

A Study on The Growth and Extent of Economic Infrastructure Development of Haryana

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ABSTRACT

The building of new infrastructure is an extremely important component of overall economic growth. Infrastructure is viewed as both a pacesetter and a predecessor for the expansion of an economy, and it is also regarded as one of the most significant determinants of economic growth. The levels of economic development are directly proportional to the levels of infrastructure that already exist. There are a few prerequisites that need to be met in order to accomplish the goal of sustainable development, which is to improve everyone's standard of living. The development process as a whole is significantly impacted by infrastructure. The importance of infrastructure to economic growth has been discussed at length by a number of economists. In fact, developmental activities depend upon infrastructure facilities. It is thought of as the necessary step before development can occur. If we are to fulfill our professed purpose of a self-accelerated process of economic development, then progress in development must be preceded, accompanied, and followed by progress in infrastructure. This paper studied the growth of economic infrastructure development of Haryana.

Keywords: Economic, Development, Infrastructure, Growth

INTRODUCTION

The term "infrastructure" refers to the physical structure of facilities that are essential in order to supply the general public with goods and services. Either it has a direct or indirect connection to the economy, or we might say that it has an impact on the economy by the effects that it has on other economies. It encompasses all of the pursuits that do not, in and of them, result in monetary gain but do, nonetheless, lend support and substance to the activities that do result in monetary gain.

The infrastructure network serves a dual purpose; it is both an essential element in the development process and an essential part of the development process. It is a well-known and generally recognised reality that agriculture, industry, and other forms of development activity are hampered by the facilities that are accessible in the form of infrastructural facilities. However, regions that have inadequate infrastructure networks continue to be less developed. Various kinds of infrastructure facilities have an impact on the overall development, which can be seen in areas such as agriculture, industry, and human development. It demonstrated that there is a favorable correlation between the per capita net state domestic product and infrastructure.

Earlier on, we covered the fact that the prosperity of the region is directly dependent on the agricultural and industry located there, while the development of agriculture and industry is dependent on the facilities that are available in an economy's infrastructure. In order for agricultural development to occur,

it is necessary to have the fundamental infrastructural facilities. These facilities include an adequate water supply for irrigation, storage and transport facilities, an organised network of marketing, financial institutions for short and long term funding, and relevant information, among other things. The agricultural productivity that can be achieved at a reduced cost per unit can be raised with the assistance of these facilities. However, this enhanced production won't be of any use if it can't be distributed to customers in the market. Therefore, there is a requirement for a unified transportation system that can link these goods to the regional, national, and even international markets.

LITERATURE REVIEW

N. Arora, (2022) analysed the developing a multi-dimensional financial inclusion index, the current article examines the extent of financial inclusion in Haryana. For the Haryana district between 2010 and 2020, the study created the index. Following a thorough analysis of the literature, the study considers three fundamental variables—banking penetration, access to banking services, and banking system use—as a measure of the degree of financial inclusion. The study found that while financial inclusion is relatively high in the Gurugram district, the situation in the Mewat district is worrying and suggests that there is a significant inter-district discrepancy in financial inclusion. Therefore, the study promoted an inclusive financial inclusion policy to include all community sectors inside the purview of the formal monetary arrangement. Additionally, bringing digital infrastructure to remote and rural areas, building more financial literacy centres, and adopting more lenient loan regulations can all contribute to realising the goals of financial sector reforms.

Puneet Jain (2022) analysed the level of financial literacy among generation Z in India, a study is being done. Given that generation Z is the future of the economy, the study aims to forecast the financial health of the economy. The study demonstrates that the issue of men having a higher level of financial literacy than women, which existed in earlier generations, still exists in generation z. The study also demonstrates the generation z's irrational behaviour in selecting the source of assistance required while making financial decisions despite not being financially savvy themselves. Men and women have different levels of financial literacy, which is consistent with prior studies; this disparity was most pronounced among older age groups. This study demonstrates the need for more measures to close the education gap, particularly in the area of financial education. The generation z makes financial decisions based on a variety of information, and there has been little improvement in their level of financial literacy. In general, generation Z's financial literacy needs to be improved for a brighter future. Financial illiteracy is a hindrance to financial well-being, and the economy would suffer if generation z is not financially sound.

K. Abdulaziz1 (2021) analysed that, in 2019-20, the expansion and financial viability of rice production in the Karnal area of Haryana, India were studied. Thirty farmers from the Karnal district were interviewed to compile data on the costs of growing rice, the amount of rice harvested, and the difficulties farmers have had in meeting demand. Area, production, and yield all of rice in Haryana has been on the rise, as shown by the CAGR results. It appears that over the time period under consideration, there was more variation in Haryana's area, production, and yield than there was elsewhere in India, due to the large instability. The Basmati CSR-30 variety had the highest production costs (Rs. 30.50 kg-1) because to its high labour requirements. Also, growing Basmati CSR-30 yielded the maximum net profit (Rs. 8.08 kg1). One of the biggest barriers to rice production was the absence of profitable prices.

Because of this, increasing the rice's unit price and exploring alternative ways to motivate rice farmers could make rice production more viable. In a similar vein, research priorities should shift toward figuring out how to both lower production costs while simultaneously increasing yield, both of which have a positive impact on a company's bottom line.

K. Singh, (2021) analysed the Electricity is the lifeblood of the global economy and a vital means for all of the modern world's assets because of the rapid pace of technological advancement. The recent economic downturn has brought increased attention to the role that energy plays in the economy. The purpose of this research is to investigate the connections that exist between Haryana, India's per capita power consumption and per capita state gross domestic product (SGDP). A Johansen cointegration analysis, a vector auto-regression analysis, and a paired Granger-causality test were utilised to investigate the statistical data from 1989 to 2015. Encouragement of energy saving measures and the use of renewable energy sources could be a viable option for policymakers to consider in order ensuring a sustainable energy supply for the nation. In addition, Haryana has the potential to expand its sphere of influence in this industry and make rapid inroads into expanding markets throughout the world by encouraging the manufacture of digital solutions for energy efficiency and their widespread adoption.

A. Yadav (2021) analysed the economic liberalisation, also known as economic restructuring, was started in India in the early 1990s, and the socioeconomic landscape of the state of Haryana underwent rapid change. History has shown that the socioeconomic backwardness of the Ahirwal, a unique sociocultural region of the state, has been present. But in the post-liberalization age, this region has noticed a noticeable increase in the development indicators, especially as a result of the economy's quick transformation. By the turn of the century, this region had surpassed the rest of the state in terms of socioeconomic development indicators. However, the Gurugram area, which has become a centre of neo-liberal economic activity in the national capital region, is where the majority of the region's economic development processes are concentrated. It is changing the socioeconomic traits of the area, which was formerly known for its sociocultural homogeneity. As a result, there are now economic and geographic divisions in the area, with Mahendragarh district at the bottom and Gurugram at the top. It is a textbook example of a formal (socio-cultural) territory collapsing under the tremendous weight of an expanding functional (economic) zone close to the national capital. This development paradigm has produced a geographical complex with neo middle class wealth and financial capital accumulation on the one side and a hinterland that is socioeconomically underdeveloped on the other.

Pooja Rani (2020) analysed the creation of a region's economic infrastructure is the first step in that region's economic growth. It is absolutely necessary to make investments in various infrastructure-related sectors in order to maintain the process of economic development and bring about a reduction in the existing disparities between different regions' levels of development. The current study examines the spatial and temporal variations in levels of infrastructure development in Haryana over the period of time spanning 2005-06 to 2015-16. This study focuses on analysing the levels of development in Haryana. The research was conducted using secondary sources to gather information for 28 indicators connected to eight different areas of infrastructure development. A composite index has been developed to highlight the differences in the levels of infrastructure development that can be found between districts. It has been found that Panchkula and Ambala are the most developed districts in terms of the availability of infrastructure. On the other hand, the districts of Palwal and Mewat in southern Haryana

are the most backward in terms of the development of infrastructure. The disparity between districts has become more pronounced over time as the proportion of districts reporting a low or very low level of infrastructure development has increased from 21% in 2005-06 to 38% in 2015-16. In 2005-06, this proportion stood at 21%. The establishment of infrastructure in these underdeveloped regions will kick-start the developmental processes that will ultimately result in a narrowing of the socioeconomic gap within the state.

Ravi Kumar (2020) analysed because agriculture is the primary industry in Haryana, the agricultural sector plays a significant and important role in the state's economy. More than half of the population of the state is directly or indirectly supported monetarily by this division, whether in a direct or indirect manner. Horticultural crop development in the state has a good chance of succeeding thanks to the state's favourable climatic and agricultural conditions. The purpose of the study is to investigate the unique challenges that are faced by horticultural crops in the state of Haryana. Growing the state's horticulture industry could meet the demand for crop diversification as well as take advantage of the opportunities it presents. In this study, an effort has been made to investigate the current state of the agro-processing and protected cultivation industries, as well as the challenges they face. This is because, in order to reduce the amount of food that is wasted after it has been harvested, a comprehensive plan that improves the state's physical, functional, and market infrastructure, as well as provides a single-window system, tax rebates, and export subsidies, is required to be developed in order to stimulate agro-processing within the state.

OBJECTIVES OF THE STUDY

The major objectives of the study are:

1. To examine the growth and extent of infrastructure disparities across states of Haryana.
2. To construct the infrastructure development index of Haryana.

COLLECTION OF DATA

The present study is purely empirical and relies solely on secondary sources of information for its findings. In order to demonstrate the differences that exist between the various districts, all 22 districts have been included and taken into consideration. Secondary data is compiled from a variety of sources, such as:

- Statistical Abstract of Haryana, Various Issues;
- Census of India, 2001 and 2011;
- Economic Survey of Haryana, Various Issues; and so on, in order to achieve the goals.
- A Statistical Abstract of the Districts, Various Concerns, and
- The Directorate of Telecommunications, Government of India;
- The National Human Development Reports, Planning Commission of India;
- The Districts Census Handbook, Government of Haryana;

The present study is based on secondary data for different states from the period 1991-2021. The data is available in various official and research publications.

Economic Infrastructure Trends in Haryana

Infrastructure plays a critical role in determining an economy's overall growth and productivity as well as the standard of living for its citizens. Infrastructure refers to the actual construction of buildings used to deliver products and services to the general population. Transportation, energy, water, and other infrastructure services are recognised as intermediate production inputs, and decreasing the cost of these inputs can increase the profitability of the entire production process. Investment in both industry and agriculture is necessary for economic development because they are regarded as the foundation of an economy. But numerous infrastructural projects are also quite significant. The old strategy of directing the majority of resources into a select group of contemporary projects has not produced the desired shift in the economic system. However, economists and planners have recently come to the realisation that for the country as a whole as well as in various regions of the country, a significant amount of investment is required in order to encourage meaningful economic growth.

- Transport and Communication
- Irrigation
- Banking
- Energy

Transportation

The economic infrastructure at the state level is described in this section. Transportation, communication, energy, banking, and irrigation are some indicators of economic infrastructure that have been chosen. In terms of transportation, roads and railroads are taken into account. Postal services and telephone connections are taken into consideration for communication.

Roadways

In order to speed up the state's economic development, transportation infrastructure and adequate roads are crucial. One of the major accomplishments of Haryana is the ongoing expansion of its road network. The market is widened in part by the transportation infrastructure. Additionally, it is crucial for the transportation of people, supplies, machinery, and other items. According to NHAI data updated on November 30, 2018, the state of Haryana has 32 state highways totaling 1801 km in length and 34 national highways (NH) totaling 3098 km (as per PWD, Haryana).

Table-1: Expansion of Road Length in Haryana(In km.)

Year	Length of National Highways	Length of State Metalled Roads	Total Length of Metalled Roads	Total Road Length	*% Share of Surfaced Road to Total Length
1990-91	656	20897	21553	23017	93.63
1995-96	656	21912	22568	23486	96.09
2000-01	1346	21224	22570	23706	95.20

2005-06	1083	21798	22881	23258	98.37
2010-11	1463	25418	26881	27116	99.13
2015-16	2482	23516	25998	26088	99.65
2020-21(P)	2582(P)	24662(P)	27244	27244(P)	100(P)

Source: Statistical Abstract of Haryana, Various Issues. Note: *Calculated by Self. *P-Provisional.

The development of road length (in kilometers) in the state of Haryana from 1990–1991 to 2020–2021 is shown in Table–1 and Figure–1. In sum, Haryana's total road length (including national and state highways) was 23,017 km in 1990–1991 but only 23258 km in 2005–2006. The overall length of roads increased to 27116 km in 2010–11. According to data from 2015–16, the overall length of roads decreased once again to 26,088 km. The length of National Highways has increased significantly by 74.59 percent from 1990–1991 to 2020–2021, as evidenced by the fact that it is now 27,244. In 2020–2021, the total length of national highways increased to 2582 km from 656 km in 1990–1991. From 20,897 in 1990–1991 to 24,662 in 2020–21, the total length of state metalled roads has increased. From 21,553 in 1990–1991 to 27244 in 2020–2021, the overall length of metalled roads has increased. From 93.63 percent in 1990–1991 to 100% in 2020–2021, the proportion of metalled road length to total road length has steadily increased.

Figure-1: Expansion of Road Length in Haryana

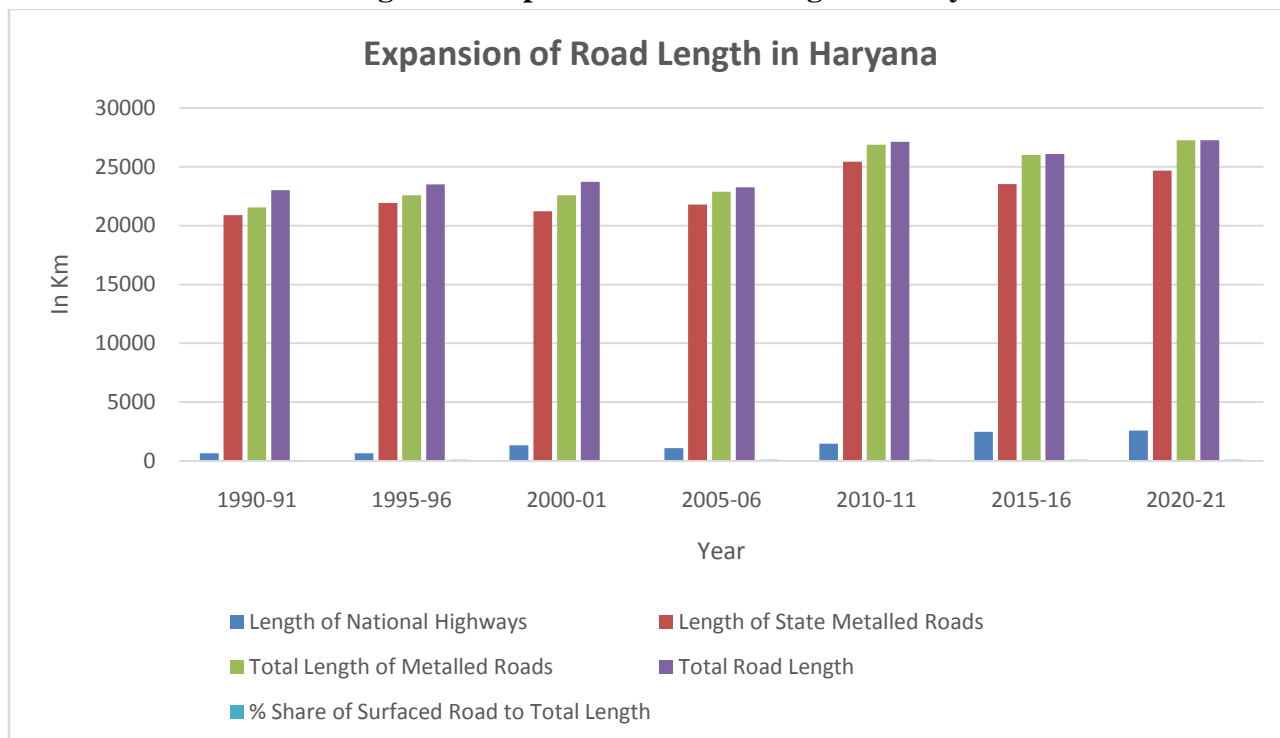
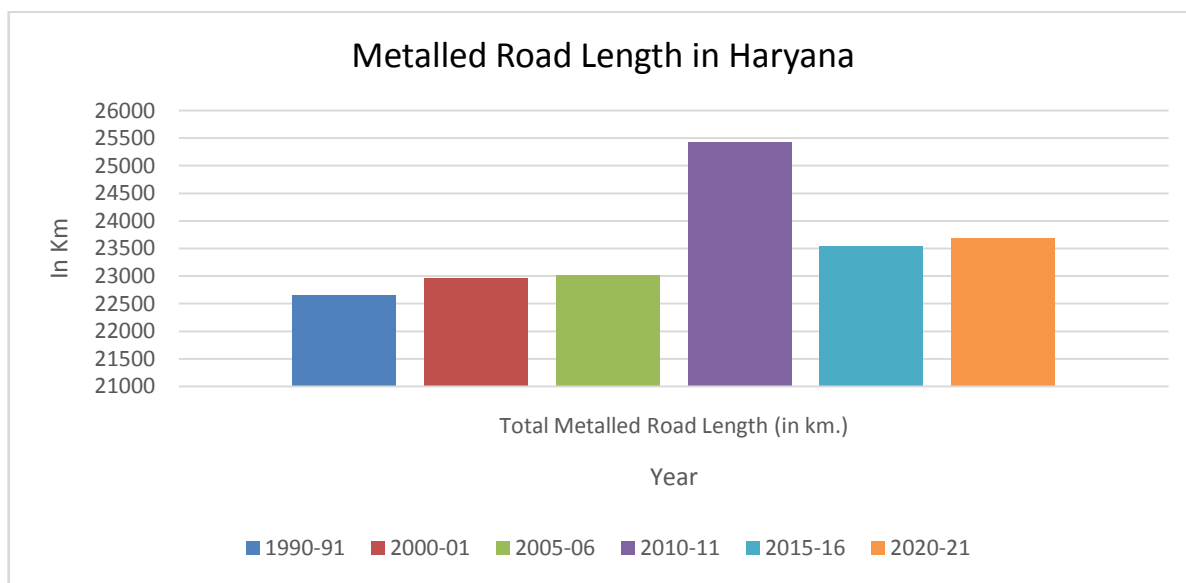


Table-2: Metalled Road Length in Haryana

Year	Total Metalled Road Length (in km.)	Per 100 sq.km.ofArea	Per Lakh of Population	%of Villages Connected with Metalled Road
1990-91	22650	50.68	109	98.99
2000-01	22960	51.93	109	98.99
2005-06	23013	52.05	109	99.88
2010-11	25426	60.82	106	99.90
2015-16	23540	58.86	102.65	99.87
2020-21	23698	59.00	103.26	99.87

Source: Statistical Abstract of Haryana, Various Issues.

Figure-2: Metalled Road Length in Haryana



Source: Statistical Abstract of Haryana, Various Issues.

Table 2 and Figure 2 show the length of metaled roads in Haryana from 1990-1991 to 2020-21. According to data, the percentage of communities connected by metaled road was 98.99. In 1990-91, the total length of metaled roads was 22650 km, with 50.68 km per 100 sq. km of land and 109 km per lakh of inhabitants. Except for the road length per lakh of population, which has grown due to higher population growth, these data have steadily increased over the years in 2000-01, 2005-06, and 2017-18. In 2020-21, the total length of metaled roads is 23698 kilometers, with 59 kilometers per 100 square kilometers of area and 103.26 kilometers per lakh of inhabitants. The percentage of communities with metaled roads has steadily increased from 98.99 percent in 1990-1991 to 99.87 percent in 2020-21. This

demonstrates infrastructure growth, as practically every village in the state is connected by metaledroads.

Railways

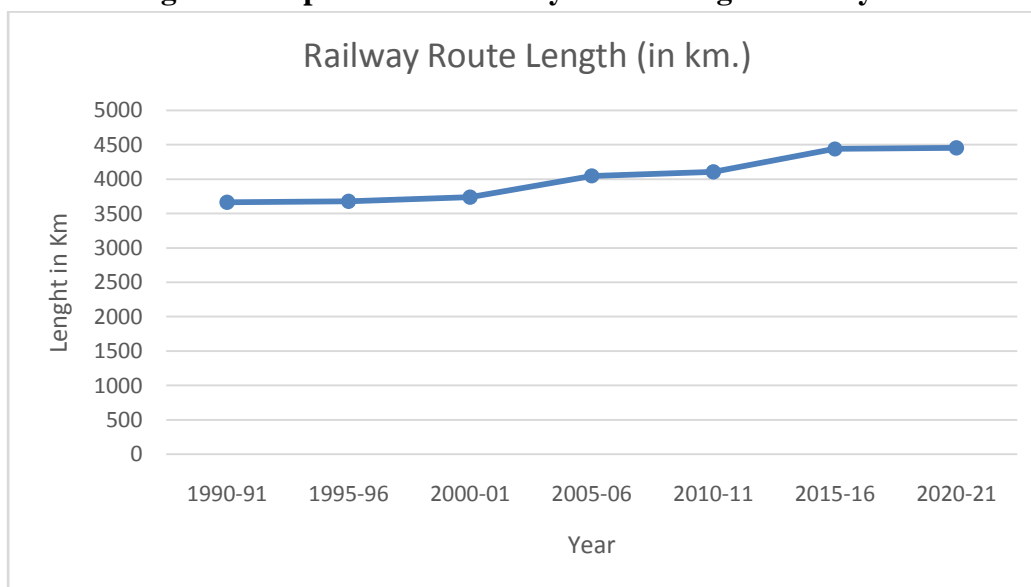
Broad gauge track from Calcutta to Delhi was the first train route to be built and run through the state in 1864. Five rail divisions make up the Haryana rail division, which is divided into three rail zones: the Northern Railway Zone (Ambala and Delhi railway divisions), the North-Western Railway Zone (Jaipur and Bikaner railway divisions), and the North-Central Railway Zone (Agra railway division). The largest and most historic station in Haryana is Rewari, which is part of the Jaipur Railway Division.

Table-3: Expansion of Railway Route Length in Haryana

Year(at31 st March)	RailwayRouteLength(in km.)
1990-91	3663.75
1995-96	3677.75
2000-01	3737.91
2005-06	4047.80
2010-11	4106.26
2015-16	4439.16
2020-21	4455.45

Source: Statistical Abstract of Haryana, Various Issues.

Figure 3: Expansion of Railway Route Length in Haryana



Source: Statistical Abstract of Haryana, Various Issues.

Table 3 and Figure 3 show the increase in railway route length in Haryana from 1990-1991 to 2020-21. The length of the railway line increased constantly from 3663.75 km in 1990-91 to 4455.45 km in 2020-21, demonstrating how quickly railways are increasing.

Inter-District Disparities in Selected Indicators of Economic Infrastructure

Tables 4 to 6 show inter-district disparities in economic infrastructure. C.V represents inter-district disparities.

Table-4: Inter-District Disparities in Economic Infrastructure

Districts	Metalled Road Length per lakh of Population				Metalled Road Length per 100 sq. km of Area			
	1990-91	2000-01	2010-11	2020-21	1990-91	2000-01	2010-11	2020-21
Ambala	103	108	111	111	59.9	69.44	80.37	79.61
Panchkula	N.A	119	108	105	N.A	62.36	66.93	65.81
YamunaNagar	121	110	97	98	63.53	61.26	66.57	67.48
Kurukshetra	118	122	122	118	63.31	65.88	76.93	74.58
Kaithal	123	133	168	159	51.87	54.16	77.94	73.67
Karnal	82	86	106	108	42.76	43.38	63.61	64.25
Panipat	112	108	75	70	84.76	82.18	70.82	66.64
Sonipat	78	81	96	99	48.10	49.06	66.78	67.53
Rohtak	118	101	96	102	56.76	54.33	58.4	62.29
Jhajjar	N.A	100	139	125	N.A	48.26	72.46	65.68
Faridabad	49	55	56	29	50.21	56.21	71.47	71.52
Palwal	N.A	N.A	80	74	N.A	N.A	60.82	57.10
Gurugram	98	102	47	47	60.01	61.32	57.17	56.60
Nuh	N.A	N.A	87	84	N.A	N.A	50.99	60.85
Rewari	131	129	113	113	65.67	62.2	63.61	63.93
Mahendragarh	123	116	112	114	52.98	50.83	54.34	55.08
Bhiwani	128	139	149	149	39.73	41.54	50.79	50.86
Jind	92	97	84	87	41.02	42.52	41.41	42.97
Hisar	118	120	126	125	44.31	46.47	54.43	54.73
Fatehabad	N.A	181	163	159	N.A	58.02	60.32	59.10
Sirsa	135	150	174	142	32.65	38.88	52.53	42.90
Charkhi Dadri	NA	NA	NA	78	NA	NA	NA	46.89
Mean	108.06	113.53	109.95	104.36	58.8	59.52	66.4	61.37

S.D.	23.14	27.24	34.53	33.24	24.74	22.16	19.59	9.88
C.V.	21.41	24	31.4	31.85	42.08	37.23	29.5	16.09

Source: Statistical Abstract of Haryana, Various Issues.

Table-4 depicts inter-district discrepancies in specific economic infrastructure details throughout three time periods. The discrepancy in metaled road length per lakh population has steadily increased from 21.41 percent in 1990-91 to 31.74 percent in 2020-21. In practically all time periods studied, Fatehabad district has the longest length of metaled road. The discrepancy in metaled road per 100 square kilometers of land has steadily declined, from 42.08 percent in 1990-1991 to 37.23 percent in 2000-01 to 29.5 percent in 2010-11.

Table-5: Inter-District Disparities in Economic Infrastructure

Districts	Number of Post Offices Per Lakh of Population				% of Net Area Irrigated to Net Area Shown			
	1990-91	2000-01	2010-11	2020-21	1990-91	2000-01	2010-11	2020-21
Ambala	12	14	12	12	90.53	90.4	88.9	99.33
Panchkula	9	10	9	9	65.61	45.5	46.2	82.61
Yamunanagar	12	13	11	11	98.67	87.2	92	100.00
Kurukshetra	12	13	12	12	100	99.3	100	99.29
Kaithal	12	13	11	11	99.69	99.5	99.5	100.00
Karnal	12	13	12	12	100.00	98.9	99.9	100.00
Panipat	9	10	9	9	100.00	98.9	100	100.00
Sonipat	13	14	12	12	99.95	100	100	100.00
Rohtak	11	12	11	11	92.39	89.4	79.8	100.00
Jhajjar	14	16	14	14	95.18	82.2	74	93.85
Faridabad	5	6	5	5	100	76.3	96.2	100.00
Palwal	NA	N.A	4	4	93.07	N.A	98.4	95.19
Gurugram	9	10	10	10	100	42.6	71.1	100.00
Nuh	NA	N.A	7	7	66.41	N.A	28.6	77.27
Rewari	14	17	14	14	100.00	82.9	76.7	100.00
Mahendragarh	13	14	13	13	58.99	78.4	33.7	78.95
Bhiwani	14	16	14	14	85.65	55	54.4	80.85
Jind	12	14	12	12	99.42	94.4	90.4	100.00
Hisar	13	16	13	13	90.37	86.9	81.7	93.13
Fatehabad	15	14	15	15	98.98	96.3	99.6	98.64

Sirsa	13	14	13	13	99.12	90.2	89.7	97.70
Charkhi Dadri	NA	NA	NA	8	NA	NA	NA	85.71
Mean	18.3	13.11	11.1	10.95	92.1	83.91	80.99	94.66
S.D.	29.21	2.64	2.91	2.92	12.65	17.78	22.44	7.93
C.V.	159.6	20.17	26.26	26.65	13.74	21.18	27.72	8.38

Source: Statistical Abstract of Haryana, Various Issues.

Table-5 depicts inter-district discrepancies in selected economic infrastructure metrics in Haryana districts from 1990-91 to 2010-21. Disparities in both of the aforementioned metrics grew from 2000-01 to 2010-11, but subsequently declined in 2020-21. Throughout the study period, Fatehabad had the largest number of post offices per lakh of people, while Palwal and Faridabad had the lowest number.

Table-6: Inter-District Disparities in Economic Infrastructure

Districts	Scheduled Commercial Bank Per 100sq.km. of Area				Scheduled Commercial Bank Per Lakh of Population			
	1990-91	2000-01	2010-11	2020-21	1990-91	2000-01	2010-11	2020-21
Ambala	5	6	10	18	9	10	14	26
Panchkula	6	6	14	28	7	12	23	43
Yamunanagar	4	5	7	13	6	8	10	19
Kurukshetra	3	4	7	17	5	7	11	25
Kaithal	2	2	4	8	5	6	9	18
Karnal	3	4	6	15	4	7	11	23
Panipat	5	6	10	19	5	8	10	21
Sonapat	3	4	7	14	4	6	11	23
Rohtak	4	5	8	13	6	10	12	21
Jhajjar	3	3	5	11	4	6	9	19
Faridabad	6	7	24	47	4	6	10	21
Palwal	NA	N.A	5	9	NA	N.A	6	11
Gurugram	4	5	27	57	5	8	22	47
Nuh	NA	N.A	2	7	NA	N.A	3	8
Rewari	3	4	6	13	5	7	11	20
Mahendragarh	2	3	4	8	5	6	7	14
Bhiwani	1	2	3	5	4	7	8	13
Jind	1	2	4	7	3	5	7	13
Hisar	2	2	4	9	4	6	8	17
Fatehabad	1	2	3	7	4	6	9	18

Sirsa	1	2	3	6	5	8	9	17
Charkhi Dadri	NA	NA	NA	3	NA	NA	NA	9
Mean	3.11	3.89	7.76	15.18	4.95	7.32	10.48	20.27
S.D.	1.63	1.66	6.57	13.28	1.35	1.77	4.62	9.38
C.V.	52.47	42.7	84.67	87.45	27.35	24.13	44.12	46.25

Source: Calculated by self

The inter-district differences in the selected indicators of economic infrastructure in the districts of Haryana are displayed in table 6 above. The time period covered by this table is from 1990-1991 to 2010-2011. The gaps between the two measures, which are scheduled commercial bank per 100 sq. km. of land and scheduled commercial bank per lakh of population, have significantly widened between 1990-1991 and 2020-2021. The districts of Gurugram, Faridabad, and Panchkula have performed exceptionally well in both indicators and have maintained their leading positions throughout the entirety of the research period.

CONCLUSION

The infrastructural network is crucial to growth and development itself. Infrastructural facilities hinder agriculture, industry, and other development activities, as is well known. Poorly connected places remain underdeveloped. Infrastructure affects agriculture, industry, and human development. Infrastructure and per capita net state domestic product are positively correlated.

We already discussed how the region's success depends on agriculture and industry, while their growth depends on an economy's infrastructure. Agriculture requires basic infrastructure. These amenities include irrigation water, storage and transport, an organised marketing network, financial institutions for short and long-term finance, and necessary information. These facilities may boost agricultural output at lower unit costs. If it can't be sold, this increased output is useless. So, these items need a unified transportation infrastructure to reach regional, national, and worldwide markets.

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