Pie Index Of Railway Connectivity In Amravati District

Dr. Omprakash B. Munde

Abstract
Rail transport has made it possible to transport heavy goods over long distances as well as to carry a large number of passengers at a time. Although the development of railways is less than that of roads, railways make a huge contribution to economic development. More connectivity of railway line is an indicator of development. The Pie index is an effective measure of connectivity that studies both density and connectivity.
In the present research, the tahsil wise pie index of railway line in Amravati district has been studied
Key Words
Pie index, railway network, diameter, and region

Introduction

Today, there is a railway network of about 115000 km across India. India has the first railway network in Asia and the second largest in the world. The railway network in the state of Maharashtra is more than 6000 km long and its development is not uniform.

The railway network in Amravati district is not yet fully developed but still the impact of the railway line is seen on the development. In the present paper, the study of railway line in Amravati district has been done with the help of pie index

Objectives of the Study

The main objective of the present study is to calculate and analysis pie index of railway network in Amravati district in the view of connectivity.

Data Source and Research Methodology

Data source of present research paper is based on the secondary source and complied from Socioeconomic Review of Amravati district, Train at Glance etc.

Diameter of the network is measured in GIS software and Pie index is calculated with the helpof following formula which was suggested by KJ Kansky (1963),

$$\pi = L \div D$$

π –Pie Index,
L – Total Length of Railway Network (Km),
D – Diameter of Network
Calculated values are shown in table also result is presented in the map of the study region.

Study Area

Amravati district is located in Vidarbha region of Maharashtra state. District is conflicts in between 20^0 33' N to 21^0 47' N latitude and 76^0 43' E to 78^0 24' E longitudes. Geographical area of the district is 12210 sqkm with total 2888445 populations as per 2011 census. There are total 14 tahsils are included in the district (Table No 1).

Akola district is located towards west, Washim towards southwest, Nagpur towards northeast, Wardha on east, Yavatmal on south, and Buldhana towards northwest of the district.
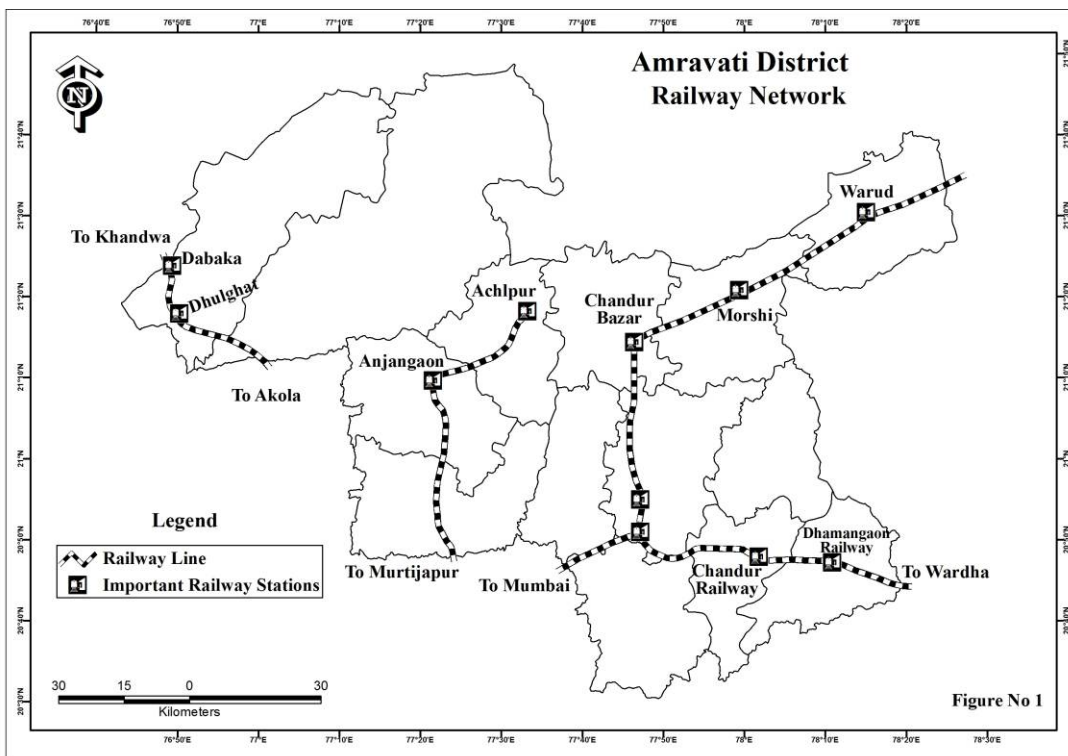
Figure No 1

Railway Network of District

Total railway length of the district is near about 272 km and it is quite increased from last few decades. Mumbai to Howarh Central Railway line is passing through the district. This railway line passing through Amravati, Chandur Railway and Dhamangaon Railway tahsil and connected both three tahsil places by central railway.

The second route of Central Railway is from Amravati to Narkhed, this route goes to Amravati, Chandur Bazar, Morshi and Warud and then it reaches Narkhed station in Nagpur district. The narrow gauge route goes from Achalpur to Murtijapur. The road from Akola to Khandwa passes through Chikhaldara and Dharani tehsils of Amravati district. However, the railway network in Dharani and Chikhaldara tahsils is very low

Pie Index of Railway Network

Tahsil wise pie index of railway network is found uneven because diameter of the network and railway length is also uneven in the entire region. Tahsil wise railway network, diameter of railway network and pie index is shown in table no 1.

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Table No 1
Pie Index of Railway Network in Amravati District

Tahsil	Railway Length (KM)	Diameter (KM)	Pie Index
Dharani	25	71	0.35
Chikhaldara	9	94	0.10
Anjangaon Surji	12	38	0.32
Achalpur	18	37	0.49
Chandur Bazar	16	31	0.52
Morshi	34	39	0.87
Warud	35	41	0.85
Tiwasa	0	37	0.00
Amravati	53	38	1.39
Bhatkuli		39	0.00
Daryapur	23	38	0.61
Nandgaon Khandeshwar	0	35	0.00
Chandur Railway	23	32	0.72
Dhamangaon Railway	24	34	0.71
Total Amravati District	**272**	**173**	**1.57**

Source:- Pie Index is calculated by author

Higher value of pie index shows maximum railway development and low value shows low development. Total district's value is calculated 1.57 and it denote there area 1 to 2 km railway route availability according to the diameter of the district. But compare to the large diameter of the district this railway network is very poor and need to improvement.

The pie index of the region is divided into four categories; zero index is as non development of railway network, 0.01 to 0.50 as very low railway development, 0.50 to 1 as low railway development and above 1 as moderate railway network development. According to the value of pie index maximum value of the region is 1.39 and it found in Amravati tahsil but high railway development is not found in any tahsil of the district.
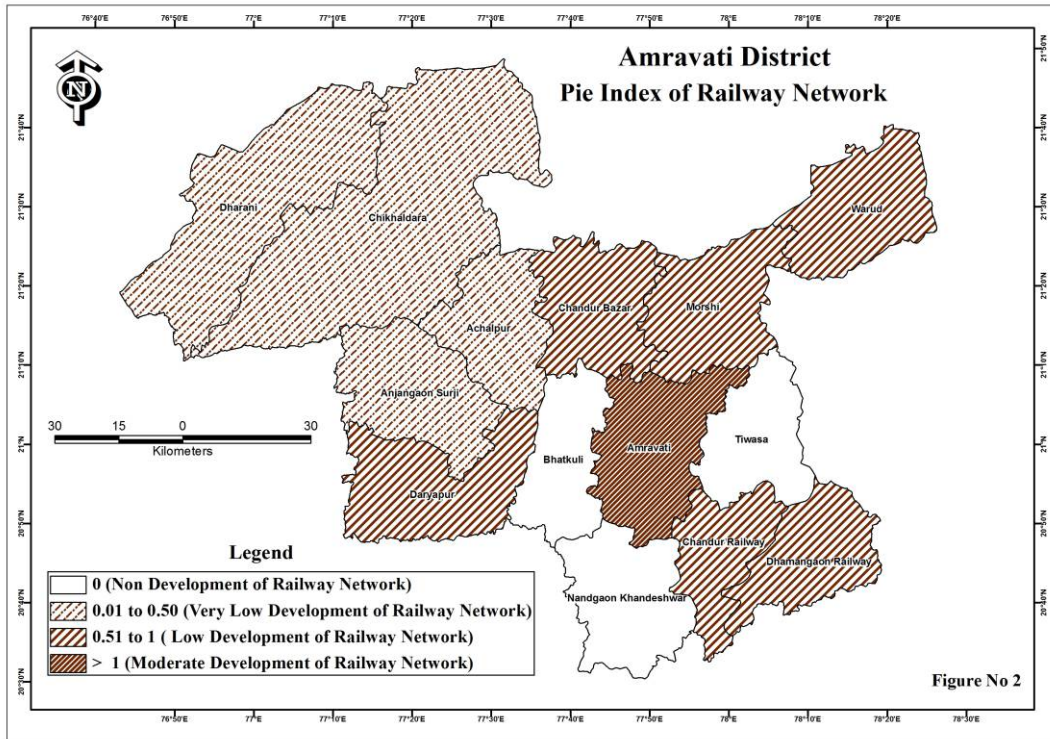
Non Development of Railway Network

In the district Tiwasa, Bhatkuli and Nandgaon Khandeshwar tahsils are included the non development of railway network. These tehsils are totally dependent on railway services from Amravati.

Very Low Development of Railway Network

Chikhaldara, Anjangaon Surji, Dharani, and Achalpur tahsil has found the very low

development of railway network. Akola to Khandwa broad gauge is passing through Chikhaldara and Dharni boundary region and Dhulghat railway and Talai railway villages in these tahsils having the railway station. Achalpur to Murtijapur narrow gauge is passing through Anjangaon, Achalpur and Daryapur tahsil but the transport from this route is closed last few months.


Figure No 2

Low Development of Railway Network

The pie index in between 0.50 to 1 is calculated in Chandur Bazar, Daryapur, Dhamangaon Railway, Chandur Railway, Warud and Morshi tahsil.

Dhamangaon Railway and Chandur Railway are connected to Mumbai to Howrah central railway line. Mail and Express stops at both Dhamangaon and Chandur, so this railway line is an important link for daily commuters to and from Amravati and adjoining areas to and from Chandur and Dhamangaon. Chandur Bazaar, Warud and Morshi are on the Amravati to Narkhed route and most of the trains plying on this route also stop at these places. This railway line is used by traders as well as students coming to Amravati from this tahsil

Moderate Development of Railway Network

Only Amravati tahsil found the pie index value 1.39 and railway development in this tahsil is moderate or satisfactory according to the diameter of the region. There area four railway stations are included in this tahsil and out of four stations three stations are located in Amravati city. Badnera railway station is connected both line, Mumbai to Howrah and Amravati to Narkhed, The maximum railway development in Amravati tahsil is occurred in Amravati city region.

Amravati District
Railway Length and Diameter (Km)

Figure No 3
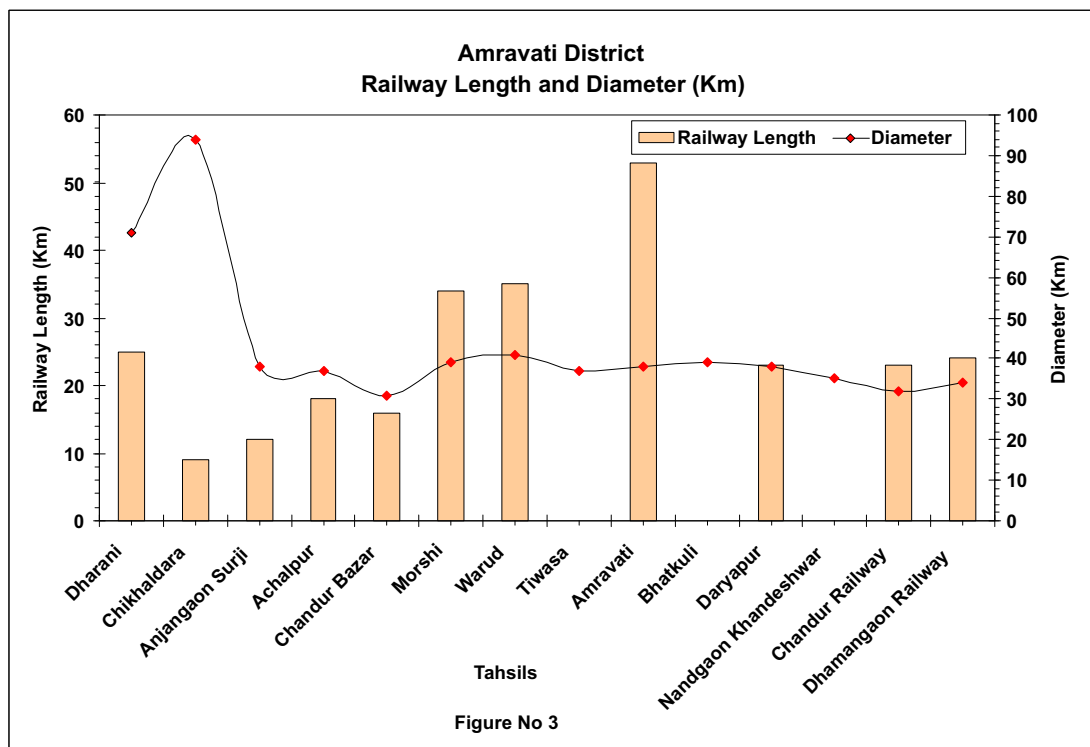
Conclusion & Suggestion

Railways have played a major role in the development of Amravati district. From Amravati to Mumbai, Pune, Hyderabad, Tirupati, Surat, Jabalpur, etc., there is a direct regular train service.

Only Amravati tahsil in Amravati district has seen satisfactory railway development while other tahsils have very little. But the railway development of any tahsil is not high compared to the diameter of the district.

Although it is not possible to build a new railway line at once, progress can be made on the existing route by increasing the number of main railway stations as well as the number of trains.

References

1) Bamford C.G. & Robinson H (1978), "Geography of Transport, Mcdonald and evens ltd, Estover Playmount

2) Kansky K. J. (1963), "Structure of Transportation Network Relationship between Network and Regional Characteristics" Research Paper No. 84, Depart of Geography, University of Chicago

3) Patil R.P. (2009) - Road Network - A Study of Marathwada Region – Research Analysis and Evaluation, International Referred Research Journal, Vol. III, Issue-2

4) Srivastava R. C. (2006), "Agricultural Markets and Transport Network" Rawat Publications, Jaipur, Page No.196-200.

*Dr. Omprakash B. Munde
Head, Dept. of Geography,
Narayanrao Rana Mahavidyalya,
Badnera Railway,Amravati