

Transforming Urban Landscapes: The Role of Commercial Centres in Shaping Collective Memory in Tier-II Cities

A Case Study from the Developing Country Context

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Abstract

Commercial centres play a significant role in shaping the identity and image of cities. These centres enhance the visual appeal of urban environments and often become iconic landmarks through their architectural design and physical presence. They evoke specific emotions and leave lasting impressions on the minds of residents of a city. This experience contributes significantly to the collective memory of these residents. The studies from developed countries report a decline in small to medium-sized commercial centres. This has an impact on the urban landscapes and alter the street-level dynamics. However, negligible research has explored how traditional commercial hubs in Indian cities are evolving or how these shifts affect urban memories. The study investigates the transformation of commercial centres in Tier-II Indian cities and their implications for collective memory. The paper analyses the spatial data from 2014 to 2024 with Kernel Density Estimation in ArcGIS, alongside in-depth interviews with residents to analyse the changing dynamic of commercial centres. The results show that traditional retail clusters, like fashion stores, are declining while construction-related stores are increasing. The redesign of activities improves the sensory experiences of the people who live in these areas. These changes show the necessity of urban renewal plans that uphold cultural vitality of a city.

Keywords

Urban memories, Commercial centre, Sentiment analysis, Kernel density estimation, Developing country, Retail

1. Introduction

Urban areas are complex systems with interconnected activities that shape cities both functionally and aesthetically (Araldi, 2019). Commerce, especially retail, is a vital activity that defines the economic and social fabric of cities (Öner, 2017). Retail drives the local economy as well as influences how people perceive and interact with urban environments (Biswas *et al.*, 2024). The location, design, and development of retail spaces significantly contribute to the city's image (Araldi, 2019). Urban research has focused on the growth of retail centers, with numerous studies examining the effects of retail expansion on social interactions and the urban economy (UN, 1992; Choguill, 2008). Through their physical presence and architectural style, commercial centers significantly contribute to the formation of cities' identities (Narayanan, 2015). A well-

designed commercial center can change a neighborhood into a lively place. It can bring out certain feelings, create unique atmospheres, and encourage social interactions (Dhingra and Chattopadhyay, 2016; Lara *et al.*, 2016; Dhingra, Singh and Chattopadhyay, 2017; Sen *et al.*, 2017; Axelsson and Granath, 2018; Balducci and Ferrara, 2018). The city as a whole is greatly impacted by the way retail spaces are evolving. Busy shopping streets, filled with sights, sounds, and smells, create shared memories for the people who live there. Over time, these experiences help shape the city's culture and way of life (Qureshi *et al.*, no date; Perry, 1929; UN, 1992; Choguill, 2008; Larsen, 2008; Rohe, 2009; Johnson, 2010; Aulia, Marpaung and Zahrah, 2017). Therefore, the evolution, adaptation, or decline of retail spaces directly impacts how the city is perceived by both residents and outsiders (Larsen, 2008).

While many studies have tried to understand how retail commercial centers are changing as a result of the rise of e-commerce, relatively few have tried to understand how the transformation of retail spaces affects urban image and collective memory (Biswas *et al.*, 2024). Collective memory is heavily influenced by urban spaces (Lakhani, 2021). Commercial centres have a major influence on collective memory because of their importance in day-to-day life (Dillard, Dujon and King, 2008; Rydin, 2013; Vaughan, 2018). The architecture, layout, and sensory experiences associated with these centres leave lasting impressions on the individuals and communities (Johnson, 2010; Roger Tym & Partners, 2010; AlWaer, Sibley and Lewis, 2011; Rydin, 2019). With the growth of organized retail and e-commerce, it is significant to comprehend how these changes impact urban memories (Wells and Watson, 2006). The Indian context presents a special case study. The shop density in India is about 11 stores per 1,000 people. It is significantly higher than in many developed countries like the United States, which has around 4 shops per 1,000 people (Sridhar and Monkkonen, 2024). Street vendors and independent small businesses make up the majority of the high retail outlet density of Indian cities (Biswas and Chattopadhyay, 2024). However, traditional retailers are facing constant challenges after the rise of large shopping malls and retail chains (Biswas *et al.*, 2024).

In India, organized retail and e-commerce are expanding quickly. India's online retail channel is projected to grow at a compound annual growth rate (CAGR) of 26 percent between FY 2020 and FY 2025, compared to a 20 percent CAGR for the organized brick-and-mortar retail channel (IBEF, 2021; Deloitte, 2023). Furthermore, India's e-commerce sector is anticipated to reach USD 53.08 billion in 2024, with an annual growth rate of 11.45 percent, and is projected to reach USD 91.24 billion by 2029 (Deloitte, 2023). The increase in digital payment platforms, such as the Unified Payments Interface (UPI), has facilitated this growth, with UPI transactions amounting to USD 1.51 trillion in 2022, supported by a user base exceeding 800 million. The spatial arrangement of retail outlets is changing drastically due to the changing retail landscape in Indian cities. Modern shopping malls, hypermarkets, and online retail platforms are replacing traditional marketplaces and shopping streets. This change is altering not just how people shop but also how cities are physically laid out.

Several reports have indicated in recent years, that organized retail and e-commerce are experiencing significant growth. This expansion is modifying urban dwellers' interaction with their cities and their memories of these spaces. It is important to investigate how these changes have affected India's urban populations' collective memory considering the magnitude of changes. Communal experiences in public places create collective memories. The physical landscape is inextricably linked to it. With the transformation of retail spaces transforms, the sensory experiences and social dynamics that individuals associate with these locales also changes. The busy visuals of marketplaces, presence of street vendors, and the smells of street foods are progressively being replaced by the clean, structured modern malls and the impersonal convenience of internet shopping. These changes may impact the memories and ties of the locals to their cities. The change may cause residents to feel nostalgic or a sense of loss for the traditional areas. Hence, this research aims to:

- i. Explore the evolving nature of retail in the Indian context.
- ii. Examine how changes in the spatial distribution of retail spaces are influencing the collective memories of customers.

2. Materials and Method

2.1 Study area

Several reports highlighted that the tier II Indian cities are acting as the major driver of the next wave of the retail growth in the Indian context. As negligible studies attempted to understand the change in the spatial distribution of retail and its impact on the collective urban memories in tier II Indian cities, in this study Benachity Market, Durgapur is selected as the study area. Durgapur is a planned, tier II Industrial city in India. Benachity Market, Durgapur, West Bengal, India, is a traditional retail street stretching approximately 2.5 kilometres along Ananda Gopal Mukherjee Sarani Road. This commercial centre spans from the Bhiringi More Bus Stand in the south to the Prantika Bus Stand in the north. NH19 is located at the south of this commercial centre. Figure 1 shows the location of the study area.

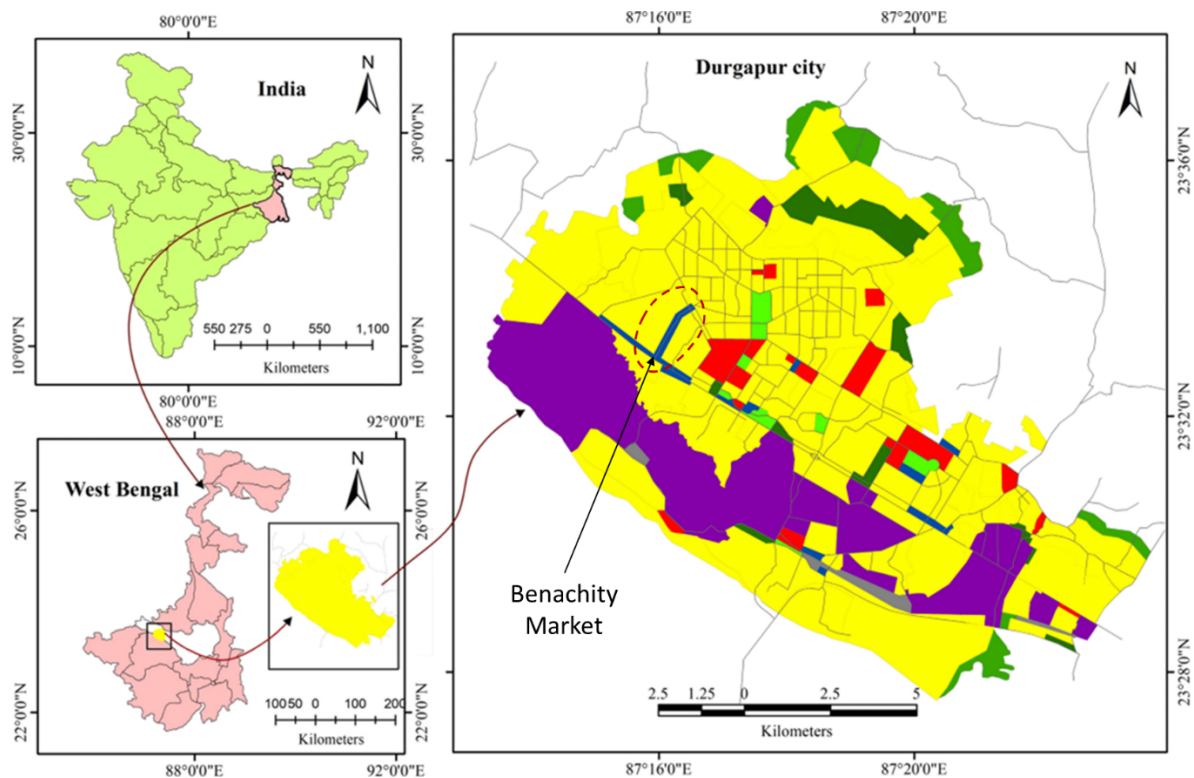


Figure 1 Location of the study area: Benachity Market, Durgapur. Source: Authors

2.2 Data Collection

The data was collected at two stages. First, a primary survey was conducted with the shopkeepers to document the spatial distribution of retail outlets within the Benachity market. This involved documentation of the approximate area of each shop, its year of establishment, any changes in business type over the past ten years, and previous uses (if applicable). This data was essential for understanding

the spatial evolution of the market. This survey of the shopkeepers provided insights into the challenges and opportunities faced by the retail sector in the study area. In the next stage, in-depth interviews were conducted with frequent customers of the Benachity market to explore the subjective dimension of urban memory. These interviews aimed to understand how the market has shaped their memories and perceptions of the city. This interview helped us to understand the emotional and cultural factors associated with the market. The data collection and data analysis methodology are summarised in Figure 2.

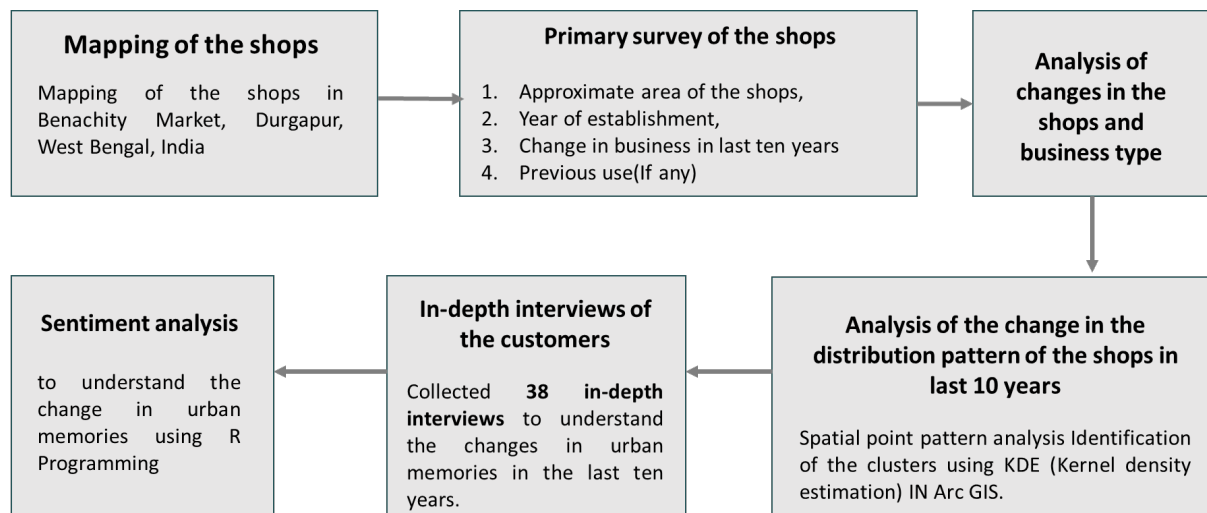


Figure 2 Data collection and data analysis methodology

For mapping the shops, they were classified into four major categories based on the classification provided by a previous study in the Indian context (Biswas and Chattopadhyay, 2024) and the classification given by the National Sample Survey Office (NSSO). The shop classifications are explained in the table below.

Table 1 Classification of shops based on the classification given by National Sample Survey Office (NSSO)

Classification for this study	Commodity type
Group 1	Cereals, pulses, milk, sugar and salt
	Edible oil, egg, fish, meat, vegetables, fruits, spices, beverages, processed food, pan, tobacco and intoxicants
	Fuel, light and household appliances
Group 2	Clothing and bedding
	Footwear
Group 3	Education and medical (institutional) goods and services
	Miscellaneous goods (toiletries, flowers, mosquito repellent, electrical, sanitary napkin)
Group 4	Services and construction (including repair and maintenance of durable goods for domestic use)

3. Data Analysis

This study employs a mixed-method approach, integrating both quantitative and qualitative methods to explore the evolving role of retail centers in shaping urban landscapes and collective memory. The study combines sentiment analysis and Kernel Density Estimation (KDE) to capture the spatial and emotional changes in the urban retail landscape over the past decade. KDE quantitatively assesses changes in the spatial distribution of retail outlets to give a clear picture of clustering patterns and density shifts. Complementing this, sentiment analysis delves into the qualitative aspect, examining how these spatial transformations affect residents' collective memory and emotional connections to urban spaces. Together, these methods provide a comprehensive understanding of the impact of retail evolution on social dynamics and urban identity.

3.1 Kernel density estimation: to understand the change in the spatial distribution of the retail outlets

Kernel Density Estimation (KDE) is used to analyse changes in the spatial distribution of retail establishments over the past decade that focused on four specific types of retail shops. Shop owners were surveyed as part of the methodology. The spatial distribution of shops was extracted using GIS-based spatial analysis. This approach allowed us to study the distribution and clustering of retail shops over time. We geocoded each shop location in GIS to create a spatial dataset. This dataset included four types of shops that we examined. We used Kernel Density Estimation (KDE) to determine the density of retail locations. KDE helped us visualize the clustering patterns in the study area. To use KDE, we adjusted the bandwidth parameter. This adjustment set the spatial window for density calculations. We used a Gaussian kernel function, which offered a smooth, symmetric distribution around each data point. The density values were estimated as an average within the selected bandwidth. We extended traditional two-dimensional KDE to Network-based Kernel Density Estimation (NKDE). This method looks at the layout of streets and pathways instead of just measuring simple distances. It works well in urban retail areas. The NKDE method uses the shortest path distance to show how close things are within the network. We carried out KDE analysis in 2014 and 2024. This approach helped us compare the temporal changes in clustering patterns. We observed the density changes by layering the KDE results of two decades. We found that existing clusters were either declining or intensifying, while new clusters were emerging. This process highlighted shifts in how retail activities are distributed in the area.

3.2 Sentiment Analysis to understand the change in collective memories of the individuals

After performing KDE, sentiment analysis was conducted to explore how the changing spatial distribution of retail influences collective urban memories. Sentiment is a persistent emotional response that shapes how individuals perceive and interact with particular subjects or environments (Samanta and Chattopadhyay, 2024). Sentiment analysis offers a window into understanding social, emotional, and linguistic indicators, providing insight into individuals' or groups' perceptions of evolving urban landscapes. Sentiment analysis is frequently employed by consumer product companies to gain insights into how consumers perceive their products. In this case, it also reveals how people's relationships with these spaces are changing and how spatial changes in retail clusters may affect urban collective memories. With transformations in urban retail spaces, collective memories—such as a sense of belonging, attachment to cultural landmarks, and urban identity—shift accordingly. Sentiment analysis captures these emotional responses, and sheds light on participants' experiences and attitudes toward spatial changes in retail distribution. In this study, 38 customers were interviewed to gauge these sentiments, to capture their

perceptions and feelings associated with urban space transformation. Interviews were transcribed, organized into a text corpus, and analysed using thematic content analysis. Through the R-studio software, we identified significant keywords via Term Frequency (TF), highlighting terms frequently used by participants. These keywords, once examined for contextual relevance, helped build a semantic network that illustrated participants' collective sentiments.

This analysis found significant differences in sentiment. It revealed layers of attachment and cultural continuity within ethnic communities. As retail patterns change, perceptions shift as well. Every latent sentiment represented a range of feelings, including resistance, grief, nostalgia, and happiness. This highlights how these changes resonate differently within the community. Sentiment analysis offered a detailed view of the emotional landscape linked to urban retail transformations. Figure 3 summarizes the data analysis methodology using sentiment analysis.

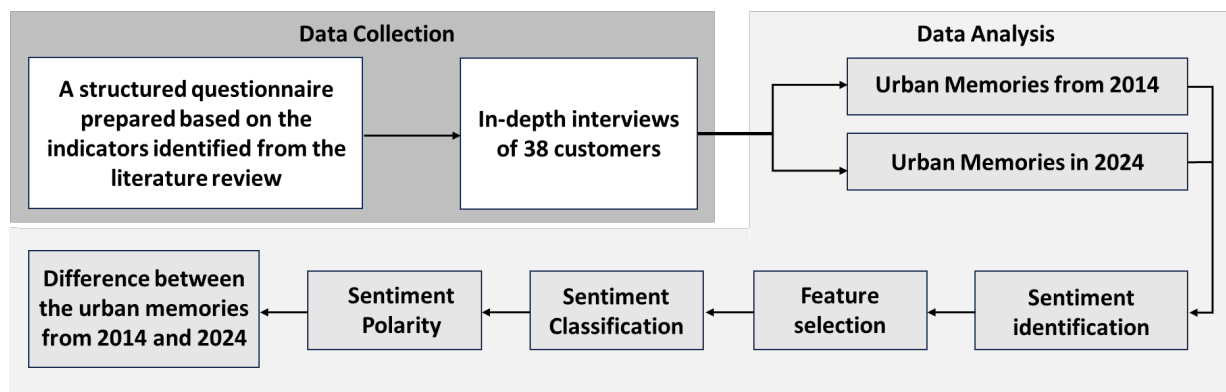


Figure 3 Data analysis methodology: Sentiment analysis

4. Results and discussion

The Kernel Density Estimation (KDE) results show a shift in retail shop locations over the past decade (Figure 4 and 5). This shift indicates changes in how different types of stores are distributed. The KDE maps reveal an overall increase in shops. This suggests significant growth in retail activity. However, clustering trends differ by shop type. Shops in Group 2, such as apparel and shoe stores, exhibit a significant decrease in clustering. This suggests that traditional retailers encounter difficulties in these categories. These changes are probably influenced by the growth of e-commerce. Due to this change, some entrepreneurs have shifted their focus to Group 4 businesses (e.g., service shops like salons, eateries, beauty parlors, and construction materials shops). In these businesses, a noticeable rise in clustering has been noted. Unlike Group 2, which has seen a decline in clustering, the expansion of Group 4 may reflect a broader trend toward service-oriented businesses that offer in-person experiences and are less affected by online competition. In contrast, the number and distribution of Group 1 shops (convenience stores) and Group 3 shops (bookstores, stationery, and medicine shops) have remained relatively stable over the decade. These retail types appear to face less competition from e-commerce, maintaining steady clustering patterns as they continue to serve essential and frequently needed goods.

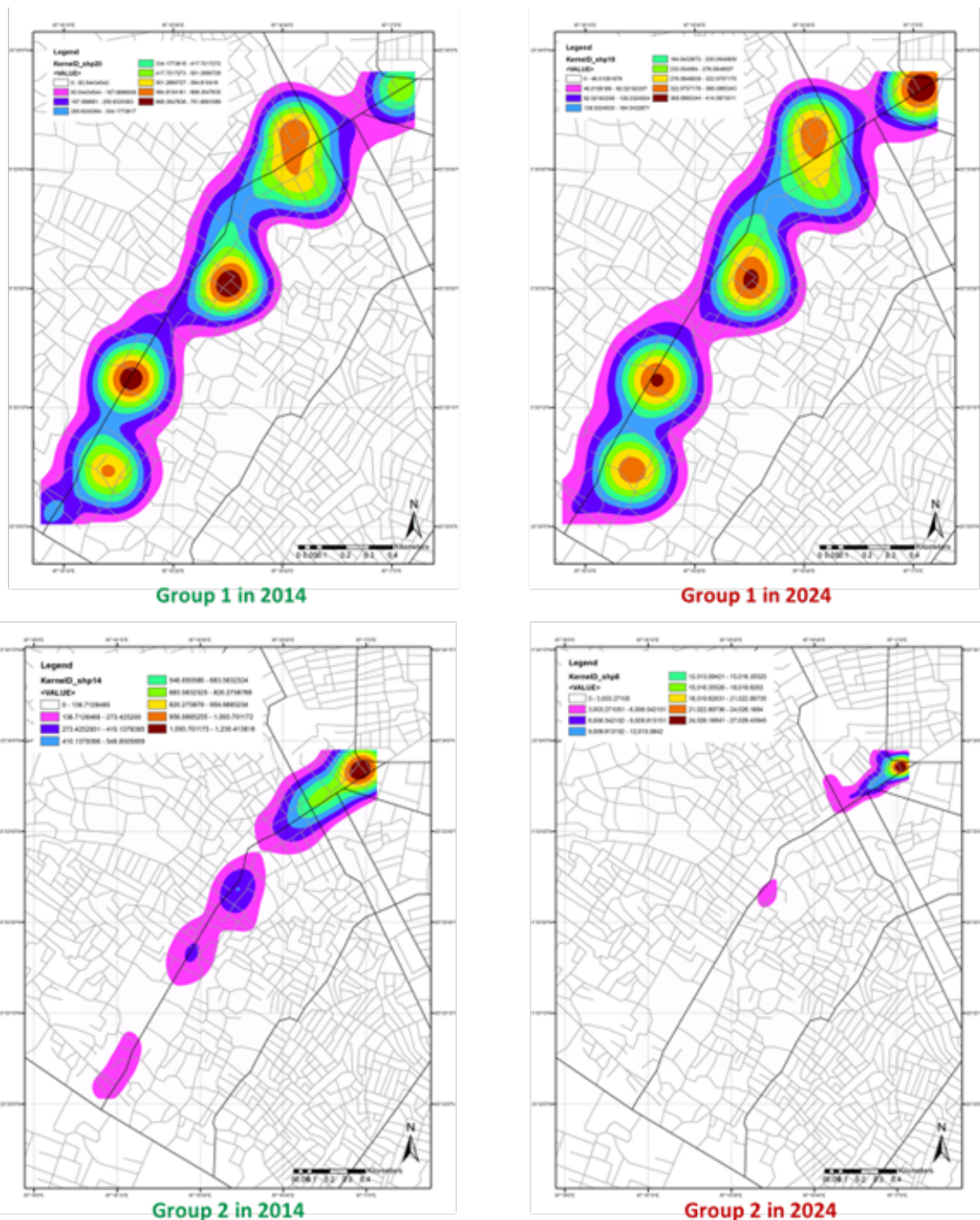


Figure 4 Result of KDE: Change in cluster pattern of the shops from 2014 to 2024 for Group 1 and 2. Source: Authors

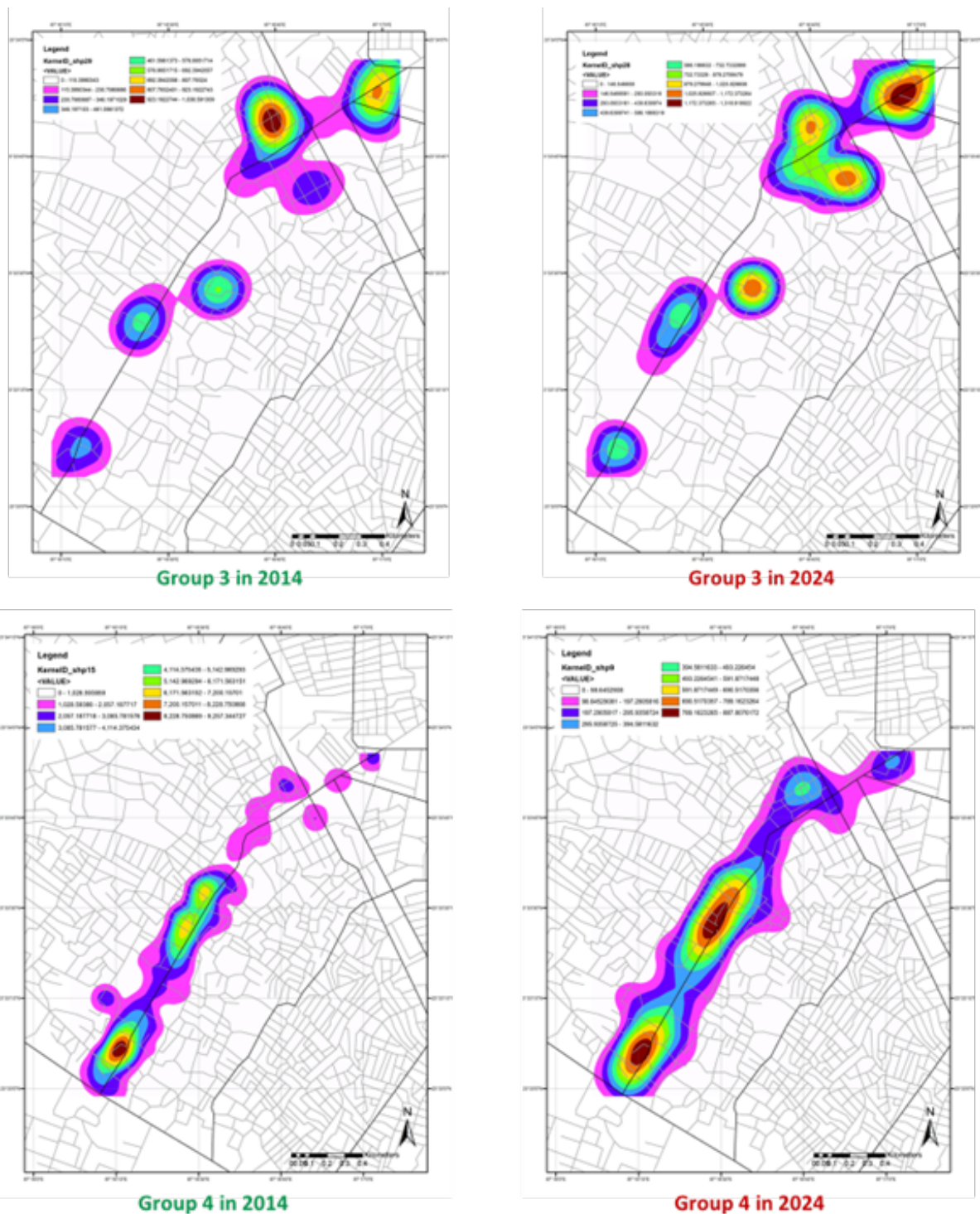


Figure 5 Result of KDE: Change in cluster pattern of the shops from 2014 to 2024 for Group 3 and 4. Source: Authors

4.1 Narratives of the customers

The analysis of Benachiti Market's spatial and sentimental transformations from 2014 to 2024 reveals a significant shift not only in retail distribution but also in the collective urban memory associated with this market. The sentiment analysis divided the interview statements into two main categories: urban memories from 2014 and urban memories from 2024 (Figure 7). KDE maps show noticeable changes in clustering patterns. Traditional retail stores like clothing shops, jewelry stores, and electronics shops have changed. They are moving away from the center of the market. Rather, the central area is now a concentration of service-oriented businesses like restaurants, repair shops, and suppliers of building materials. Interviews with 38 people show how these changes have impacted how individuals view the market's role, its atmosphere, and its cultural importance over the last ten years. Many long-time residents and regular visitors remember the market's unique vibe in 2014. They describe it as lively and friendly. It was an important part of their daily lives.

A 42-year-old man who participated in the survey shared his thoughts. He said, *"I've seen Benachiti Market evolve quite a bit over the years. The changes in the last decade have been particularly striking. There used to be many shops that sold clothes, jewelry, footwear, and electronics. There was a cobbler who sat at one of the corners. He repaired our shoes and chappals when we were young., now I do not see that old man sitting there."* A 52-year-old female customer expressed a similar view. She noted that the market was a *"lifeline."* She also added that *"we had a family tailor. He used to make all our shirts, frocks and blouses. But he has long gone. He always gave us candies whenever we visited him."* The familiarity and trust with the vendors made shopping a cherished experience. Many participants spoke of the lively bargaining, social interactions, and strong sense of community. A 63 year old resident said, *"I used to look forward to the evenings after coming home from my office. We had a big group. All of us used to meet at a tea-shop in the market. We would talk about politics, cinemas, share markets and what not. Then while returning, I would buy some groceries for my home. Now-a-days we do not meet each other anymore. The connections are also losing..."* Because of this setting, the market became more than just a place for commerce.

However, the sentiment analysis revealed a nostalgia for these earlier experiences, particularly among older customers who felt that the essence of Benachiti Market had shifted. A 78-year-old mentioned that there used to be a lot of stores in the central portion of the market. These stores sold jewelry, electronics, and clothing. Now, this area has started to change. It is being replaced by service shops. A 45-year-old woman who was a customer also expressed her opinions about this change. She thinks it's a response to the economy's shifts. She said, *"Over the last few years, my shopping habits have changed a lot. I am using online shopping platforms a lot. I buy several things online. These changes are obviously due to the rise of online shopping. Why would someone visit a shop if you can get it at your door-step by ordering it on your phone?"*

This change demonstrates how the retail industry is being impacted by e-commerce. Conventional retail establishments are shifting to the periphery of the market. They are being replaced by service-oriented shops that provide in-person experiences, which online platforms cannot replicate.

The clustering of service shops at the center has also altered the physical and sensory attributes of Benachiti Market. Changes in non-stationary elements, like ambient sounds and smells, as well as stationary elements, like signage and store layouts, were reported by the respondents. For example, an older customer (male, 63) commented on how *"the market's signage had evolved... There used to be handwritten and painted signs... All have been replaced by digitally-led panel-based signages."* The modernized signages give the market a more standardized and commercial feel. Additionally, the once-diverse smells of incense, fresh produce, and street food have evolved with the arrival of new eateries, cafeterias and services that creates a less varied but more food-focused sensory experience.

Changes in transportation patterns add to this sense of disconnection. Where once the market's paths were filled with people walking, cycling, or using cycle rickshaws, today's Benachiti is dominated by e-rickshaws, motorbikes, and cars, creating a more congested and less pedestrian-friendly environment. This shift in transportation not only affects accessibility but also impacts the pace and experience of moving through the market.

The erosion of social interactions and community gatherings, once central to Benachiti's atmosphere, marks another significant transformation. Many respondents remembered that multigenerational interactions thrived in informal settings like tea stalls and shady places to sit and chat. With the advent of modern complexes, these informal hubs have largely disappeared, leaving younger patrons to occupy spaces designed for convenience rather than community. Ultimately, Benachiti Market remains significant in Durgapur's urban landscape but has lost much of its original soul. Interviewees expressed concern that while modernization and service-oriented businesses have ensured Benachiti's economic continuity, the market's cultural and communal value has diminished.

This analysis also captured the emotional tone behind each set of memories and identify clusters of positive and negative keywords within the text. The findings revealed a notable shift in sentiment over the decade. In the memories from 2014, 80% of the keywords in the 2014 memories were positive that indicated a generally positive and sentimental view of the market at the time. However, the percentage of positive keywords dropped to 56.9% in the 2024 memories. This suggests that sentiments have shifted toward being more neutral or negative. In accordance to the responses by the interviewees, these findings highlight a gradual deterioration in the market's positive emotional connection and sense of community (Figure 6).

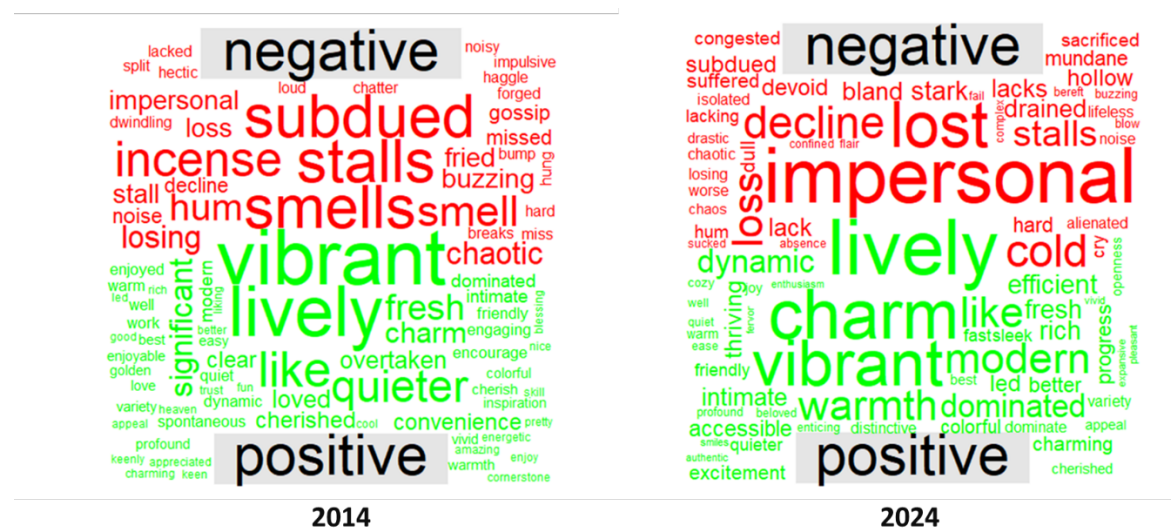


Figure 6 Term frequency to understand the temporal change of sentiments

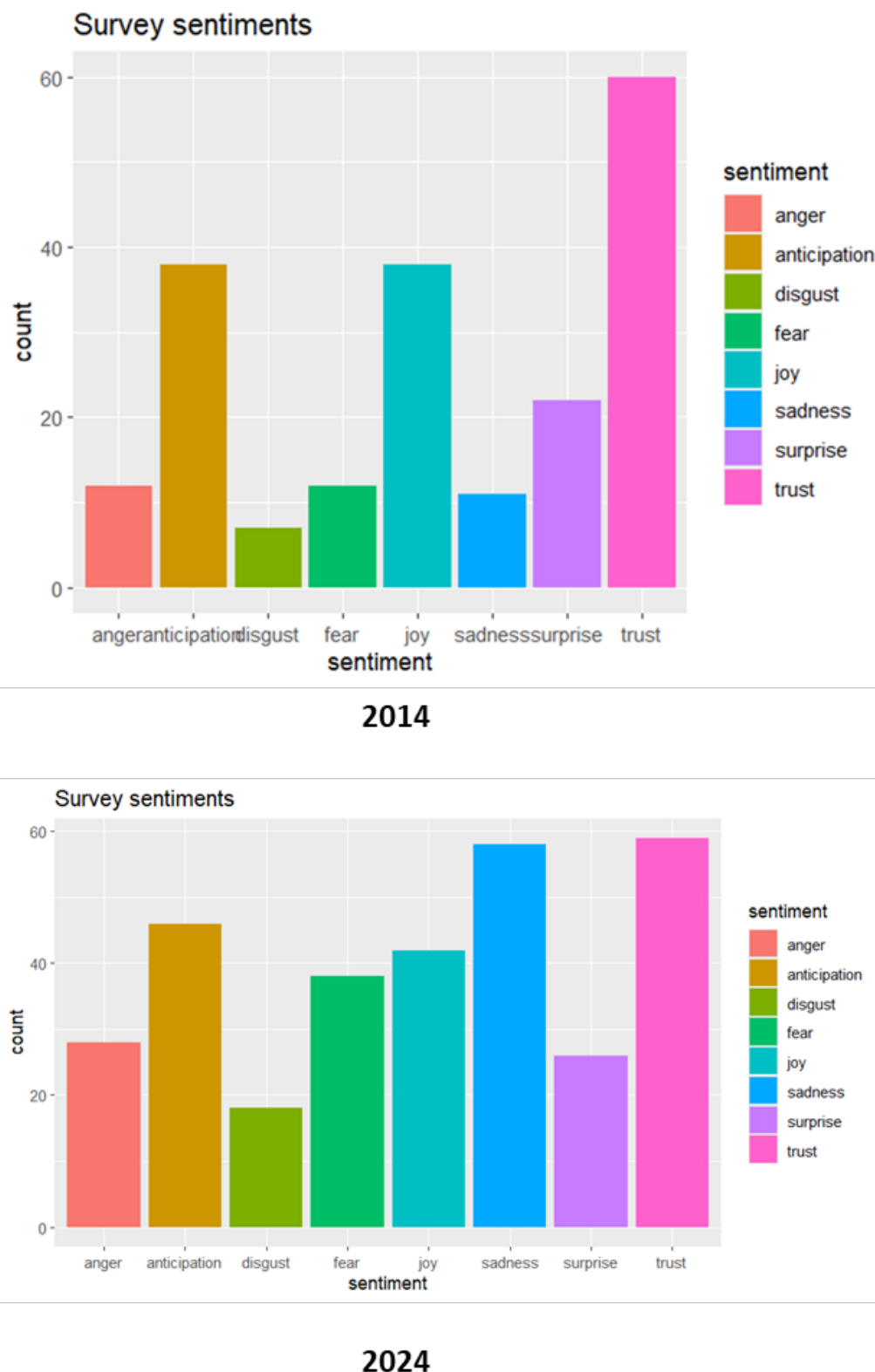


Figure 7 Change in sentiment frequency from 2014 to 2024

Over the past ten years, Benachiti Market has changed a lot (Figure 9). This market used to be a lively place where the community came together. Now, it has become more commercialized and focused on services.

The changes in the market show a larger trend happening in cities around the world. As the market's character shifts, it affects how people experience, remember, and understand urban spaces. This reflects important changes in social interactions and the way cities are designed.



Figure 8 Shift in Urban Symbols transformation of the sign boards (top: 2014, bottom: 2024) Source: Authors



Figure 9 Benachity Market, 2024: showcasing its evolving mix of traditional shops alongside new commercial establishments. Source: Authors

To summarise, Benachiti Market has changed a lot over time. It used to be a lively place where the community came together. People interacted across generations, engaged in cultural activities, and gathered in commonplace locations. It now seems more like a place for transactions. Many of the recognizable interactions and symbols have vanished (Figure 8). Corporate enterprises and service-oriented stores have replaced them. This change disrupts communal bonds, urban memories, and local identity, although it aligns with globalized, commercial trends.

5. Conclusion

This study concludes by examining the effects of shifting retail landscapes on urban memories. The reduction of traditional retail (like clothing and electronics) and rise in service-based shops alter the social fabric that weakens residents' emotional connections to these areas. Indian urban markets exemplify how commercial shifts erode communal identity that disrupts the symbols which define market heritage, such as local branding and hand-painted murals. The loss of informal gathering spaces also diminishes community engagement and leaves a homogenized urban landscape. Ultimately, these changes in urban commerce dilute cultural identity and affects both social cohesion and collective memory.

To address these issues, it is essential to preserve the stationary elements that shape urban memories, such as traditional shops, historical signboards, and culturally unique design elements, which contribute to the market's distinctive character. Cultural homogenization can be greatly reduced by government regulations that assist small businesses and that maintain traditional branding and signage. Community pride in local culture is also essential for preserving non-stationary elements like ambient sounds, social interactions, and intergenerational interactions. Public awareness initiatives can encourage residents to value and uphold their shared heritage, thereby strengthening the community's bond with its urban environment. This dual approach of preserving both the physical and social aspects of urban spaces can help retain the identity of traditional markets and sustain the rich urban memories associated with them.

It is important to acknowledge the limitations of this study. This ensures a balanced interpretation of the findings and highlights areas for future research. The research took place in a specific market context within a tier-II planned industrial city in India. This context may limit the generalizability of the findings to other urban environments. To apply these insights to a wider range of Indian cities, future studies should reproduce similar research in different urban contexts. This includes historical cities, where market transformations might affect heritage and cultural identity in unique ways. Although sentiment analysis offers insights into community emotions, it may not capture the full range and depth of individual experiences. It struggles to convey detailed emotions and complex perceptions. Sentiment analysis can identify significant trends in both positive and negative expressions, but it is important to exercise caution when interpreting these results. It is important to recognize that layers of human emotions may not be fully expressed through text alone. Qualitative approaches should be used in addition to obtain a deeper comprehension of community experience. Sentiment analysis may overlook fine points that can be captured by methods like observations, interviews, and ethnographic research. This approach can deepen our understanding of urban memory and the social impacts of market transformations.

6. Acknowledgement

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