

**Temporal Change in Infant Mortality Rate of Latur and Osmanabad District  
: A Geographical Study**

**Dr. N. G. Mali**

Research Supervisor & Head,  
Dept. of Geography,  
Mahatma Basweshwar College, Latur

**Miss. Maya Sarwade**

Research Fellow,  
Dept. of Geography,  
Jaykranti Senior College, Latur.

**Abstract:**

*The study of infant mortality rate has great significance in population geography. Trends in infant mortality are closely related to trends in fertility and general mortality. The phenomenon has risen on important issue regarding the utility of infant mortality rate as an indicator of socio-economic development. Infant deaths is closely associated with endogenous factors such as age of mother, the birth order, the period of spacing between births, pre maturity and weight at birth. Exogenous causes such as epidemics, poor hygiene and lack of proper nutrition affects on infant mortality rate.*

**Key words:** Birth Rate, Death Rate, Mortality Rate.

**Introduction:**

The problem of increasing of population pressure on physical resources is of paramount importance birth rate is tending to decline but the net rate of increase is higher than ever for the simple reason that the knowledge and practice of death control have been expanding more rapidly than the knowledge and practice of birth control (Jamali F.Z.). The stage of population explosion is experienced by developing countries like India. All attempts to improve social and economic conditions are thrown out of the gear by increase in the total population of such countries. This tremendous increase in population has created certain severe problem such as unemployment, poverty, nitrite, crimes expansion of slums and blight areas in the countries which is explosive stage of population.

**Study Region:**

Latur district is situated in the South-East part of the Maharashtra and it lies between 17° 52' North latitude to 18° 50' North latitudes and 76° 12' East longitudes to 77° 18' East longitudes. The district of Osmanabad is the southern most districts in Aurangabad division of Maharashtra state situated between 17° 37' to 18° 42' North latitudes and 75° 17' to 76° 47' East longitudes. The total geographical area of Latur district is 7157 sq.kms. Out of the total geographical area of Maharashtra it covers 2.39 per cent. The district has an area of 7484 square kilo-meters. About 7271 square kilometers area (96.79%) is known as rural area where as only 241.4 square kilometers (3.21%) area comes under urban categories.

**Objectives:**

1. To study the temporal changes of IMR
2. To correlate the birth rate and infant mortality rate

**Database and Methodology:**

The attempts have been made by the researcher to examine population structure during the 30 years spreading between 1991 to 2011, for which uniform data at circle level is available. The main body of data used in this study was collected from two sources viz. primary and secondary.

The present paper includes distribution, density, growth rate, sex ratio, literacy, migration, and occupational structure of population and population projection in the study region. It has been carried out over thirty years from 1991 to 2011. The processed data was presented in the form of maps, diagrams and tables. Population concentration is calculated in relation to percentage of population and area. The equation of present regression of y on x line IMR on BRI

**Infant Mortality Rate:**

In the study region Latur district 30.21 infant deaths and Osmanabad district 39.60 infant deaths was found in 2001 and it has variations at rural-urban level. At rural part of the study region it founds 19.03 in Latur district and 37.43 in Osmanabad district whereas at urban parts it found 15.11 deaths in Latur district and 33.15 deaths in Osmanabad district. At tahsil level infant mortality rate was ranging between 45.99 in Udgirtahsil to 22.07 deaths in Renapurtahsil and 39.09 deaths in Omergatahsil to 20.46 deaths in Bhumtahsil. Higher infant mortality rates were observed at rural parts comparing to urban parts. Urban infant mortality rate was ranging between 19.88 in Laturtahsil to 8.25 in Deonitahsil of Latur district and 41.55 in Omergatahsil to 16.72 in Bhumtahsil whereas rural was between 27.97 in Udgirtahsil to 11.95 in Renapurtahsil. (Table No. 1.1)

According to 2011 census infant mortality rate of the study region declined to 8.47 deaths in Latur district and 20.14 deaths in Osmanabad district. At the time, rural infant mortality rate was 6.45 and 23.99 whereas urban infant mortality rate was 5.95 and 17.85 deaths. It is notable that urban infant mortality rates infant deaths were observed in Renapurtahsil (14.79) and Omergatahsil (26.25). Urban infant mortality rate was lower in Udgirtahsil (1.74) of Latur district and Paranda (4.07) tahsil.

**Table No.1.1: Latur and Osmanabad District: Infant Mortality Rate  
(2001 and 2011)**

Tahsils		2001	2011	Tahsils		2001	2011
Latur	Total	44.34	7.16	Paranda	Total	23.73	9.31
	Rural	19.45	1.79		Rural	30.2	19.04
	Urban	19.88	2.94		Urban	28.63	4.07
Udgir	Total	45.99	3.41	Bhum	Total	20.46	6.66
	Rural	27.97	2.67		Rural	44.97	32.83
	Urban	18.02	1.74		Urban	16.72	6.52
Ahmadpur	Total	27.86	7.46	Washi	Total	24.07	1.01
	Rural	15.55	2.69		Rural	33.3	16.46
	Urban	12.31	4.77		Urban	0.00	0.00
Nilanga	Total	38.13	9.65	Kalamb	Total	24.58	8.58
	Rural	22.64	5.36		Rural	37.49	24.11
	Urban	15.49	4.29		Urban	24.25	10.65
Ausa	Total	31.85	8.07	Osmanabad	Total	35.93	15.27
	Rural	18.03	5.19		Rural	34.07	22.57
	Urban	14.68	3.74		Urban	34.33	17.95
Renapur	Total	22.07	14.79	Tuljapur	Total	28.24	9.00
	Rural	11.95	7.79		Rural	31.85	18.91
	Urban	10.12	7.00		Urban	27.66	14.58

<b>Chakur</b>	Total	25.18	13.78	Lohara	Total	26.68	8.40
	Rural	15.39	9.51		Rural	44.9	30.36
	Urban	9.79	4.27		Urban	0.00	0.00
<b>Jalkot</b>	Total	28.92	12.06	Omerga	Total	39.09	13.99
	Rural	21.14	11.76		Rural	47.93	31.43
	Urban	13.59	6.11		Urban	41.55	26.25
<b>Deoni</b>	Total	25.7	14.24	<b>District</b>	<b>Total</b>	<b>39.6</b>	<b>20.14</b>
	Rural	17.45	11.25		<b>Rural</b>	<b>37.43</b>	<b>23.99</b>
	Urban	8.25	2.99		<b>Urban</b>	<b>33.15</b>	<b>17.85</b>
<b>Shirur A.</b>	Total	25.01	13.71				
	Rural	17.71	9.81				
	Urban	11.24	7.84				
<b>District</b>	<b>Total</b>	<b>30.21</b>	<b>8.47</b>				
	<b>Rural</b>	<b>19.03</b>	<b>6.45</b>				
	<b>Urban</b>	<b>15.11</b>	<b>5.95</b>				

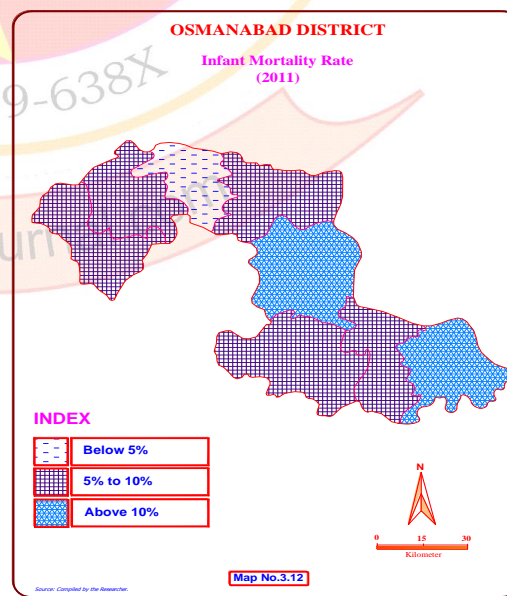
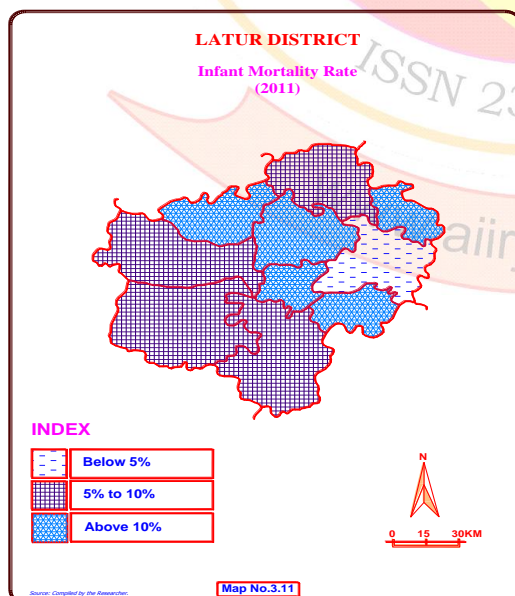
*Source :Dy. Director of Health, Pune.*

### Correlation Between Birth Rate and Infant Mortality Rate :

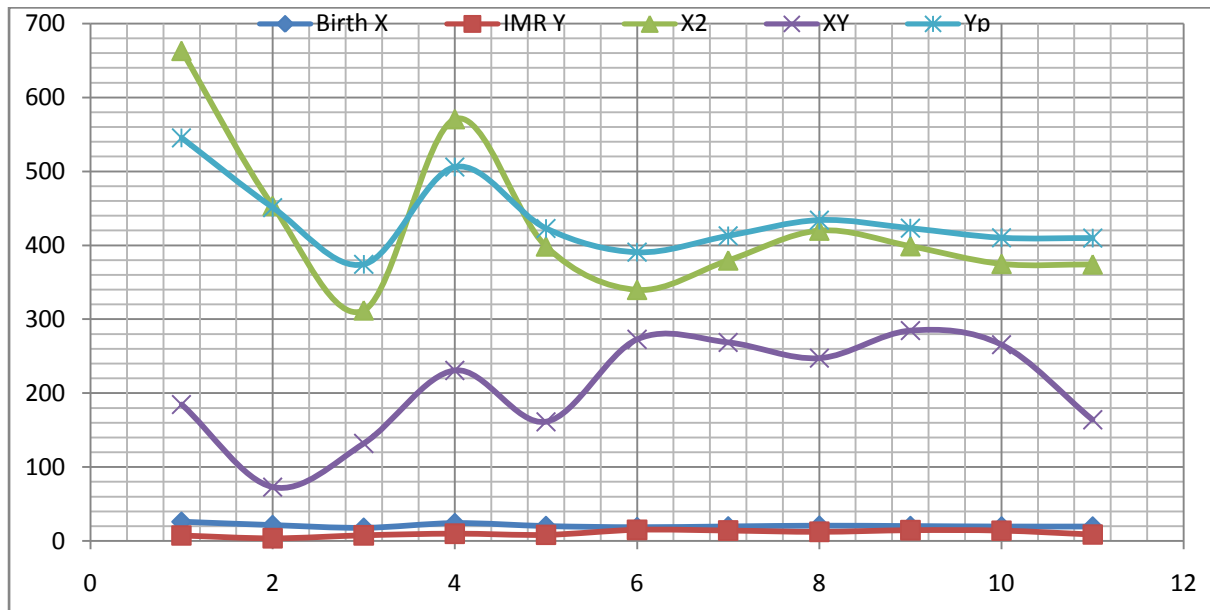
The equation of present regression of y on x line IMR on BRI is  $y_p = 21.74 + (-) 0.56 x$  and Osmanabad district  $y_p = -6.48 + 0.85 x$ .

With reference to this equation for any value of x they could be identify. Then by taking any 3 values of X there corresponding y value 3 more points. Could be plotted on the scatter gram and straight line could be fitted to pass through the 3 points. It shows that there is a -ve relationship between these two variable more specifically it shows that for one unit of increase of birth rate Latur district is a -0.56 decrease in IMR i.e. with increase in birth rate there is a decrease in infant mortality rate and Osmanabad district is a 0.85 increase in IMR i.e. with decrease in birth rate there is increase in infant mortality rate.

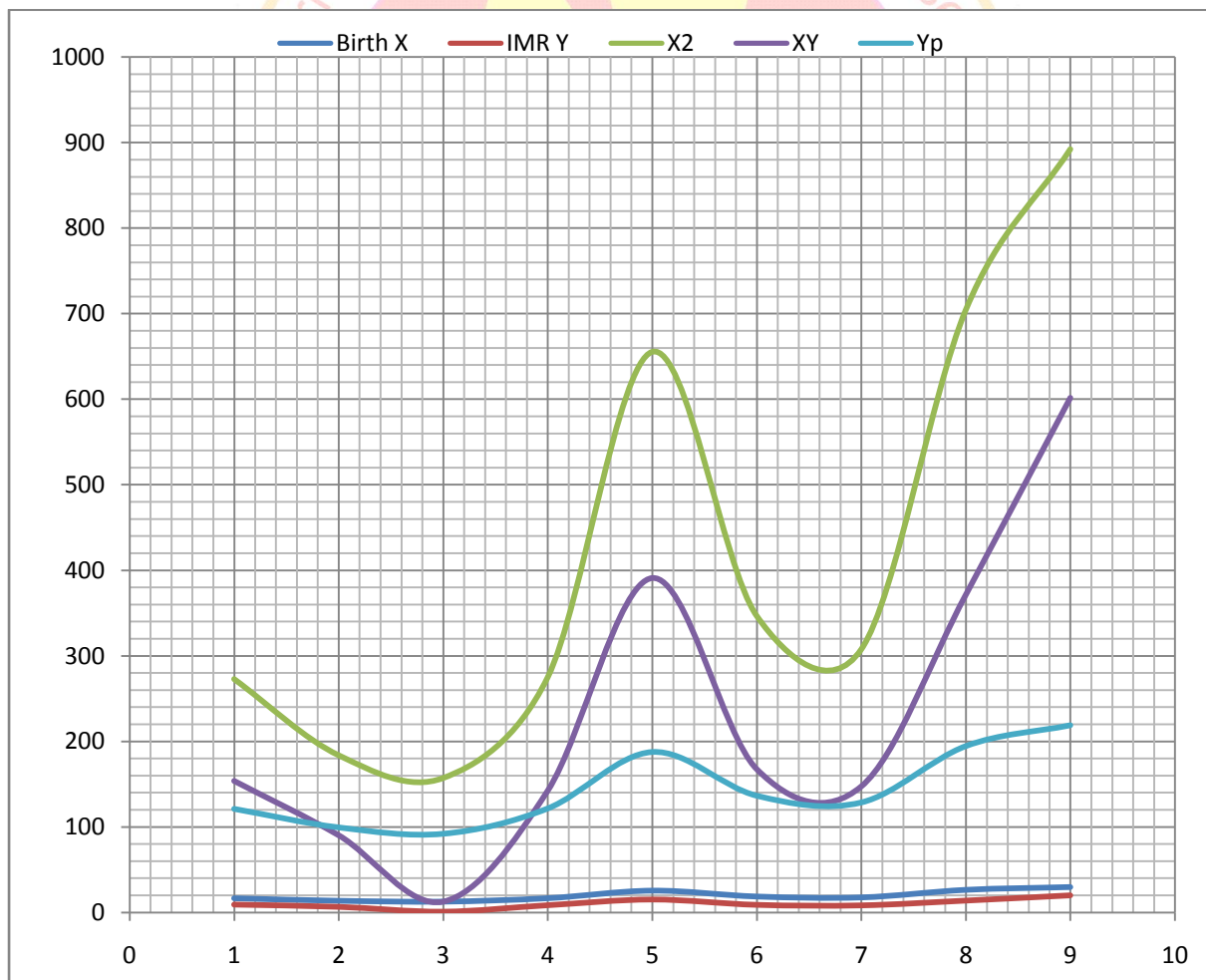
Some point lie above regression line indicate that IMR in maximum place is more than what is expected, the other point which line below the regression below indicate that the IMR is dependent upon the birth rate. However, in this case since most of the points are close to regression line. One may conclude that IMR is dependent that birth rate on great extent.



**Graph No. 1.1: Correlation Between Birth rate and IMR of Latur District**



**Graph No. 1.2: Correlation Between Birth rate and IMR of Osmanabad District**



**Table No. 1.2: Correlation Between Birth Rate and I.M.R. 2011**

Tahsils	Birth X	IMR Y	X <sup>2</sup>	XY	Yp	Tahsils	Birth X	IMR Y	X <sup>2</sup>	XY	Yp
Latur	25.75	7.16	663.06	184.37	545.38	Paranda	16.52	9.31	272.91	153.8	121.09
Udgir	21.29	3.41	453.26	72.6	450.92	Bhum	13.56	6.66	183.87	90.31	99.39
Ahmadpur	17.66	7.46	311.88	131.74	374.04	Washi	12.54	1.01	157.25	12.67	91.92
Nilanga	23.89	9.65	570.73	230.54	505.99	Kalamb	16.58	8.58	274.9	142.26	121.53
Ausa	19.96	8.07	398.4	161.08	422.75	Osmanabad	25.6	15.27	655.36	390.91	187.65
Renapur	18.43	14.79	339.66	272.58	390.35	Tuljapur	18.62	9	346.7	167.58	136.48
Chakur	19.48	13.78	379.47	268.43	412.59	Lohara	17.54	8.4	307.65	147.34	128.57
Jalkot	20.49	12.06	419.84	247.11	433.98	Omerga	26.54	13.99	704.37	371.29	194.54
Deoni	19.97	14.24	398.8	284.37	422.96	<b>District</b>	<b>29.87</b>	<b>20.14</b>	<b>892.22</b>	<b>601.58</b>	<b>218.95</b>
Shirur A. District	19.36	13.71	374.81	265.43	410.04		∑X=177.37	∑Y=92.36	∑X <sup>2</sup> =3795.24	∑XY=2077.74	
	∑X=225.62	∑Y=112.8	∑X <sup>2</sup> =4683.96	∑XY=2282.06							

*Source :Dy. Director of Health, Pune, Compiled by the Researcher.*

**Conclusions:**

Some point lie above regression line indicate that IMR in maximum place is more than what is expected, the other point which line below the regression below indicate that the IMR is dependent upon the birth rate. However, in this case since most of the points are close to regression line. One may conclude that IMR is dependent that birth rate on great extent.

**References:**

1. Khairkar, U.P. (2001): migration to the city of Pune, India, the Indian Geographical journal Pp. 146-156.
2. Kaur, G. (2002): Rural to Rural male migration in India, 1991, Transactions, Institute of Indian Geographers, Pune vol. 24 Pp. 72-83.
3. Shroyock, H.S. (1970): The methods and materials of Demography, Academic press, New York.
4. Singh, D.N. (1992): Population Growth and Economic Development, Aunals, New Delhi, vol.12, no., 172 Pp.55-68.
5. Tiwari, Ramkumar (2001): Growth of Tribal Population in Jharkhand- A Spatio-Temporal analysis Utter Pradesh Geographical Journal, vol.6 Pp. 14-21.