

## IMPACT OF PROXIMITY TO NATIONAL CAPITAL REGION ON INDUSTRIAL EXPANSION IN HARYANA

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### **Abstract**

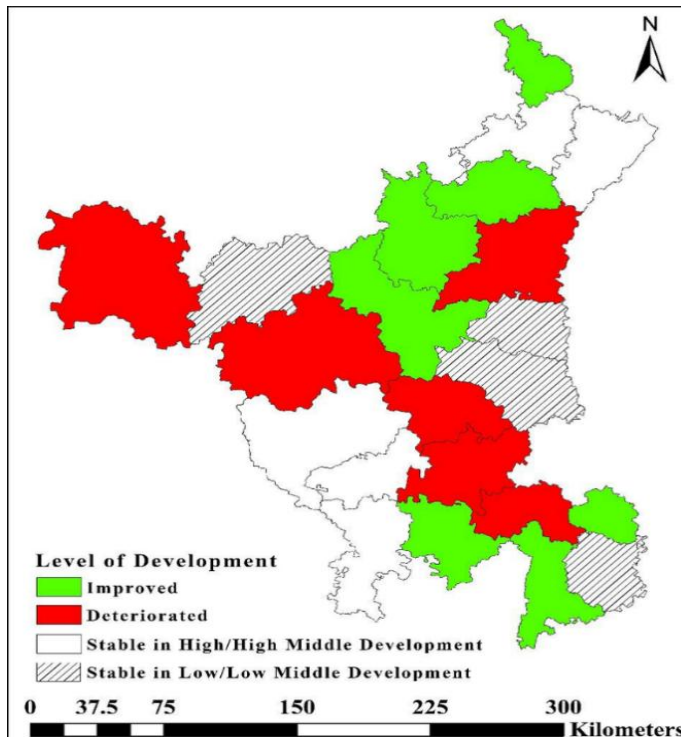
Haryana's industrial growth has been significantly influenced by its proximity to the National Capital Region (NCR). This study investigates the spatial distribution and patterns of industrial expansion across Haryana's districts, highlighting the role of geographic proximity, infrastructure, and policy frameworks in shaping industrial development. Using both primary and secondary data, the research identifies a concentration of industries in districts near Delhi, such as Gurugram, Faridabad, and Manesar, while peripheral districts lag behind. Factors such as agglomeration economies, metropolitan spillover effects, and connectivity advantages are found to drive industrial growth in NCR-adjacent regions. The study also highlights regional disparities, emphasizing the need for balanced policy interventions to promote inclusive and sustainable industrial expansion. These findings provide insights for policymakers and planners aiming to optimize Haryana's industrial potential while addressing spatial inequalities.

**Keywords:** Industrial Expansion, National Capital Region (NCR), Haryana, Regional Development, Industrial Clusters, Agglomeration Economies, Infrastructure and Connectivity

### **Introduction**

The National Capital Region (NCR) has emerged as one of the most dynamic and influential economic zones in India, with the National Capital Territory of Delhi serving as its nucleus. Haryana, a state strategically located around Delhi, has experienced rapid industrial expansion since its formation in 1966, much of which can be attributed to its geographical proximity to the NCR. The spillover effects of urbanization, infrastructural development, and investment flows from Delhi have significantly shaped Haryana's industrial trajectory, making it one of the leading states in terms of industrial growth and diversification. Proximity to NCR has offered Haryana unique locational advantages such as accessibility to a vast consumer base, improved transportation and connectivity, availability of skilled labour, and opportunities for cross-border trade and investment (Kumar, 2018). Districts adjoining Delhi—such as Gurugram, Faridabad, and Sonapat—have emerged as industrial hubs with clusters in automobiles, information technology, consumer goods, textiles, and real estate. In contrast, relatively distant districts have witnessed slower industrial expansion, reflecting spatial disparities across the state.

This expansion is not only the result of geographical proximity but also of policy interventions such as the establishment of industrial estates, Special Economic Zones (SEZs), and infrastructure corridors including the Delhi-Mumbai Industrial Corridor (DMIC) and Kundli-Manesar-Palwal (KMP) Expressway. The synergistic effect of NCR's demand pulls and Haryana's proactive industrial policies has created a favourable ecosystem for entrepreneurship, foreign direct investment (FDI), and regional development. However, the benefits of NCR proximity are not uniformly distributed. While districts near Delhi have become engines of industrialization and urban transformation, the peripheral and agrarian regions of Haryana lag in industrial development, raising concerns of regional imbalance (Jain, 2018). This makes it imperative to examine how proximity to NCR influences industrial expansion patterns, the nature of industries established, and the long-term implications for balanced growth within the state. Against this backdrop, the present study seeks to analyse the impact of proximity to NCR on the pace, scale, and spatial distribution of industrial expansion in Haryana. It explores how locational advantages, infrastructural connectivity, and policy frameworks have collectively shaped industrial growth, while also highlighting emerging challenges related to regional disparities, sustainability, and equitable development.



Source: Resource Atlas of Haryana, Science and Tech. Deptt., Haryana, 2004

### Rationale of the Study

The rationale for this study lies in the unique geographical, economic, and policy-driven position of Haryana within the Indian subcontinent. Unlike many other states, Haryana's industrial growth trajectory is deeply intertwined with its proximity to the National Capital Region (NCR), a powerful magnet for investment, skilled labour, and infrastructural development. Over the past five decades, Haryana has transitioned from a predominantly agrarian economy to an industrial powerhouse, and this transformation has been disproportionately concentrated in districts adjacent to Delhi such as Gurugram, Faridabad, and Sonipat (Jain and Korzhenevych, 2017). Understanding the role of NCR proximity is crucial for three main reasons. First, it helps explain why certain regions of Haryana have become industrial hubs while others remain underdeveloped, thereby shedding light on the spatial disparities in economic growth. Second, it offers insights into the effectiveness of state policies that leverage locational advantages, such as Special Economic Zones (SEZs), industrial estates, and expressway projects, which aim to attract investment and ensure balanced growth. Third, with the ongoing expansion of the Delhi-Mumbai Industrial Corridor (DMIC) and other mega infrastructure projects, it is timely to assess how Haryana can sustain its industrial momentum while addressing regional inequalities.

This study is also significant from a policy perspective. While proximity to NCR has catalyzed Haryana's industrial expansion, it has simultaneously created challenges such as uneven regional development, rising urban pressures, land-use conflicts, and environmental degradation. A systematic evaluation of these dynamics is necessary to inform policymakers about strategies that not only strengthen industrial competitiveness but also ensure inclusivity and sustainability. Thus, the rationale of this research is grounded in the need to critically examine how geographical proximity, infrastructural connectivity, and policy frameworks interact to shape industrial expansion in Haryana, and how these lessons can guide future industrial and regional development planning (Pandey et al. 2017).

### Statement of the Problem

Haryana's industrial landscape has been profoundly shaped by its proximity to the National Capital Region (NCR). Districts adjoining Delhi such as Gurugram, Faridabad, and Sonipat have witnessed rapid industrialization, technological advancement, and urban transformation. In contrast, the districts situated farther from the NCR continue to rely primarily on agriculture and exhibit comparatively slower industrial growth. This uneven pattern of development has resulted in stark regional disparities within the state. While the geographical advantage of being close to NCR has

provided Haryana with opportunities for investment inflows, infrastructure expansion, and employment generation, it has also created challenges. Industrial concentration near Delhi has led to urban congestion, environmental degradation, and rising land costs, while distant regions remain under-industrialized and economically disadvantaged. Moreover, despite policy interventions such as industrial estates, Special Economic Zones (SEZs), and connectivity projects like the Delhi-Mumbai Industrial Corridor (DMIC) and Kundli-Manesar-Palwal (KMP) Expressway, the benefits of industrial expansion have not been equitably distributed across the state.

The problem, therefore, lies in understanding the extent to which proximity to NCR influences industrial expansion in Haryana, and why the advantages of industrial growth remain concentrated in select districts. Unless addressed, this imbalance could widen socio-economic disparities, limit inclusive development, and undermine Haryana's long-term growth potential. A systematic analysis is needed to explore the role of locational proximity, infrastructural connectivity, and policy frameworks in shaping industrial expansion, while also identifying measures to promote balanced and sustainable regional development.

### **Literature Review**

#### **Concept of Industrial Expansion and Regional Development**

Industrial expansion refers to the growth and diversification of industries within a specific region, driven by factors such as investment inflows, infrastructural development, technological advancement, and favourable government policies. It is not merely the increase in the number of industrial units but also the qualitative transformation of the economic structure, where industries shift from traditional, labour-intensive sectors to modern, technology-oriented sectors. Industrial expansion plays a vital role in accelerating economic development by generating employment, stimulating ancillary activities, increasing productivity, and improving the standard of living. The relationship between industrial expansion and regional development is deeply interlinked (Jovovic et al. 2017). Industrial growth has the capacity to transform regional economies by reducing dependence on agriculture, fostering urbanization, and creating opportunities for skill development and entrepreneurship. According to theories of regional economics, the presence of industries in a given area promotes forward and backward linkages, which stimulate local markets, attract investment, and improve infrastructure. This, in turn, enhances the competitiveness of the region and integrates it into larger national and global economic networks.

Industrial expansion is not uniform across regions. Its trajectory depends on locational advantages, access to markets, availability of raw materials, labour supply, connectivity, and supportive policy frameworks. Regions closer to metropolitan centres or transport corridors tend to experience faster industrial growth due to better access to consumers, investors, and infrastructure facilities. In contrast, peripheral and rural regions may remain marginalized, thereby creating spatial disparities in development. For Haryana, the concept of industrial expansion is closely tied to its regional development journey since 1966. Proximity to the National Capital Region (NCR) has catalysed rapid industrial growth in select districts, transforming them into hubs of manufacturing, services, and real estate. This demonstrates how industrial expansion, when concentrated around growth poles like NCR, can generate high levels of prosperity but also exacerbate regional imbalances. Thus, industrial expansion is both an enabler of regional development and a source of spatial inequality, making its study essential for achieving balanced and inclusive growth.

#### **Proximity to Metropolitan Regions as a Driver of Industrial Growth**

Proximity to metropolitan regions has been widely recognized as a significant driver of industrial growth. Metropolitan areas, such as the National Capital Region (NCR), act as economic magnets, attracting investments, skilled labour, and modern infrastructure. Firms and industries often prefer locations close to large urban centres to gain better access to markets, financial institutions, technological resources, and professional networks. The nearness to a metropolitan hub reduces transportation costs for both raw materials and finished goods, thereby enhancing operational efficiency and competitiveness. Several studies highlight the “spillover effect” of metropolitan regions on neighbouring areas (Li et al. 2018). Industries tend to cluster in regions surrounding large cities because they can benefit from existing infrastructure, connectivity, and consumer demand without bearing the higher costs associated with the city centre. This creates an industrial gradient where areas closer to the metropolis experience faster growth compared to more distant regions. For

example, in India, districts around Delhi, Mumbai, and Bengaluru have historically shown higher industrial density and diversification than remote districts within the same state.

In the context of Haryana, proximity to the NCR has been a critical determinant of industrial expansion. Districts such as Gurugram, Faridabad, and Sonapat have developed as industrial hubs due to their strategic location near Delhi. They have attracted both domestic and foreign investment, particularly in manufacturing, information technology, real estate, and logistics. The metropolitan influence has also facilitated the development of ancillary industries, business services, and modern infrastructure, creating a self-reinforcing cycle of growth. However, while proximity to metropolitan regions provides advantages, it also presents challenges. Concentration of industries near the metropolis can lead to regional imbalances, with peripheral districts lagging in industrialization. Moreover, high land prices, congestion, and environmental pressures near metropolitan regions can limit the sustainability of growth. Thus, understanding the role of metropolitan proximity is essential for formulating policies that leverage locational advantages while promoting balanced regional industrial development.

### **Agglomeration Economies and Industrial Clustering**

Agglomeration economies refer to the benefits that firms obtain by locating near each other in a concentrated area. These benefits include shared infrastructure, access to a common labour pool, knowledge spillovers, reduced transportation costs, and proximity to suppliers and markets. Industrial clustering, a direct outcome of agglomeration economies, occurs when similar or complementary industries concentrate in a particular region, leading to enhanced productivity, innovation, and competitiveness. Scholars argue that clusters promote specialization, improve efficiency, and attract further investments, creating a self-reinforcing cycle of regional economic growth (Gilbert, 2017). Globally, industrial clusters have been recognized as engines of economic development. Examples include Silicon Valley in the United States, the Ruhr Valley in Germany, and Shenzhen in China, where industrial concentration has led to significant technological advancement and economic prosperity. In India, industrial clusters have emerged around metropolitan regions and transport corridors, with localized benefits in terms of employment generation, urbanization, and socio-economic development.

In Haryana, agglomeration economies are particularly evident in districts adjacent to the NCR. Gurugram has evolved into an IT and service hub, while Faridabad and Manesar have become centres for manufacturing and automotive industries. The clustering of industries in these areas facilitates the sharing of skilled labour, access to suppliers, and business services, thereby attracting additional firms and creating a competitive industrial ecosystem. Industrial clusters also contribute to ancillary sectors such as logistics, housing, and retail, reinforcing regional development. However, industrial clustering can also lead to spatial disparities. Districts far from metropolitan hubs or major transport corridors often struggle to attract industries, leading to uneven regional growth (Liang and Goetz, 2018). Moreover, clusters near urban centres can experience challenges such as land scarcity, traffic congestion, pollution, and rising costs of production. Therefore, while agglomeration economies and industrial clustering drive growth in Haryana, they also highlight the need for strategic planning to ensure equitable and sustainable industrial expansion across the state.

### **Role of Infrastructure and Connectivity in Industrial Expansion**

Infrastructure and connectivity are critical determinants of industrial expansion, as they directly influence the ease of doing business, production efficiency, and access to markets. Well-developed transportation networks, including roads, railways, airports, and logistics corridors, facilitate the smooth movement of raw materials, intermediate goods, and finished products, reducing costs and time delays. Similarly, reliable power supply, water resources, telecommunications, and digital infrastructure enhance industrial productivity and attract investment (Ferrari et al. 2018). The literature highlights that regions with superior infrastructural facilities tend to attract more industries and develop faster as compared to regions with inadequate infrastructure. Industrial development is often concentrated along major transport corridors, ports, and metropolitan peripheries where connectivity provides competitive advantages. Furthermore, infrastructure not only supports the establishment of industries but also encourages the growth of ancillary services such as warehousing, logistics, and financial services, creating a comprehensive industrial ecosystem.

In Haryana, infrastructure and connectivity have been pivotal in shaping industrial expansion, particularly in districts close to the National Capital Region (NCR). Projects such as the Kundli-



Manesar-Palwal (KMP) Expressway, Delhi-Mumbai Industrial Corridor (DMIC), and improved national highways have facilitated the development of industrial clusters by enhancing accessibility to domestic and international markets. The availability of industrial estates, Special Economic Zones (SEZs), and urban utilities in these regions has further encouraged industrial investment. Proximity to Delhi, combined with strategic infrastructure, has enabled Haryana's districts like Gurugram, Faridabad, and Manesar to emerge as industrial hubs (Ferrari et al. 2018). Conversely, districts with limited connectivity or underdeveloped infrastructure lag in industrial growth, reflecting spatial disparities in development. This underscores the critical role of infrastructure and connectivity as both enablers of industrial expansion and determinants of regional equity in growth.

### Methodology

This study adopts a descriptive and analytical research design to examine the impact of proximity to the National Capital Region (NCR) on industrial expansion in Haryana. The study focuses on Haryana's districts, categorized based on their proximity to NCR. Variables such as the number of industrial units, employment generated, type of industry, and infrastructure status were analysed. Spatial analysis techniques, including mapping of industrial clusters and corridors, were used to identify trends and disparities. The collected data were analysed using descriptive statistics, comparative tables, and qualitative thematic analysis to understand the relationship between proximity to NCR and industrial growth.

### Results and Discussion

The findings of the study indicate that proximity to the National Capital Region (NCR) has significantly influenced industrial expansion in Haryana. Districts situated close to Delhi, such as Gurugram, Faridabad, Sonipat, and Manesar, have experienced rapid industrial growth, while districts located farther away, including Bhiwani, Mahendragarh, and Panchkula, have shown comparatively slower development (Jovovic et al. 2017). The concentration of industries near the NCR can be explained by several interrelated factors. Agglomeration economies play a critical role, as industries benefit from shared infrastructure, a skilled labour pool, specialized suppliers, and knowledge spillovers, which collectively enhance productivity and attract further investment (Liang and Goetz, 2018). Proximity to Delhi also offers metropolitan spillover advantages, including access to a large consumer base, financial services, and business networks, which make NCR-adjacent districts more attractive to both domestic and foreign investors. Infrastructure and connectivity further reinforce this trend. Major highways, expressways like the Kundli-Manesar-Palwal (KMP) Expressway, industrial estates, and rail links have facilitated efficient movement of raw materials and finished goods, reducing logistical costs and enabling industries to operate competitively (Li et al. 2018). As a result, sectors such as information technology, automotive manufacturing, consumer goods, and corporate services are predominantly clustered in NCR-adjacent districts. Gurugram has emerged as an IT and service hub, Faridabad and Manesar as manufacturing and automotive centres, and other nearby districts as supportive industrial zones.

**Table: Industrial Expansion in Haryana Districts Based on Proximity to NCR**

District	Proximity to NCR (km)	Major Industrial Sectors	Number of Industrial Units (approx.)	Employment Generated (approx.)	Infrastructure Status	Growth Trend
Gurugram	30	IT, Corporate Services, Real Estate	5,200	200,000	Excellent (SEZs, Expressways)	High
Faridabad	25	Manufacturing, Automotive, Steel	4,800	180,000	Very Good (Industrial Estates)	High
Sonipat	50	Food Processing, Automotive, Textiles	3,200	90,000	Good (Industrial Clusters)	Moderate

Manesar	35	Automotive, Manufacturing, Logistics	3,500	100,000	Very Good (SEZs, KMP Expressway)	High
Panipat	130	Textiles, Chemicals, Handloom	2,700	80,000	Moderate	Moderate
Rewari	80	Manufacturing, Agro-based Industries	1,800	50,000	Fair	Low
Bhiwani	140	Small-scale Industries, Handicrafts	1,200	30,000	Poor	Low
Mahendragarh	160	Agro-based, Small Industries	1,000	25,000	Poor	Low
Panchkula	70	IT Services, Small Manufacturing	1,500	35,000	Good	Moderate
Yamunanagar	120	Paper, Timber, Manufacturing	2,000	55,000	Moderate	Moderate

Source: Study of Economic Profile of NCR

In contrast, districts located farther from the NCR continue to rely primarily on agriculture or small-scale industries, reflecting uneven regional development. Despite policy initiatives such as Special Economic Zones (SEZs) and industrial estates, peripheral regions struggle to attract large-scale investment due to limited infrastructure, higher transportation costs, and weaker access to metropolitan markets. This spatial disparity highlights that while policy support is essential, geographic proximity to economic hubs remains a dominant factor in industrial expansion. Overall, the results underscore the dual impact of NCR proximity: it acts as a catalyst for rapid industrial growth and regional economic development, while simultaneously contributing to spatial inequalities within Haryana. The analysis reveals a clear spatial pattern in Haryana's industrial development, strongly influenced by proximity to the National Capital Region (NCR). Districts such as Gurugram, Faridabad, Sonapat, and Manesar, located near Delhi, have experienced rapid industrial growth, while more distant districts like Bhiwani, Mahendragarh, and Panchkula have lagged behind. This disparity underscores the significant role of geographic location in shaping industrial outcomes. The concentration of industries in NCR-adjacent districts can be attributed to agglomeration economies. These areas benefit from shared infrastructure, a skilled labour pool, and proximity to suppliers and markets, leading to increased productivity and investment. For instance, Gurugram has become a hub for information technology and services, while Faridabad and Manesar are known for manufacturing and automotive industries. The clustering effect not only enhances operational efficiencies but also attracts further investments, creating a self-reinforcing cycle of growth.

Robust infrastructure and connectivity have been pivotal in facilitating industrial expansion. The development of major expressways, such as the Kundli-Manesar-Palwal (KMP) Expressway, has improved access to key markets and reduced transportation costs. Additionally, the establishment of industrial estates and Special Economic Zones (SEZs) has provided conducive environments for businesses to thrive. These infrastructural developments have made NCR-adjacent districts more attractive to both domestic and international investors. While policy initiatives like the Haryana Pharmaceutical and Medical Device Manufacturing Policy aim to stimulate industrial growth, their impact has been more pronounced in regions with better connectivity and infrastructure. Peripheral districts, despite receiving policy support, continue to face challenges such as inadequate infrastructure and limited access to markets, hindering their industrial development. This highlights the need for targeted interventions that address the specific challenges faced by these regions.

The industrial landscape in Haryana is diverse, with different sectors dominating in various districts. The state's focus on promoting sectors like pharmaceuticals, medical devices, and renewable energy presents new opportunities for industrial expansion. For example, the government's efforts to attract ₹5,000 crore in investments for medical device manufacturing and the development of decentralized renewable energy solutions for villages indicate a strategic move towards diversifying the industrial base and promoting sustainable development. The findings underscore the importance of considering geographical factors in industrial policy and planning (Gilbert, 2017). While proximity to the NCR offers significant advantages, it also leads to regional disparities. To promote balanced industrial development, it is essential to invest in infrastructure, provide targeted incentives, and implement policies that address the unique challenges of peripheral districts. Additionally, fostering sectoral diversification and encouraging innovation can help in creating a more resilient and inclusive industrial ecosystem.

### Conclusion

The study concludes that proximity to the National Capital Region (NCR) is a critical determinant of industrial expansion in Haryana. Districts adjacent to Delhi, such as Gurugram, Faridabad, Sonapat, and Manesar, have emerged as major industrial hubs due to the combined effects of agglomeration economies, metropolitan spillover, and superior infrastructure and connectivity. These districts benefit from high investment inflows, diverse industrial sectors, and significant employment generation. In contrast, districts farther from NCR exhibit slower industrial growth and remain largely dependent on agriculture or small-scale industries, indicating spatial disparities in industrial development. While policy interventions, such as industrial estates and Special Economic Zones (SEZs), support industrialization, their impact is more pronounced in areas with locational and infrastructural advantages. The findings underscore the need for balanced regional planning, including targeted infrastructure development, sectoral diversification, and incentives for industries in peripheral districts, to reduce disparities and promote inclusive growth. Overall, the study demonstrates that proximity to NCR not only catalyses industrial expansion but also shapes the economic geography of Haryana, offering lessons for sustainable and equitable regional development.

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