	0.010	0.011
G	IT	0.000	0.001	0.002	0.036	0.048	0.032
H	Shopping Mall	0.000	0.000	0.001	0.002	0.002	0.002
I	MSE	0.012	0.011	0.011	0.006	0.004	0.004
J	Balance	0.010	0.008	0.007	0.004	0.003	0.003
—	Total HHI	0.133	0.124	0.117	0.114	0.122	0.116
	DI	0.867	0.877	0.882	0.887	0.877	0.884

Between 1971 and 1991, the total HHI shows a steady decline from 0.13325 to 0.11654, indicating a gradual reduction in income concentration. This period corresponds with the relative decline in dominance of large-scale industries, as reflected in the consistent fall in HHI values for steel and allied sectors. At the same time, small-scale enterprises (SSE and MSE) and institutional sectors begin to register stable contributions, suggesting the early stages of income diversification.

The 2001 snapshot marks a critical structural shift. While traditional industrial sectors continue to lose income dominance, a sharp rise in the IT sector (0.03571) is observed, emerging as a new income-concentrating activity. This explains why the total HHI does not decline proportionately during this period (0.11365), despite the weakening of heavy industry. The rise of IT reflects the broader post-liberalization transition towards service-oriented income generation.

In the 2011 period, the total HHI increases to 0.12180, indicating a temporary re-concentration of income. This is largely attributed to the rapid expansion of the IT sector (0.04760), which becomes a dominant income source, offsetting gains from diversification in healthcare and education. Institutional sectors—particularly healthcare (0.01190) and education (0.01037)—show consistent growth, highlighting the increasing role of social infrastructure in urban income formation.

By 2020, the total HHI declines again to 0.11607, suggesting renewed income diversification. Although IT remains a significant contributor (0.03189), its reduced HHI share indicates a more balanced income distribution across sectors. Concurrent growth in healthcare (0.01563) and education (0.01148) reinforces the shift towards a mixed economic base combining services, institutions, and residual industrial activities.

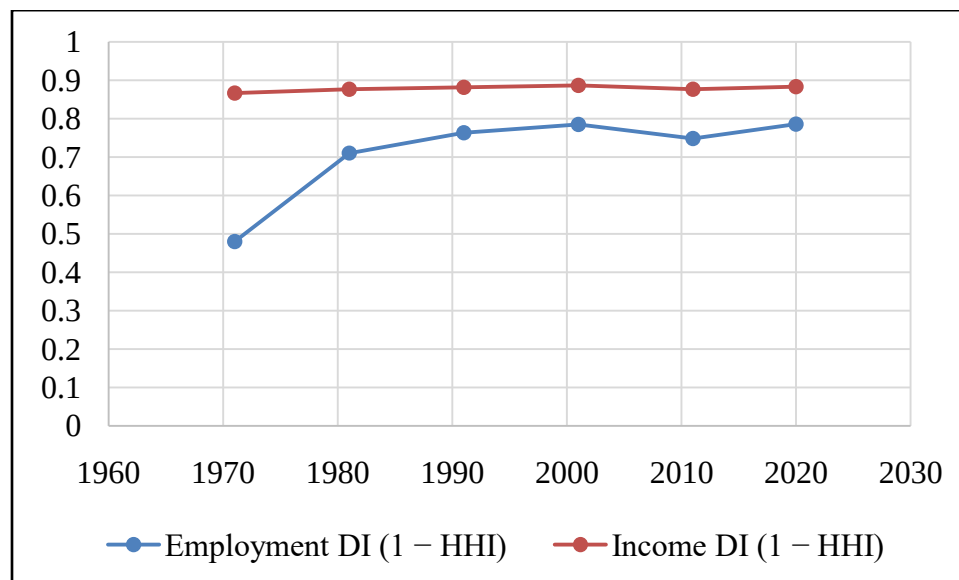
Overall, the HHI–income trends reveal Durgapur’s transition from a mono-industrial income structure to a moderately diversified urban economy. While the dominance of traditional manufacturing has diminished, the emergence of IT and institutional sectors has reshaped income concentration patterns. The persistence of moderate HHI levels, however, suggests that diversification remains uneven, underscoring the need for policy support to strengthen a broader range of income-generating sectors and enhance long-term economic resilience.

The HHI–income values indicate that Durgapur maintained a structurally diversified income base throughout the study period, with DI values consistently above 0.86. However, sectoral shifts—particularly the rise of IT and institutional services—produced temporary variations in income concentration without reversing the overall diversified character of the urban economy.

Discussion

The findings of this study provide a nuanced understanding of long-term structural transformation in a planned steel city, revealing a clear divergence between employment concentration and income diversification trajectories. While Durgapur originated as a highly mono-industrial city dominated by steel manufacturing, the empirical results demonstrate that the pace and nature of diversification differed significantly between employment and income structures over time. This distinction is critical for interpreting post-industrial transitions in non-metropolitan industrial cities in India.

Table-7: Employment vs Income Diversification Index



The Table-7 shows that income diversification in Durgapur remained consistently high across all decades, while employment diversification started low and increased gradually over time. The persistent gap between the two trajectories highlights a structural decoupling, where income diversification preceded, and outpaced employment diversification throughout the post-industrial transition.

The employment-based analysis confirms a classical industrial restructuring pathway. The exceptionally high employment HHI in 1971 reflects the overwhelming dominance of the steel sector, consistent with the planning logic of the Second Five-Year Plan. Over subsequent

decades, declining steel employment—driven by automation, technological upgrading, and productivity improvements—led to a marked reduction in employment concentration. The expansion of small-scale enterprises (SSE), micro and small enterprises (MSE), and selected service sectors absorbed labour displaced from large-scale industry, producing a steady rise in the employment-based diversification index. However, the temporary re-concentration observed around 2011 highlights that diversification is not a linear process; sectoral dominance can re-emerge when a single category, such as SSEs, expands disproportionately. Importantly, even during this phase, concentration levels remained far below those characteristic of the city's formative industrial period.

In contrast, the income-based analysis reveals that Durgapur's economy was never as income-concentrated as its employment structure might suggest. The consistently low income HHI values and high DI values across all decades indicate that income generation was distributed across multiple sectors even during periods of employment mono-dominance. This divergence underscores a key structural insight: large-scale industrial employment concentration does not necessarily imply income concentration. Capital-intensive industries such as steel generate high incomes relative to their workforce size, while institutional and service sectors contribute steadily to aggregate income without dominating employment shares.

The rise of the IT sector after 2000 introduces a new dynamic into the city's income structure. Unlike steel, which concentrated both employment and income in earlier decades, IT exhibits high income concentration with limited employment absorption. This results in temporary re-concentration in income HHI values, particularly in 2011, without reversing the overall diversified income base. The finding aligns with broader post-liberalization patterns observed in Indian cities, where service-led growth increasingly decouples income growth from employment expansion.

Institutional sectors—healthcare and education—play a stabilizing role across both dimensions (Tripathi, 2019). Their relatively low variability in employment and steady income growth suggest that they function as long-term economic anchors, buffering the urban economy against volatility associated with industrial decline or service-sector booms. This dual role strengthens urban resilience and contributes to a more balanced diversification process.

Overall, the results challenge simplistic narratives of post-industrial decline in steel cities. Rather than a transition from concentration to diversification alone, Durgapur's experience reflects a more complex restructuring in which income diversification preceded and outpaced employment diversification. This has important implications for urban policy, particularly in recognizing that employment diversification alone may not ensure equitable income distribution, and that high-income service sectors can generate new forms of economic concentration even within diversified urban systems.

Way Forward: Economic and Management Perspective

The analysis indicates that Durgapur's economic challenge is no longer one of diversification per se, but of managing structural imbalance between employment generation and income concentration. While income diversification has remained consistently high, employment diversification has followed a more uneven path, periodically re-concentrating in specific sectors. Future economic strategy should therefore prioritize qualitative restructuring rather than sectoral expansion.

First, the persistent decoupling between income growth and employment growth calls for a shift in evaluation metrics used by local economic agencies. Sectoral performance should be assessed not only in terms of output or income growth, but also through employment elasticity and value-added per worker. This would help identify sectors—such as institutional services and select manufacturing sub-sectors—that combine income stability with sustained labour absorption.

Second, small-scale and micro enterprises have emerged as dominant employment absorbers, yet their rising contribution to employment concentration indicates potential productivity stagnation. Management interventions should focus on scaling efficiency rather than numerical expansion, through technology adoption, managerial upgrading, and integration into formal supply chains. Without such measures, employment-led diversification risks becoming structurally fragile.

Third, the rapid rise of high-income sectors such as IT has introduced episodic income re-concentration without significant employment gains. From an economic governance perspective, this necessitates deliberate linkage creation—for example, incentivizing subcontracting, knowledge spillovers, and service demand generation from high-income sectors toward local enterprises and institutions. This can moderate income concentration while strengthening the local economic multiplier.

Finally, institutional sectors such as healthcare and education demonstrate low volatility in both employment and income, positioning them as economic stabilizers rather than growth drivers. Management strategies should recognize their role in reducing systemic risk during periods of industrial or service-sector transition, and integrate them into long-term economic resilience planning.

In sum, the way forward lies not in further diversification, which is already structurally present, but in managing sectoral interdependencies, improving productivity within employment-intensive sectors, and aligning income growth with labour absorption. This approach offers a more sustainable and resilient economic trajectory for post-industrial, non-metropolitan cities like Durgapur.

CONCLUSION

This study set out to examine long-term structural change and economic diversification in Durgapur, a planned steel city established under India's Second Five-Year Plan. By jointly analyzing sector-wise employment and income patterns over a fifty-year period, the study provides a comprehensive account of how mono-industrial urban economies evolve under conditions of technological change, liberalization, and post-industrial transition.

The findings demonstrate that Durgapur has undergone a clear transformation from a highly concentrated, steel-dominated employment structure to a diversified urban economy characterized by small-scale enterprises, institutional activities, and emerging services. Employment diversification accelerated after the 1990s as steel manufacturing became increasingly capital-intensive, reducing labour absorption while stimulating the growth of decentralized and informal economic activities. Although periods of partial re-concentration occurred—most notably with the rise of small-scale enterprises—the long-term trajectory remains one of diversification and structural balance.

In contrast, the income-based analysis reveals a fundamentally different pattern. Income concentration was consistently low throughout the study period, indicating that Durgapur maintained a diversified income base even during its most industrially concentrated phase. This

finding underscores the importance of distinguishing between employment and income structures in urban economic analysis. The emergence of high-income, low-employment sectors such as IT reshaped income concentration patterns in the post-liberalization era but did not fundamentally undermine the city's diversified income profile.

Together, these results highlight a critical structural decoupling between employment growth and income growth across sectors. While traditional manufacturing and institutional sectors provide employment stability, newer service sectors contribute disproportionately to income generation. This decoupling has significant implications for urban inequality, skill formation, and policy design in non-metropolitan industrial cities.

From a broader perspective, Durgapur's experience illustrates that planned steel cities are not locked into irreversible paths of industrial decline. Instead, they can evolve into hybrid urban economies combining industrial legacies with service-sector expansion and institutional growth. However, diversification alone does not guarantee inclusive or balanced development. Policy interventions must therefore focus not only on expanding sectoral diversity but also on strengthening employment-intensive services, upgrading skills, and fostering linkages between high-income sectors and the local economy.

In conclusion, the study contributes to the literature on urban economic restructuring by demonstrating that diversification is a multi-dimensional and uneven process. By integrating employment- and income-based measures, it offers a more refined framework for understanding post-industrial transitions in India's planned industrial cities and provides a basis for more targeted and context-sensitive urban economic policies.

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