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# FERTILITY AND MORTALITY IN SOUTHERN MAIDAN KARNATAKA-TREND AND PATTERN

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**ABSTRACT**

Population growth is mainly determined by its components namely Birth, Deaths and Migration, which are considered as main components of population change in any area. Therefore, it is very important to study these components of population change, which throw light very clearly on the spatial variations in population growth.

**KEYWORDS** :Population growth , sterilization and complete abstinence , childbearing capacity .

## INTRODUCTION:

It was an attempted in the chapter to analyses the spatial pattern of population growth in the southern maidan of Karnataka,in this chapter, an attempt is made to discern the temporal and spatial trend of Fertility, Mortality and in southern Maidan Karnataka. Taking availability of the data in to consideration only four decade's viz., 1961 to2011 are taken for the analysis of Crude-Birth rate, Crude Death rate and pattern.

The analysis of population growth and its components, at the spatial unit such as district is difficult because of numerous problems. First, the statistics on birth and deaths essential for factorizations of population growth into its components are inadequate and incomplete. Second, the place of birth statistics on migration at district level are available in such a form which cannot provide any district level estimation of net migration during inter-censual period. In this chapter, however it has tried to analyses the crude birth rate, crude death rate for five decades and migration trend in southern

maidan Karnataka for the past four decade by using the available immigration tables of southern maidan Karnataka census.

## FERTILITY: -

According to United Nations, "Natural fertility refers to the fertility which exists in the absence of deliberate birth control". The term birth control is used in a broad sense to include in-tensional abortions, sterilization and complete abstinence from coitus, Fertility refers to the actual reproductive performance applied to an individual or a group. (Vatsayanam) On the other hand, fecundity refers to the capacity of a man, a woman or a couple to participate in reproduction, fertility can be measured through birth rate, Fecundity however cannot be measured.

Some writers have used the two terms fecundity and fertility as synonymous but there are differences between them. The total number of children born to a couple is known as family size. The sequence of births of children is birth order. This sequence in case of mothers is known as parity, which is decidedby the number of children born alive, The biological limits of childbirth are known as reproductive Span. The physiological limit of childbearing capacity and period is known as theoretical maximum fertility, Abortions and stillbirths are classified as reproductive wastage, birth control by self it known as voluntary abstinence. All these concepts must be clearly understood in order to understand the trend and causeof fertility.

Estimate of fertility rates are available from the SRS (Sample Registration Survey), and the census data which provide data about births during the previous year. Different types of measures are adopted for computing fertility according to the source of fertility data.

The basic measure of fertility is the crude birth rate, which is the ratio of the total registered live birth in a specified year in particular area to the total mid year population of that area multiplied by one thousand. Crude birth rate is crude measures of fertility; it is simple and easy to calculate.

## MORTALITY: -

Population growth has been defined in terms of mortality also According to the “United nation” mortality rate is the percentage of deaths in the population. A death has been defined by the world health organization as fallows. "Deaths are the permanent disappearance of all evidence of life at any time after birth has taken place. It is an end of vital functions without capacity of resuscitation".

This definition however postulates that death can occur only after live birth. Therefore, mortality is closely linked with live birth. Death prior to a live birth is not included in mortality, it is known as stillbirth.

Data on crude death rate shows that it differs in developed and developing countries. It has gradually changed almost everywhere but particularly in developed countries. This is the calculated with the help of various measures. Crude death rate is ratio of the total registered deaths of a specified year to the total midyear population multiplied by thousand.

## TREND OF BIRTH AND DEATH RATE IN INDIA

An overview Statistics in India are. Known to be extremely defective and even unreliable. Because the reporting agencies are not at all identical to the duty entrusted to them in this regard. Since independence, the position had definitely worsened and the reported birth and death rates are even more suspectable.

The high birth rates in India as is well known are also accompanied by high death rate. The view held is that these rates are not independent variables and the high death rate is a cause of and even

consequence of the high birth rate. India provides striking and impressive examples of high birth and death rates usually observed in under developed countries. By 1951-61, it had already attained a birth rate of 41.7 per thousand. However, it declined substantially in 1981 along with, death rates, but gap between the birth and death rates is still wide (Shakeel Ahamed,1989.)

### Birth and Death Rates in India

| Years | CBR | CDR |
|---|---|---|
| 1961 | 41.7 | 22.1 |
| 1971 | 41.2 | 18.9 |
| 1981 | 34.0 | 16.2 |
| 1991 | 31.0 | 10.8 |
| 2001 | 25.0 | 8.0 |
| 2011 | 22.0 | 7.4 |

Source : Census of India 1951-1991 and SRS 2011

The table indicates that there has been a heavy full in the birth rate from 41.7 per thousand in 1961 to 22 in 2011, which means it fell by 167 per thousand. Death rate also falls from 22.1 per thousand in 1961, to 7.4 per thousand in 2011, showing a constant fall, the total fall being 12.8 per thousand.

The two together i.e. The fall in birth rate by 16.7 per thousand and also the fall in the death rates by 12.8 per thousand, indicates that the population rose not because of the increase in birth rate but due to decrease in the death rate. There has been constant fall in the death rate between 1951and 2011 and these five decades under review, incidentally also cover the span of the five-year plans, which were quite successful in bringing the death rate down.

### FERTILITY AND MORTALITY TREND IN SOUTHERN MAIDAN OFKARNATAKA (1951 -2011)

It has been pointed out earlier that the variations in population growth during the last 10 decades were mainly caused by the change of fertility and mortality. Fertility and mortality trends in the state presented an irregular rise and fall over the periods particularly in different natural regions.

Gyan Chand (1954) concludes that mortality and fertility are related to each other, in some measures, as cause and effect. The rapid growth of population in the last 50 years has been mainly due to declining of Mortality than the fertility as it could be clearly seen in the table 6.2. The crude birth rate of 22.3 in 2001 per thousand population in Karnataka is lower than the nation al CBR of 25.0 per thousand.

**CBR and CDR in Karnataka during 1951-2011**

| Years | CBR | CDR |
|---|---|---|
| 1951-1961 | 11.6 | 9.0 |
| 1961-1971 | 9.4 | 7.9 |
| 1971-1981 | 8.7 | 7.8 |
| 1981-1991 | 9.2 | 6.2 |
| 1991-2001 | 7.3 | 5.0 |
| 2001-2011 | 6.5 | 4.5 |

Source :estimation of vital rates for district of Karnataka 1951-91 (revised) by P.J. Bhattacharjee, director, population center Bangalore – 2011.

During 1951-61, the gap between CDR (11.6) and CBR (9.0) per thousand increased because of in this period number of medical institute were established which helped to control the local diseases. In the year 1960-61, 548 medical institutes were there, which amounted to 2.29 medical institutions per lakh of population.

1961-71, CBR and CDR were respectively 9.4 and 6.9 per thousand populations; this figure is lower than the previous decade. The gap is 13.5, which is natural increase of population. Because during this time some more hospitals were established and primary, health centers were also developed in the rural area.

After 1971, there was a steep fall in the mortality rate but the fertility rate come down only slightly compared to the mortality. The gap between CBR and CDR was still high.

During the decade of 1971-81, the mortality rate was 4.8 and fertility was 8.7 per thousand consign high growth of population. Therefore, generally this period in Karnataka's population history is often referred to has the period of population explosion.

Between 1981-91, both fertility and mortality, rates have shown inconsequential declining trend. CBR decreased from 8.7 (1981) to 9.7 (1991) per thousand, and CDR underwent a very little change from last decade, it was 10.8 in 1981 and 4.2 in per thousand in 1991. During 2001-2011, the gap between CBR and CDR got declined considerably. The reasons are that more number of government and non-government medical institution, which were, developed both in rural and urban area during previous decades, gifted giving results. It helped to control some human diseases and gave the basic knowledge about small family. This was also due to increase in age at marriage for gir1 in India, which was increased from 5 to 8 by the government further from 1981 to the state of economic condition was also good. Roads and electricity reached most of rural area as well as family planning programs had reached the

**CRUDE BIRTH AND DEATH RATE IN SOUTHERN MAIDAN KARNATAKA: A SPATIALPATTERN (District wise Analysis)**

After having indicated the temporal trend of CBR and CDR at the Southern Maidan level, it is penitent to make an analysis of spatial pattern of these variables so that spatial variation and underlying causes would help us to understand the problem more perfectly. Hence, district wise analysis of fertility and mortality is attempted here.

## District wise CDR and CBR in Southern Maidan of Karnataka

| | 1951-1961 | | 1961-1971 | | 1971-1981 | | 1981-1991 | | 1991-2001 | | 2001-2011 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CBR | CDR | CBR | CDR | CBR | CDR | CBR | CDR | CBR | CDR | CBR | CDR |
| Bangalore | 37.1 | 18.1 | 37.2 | 14.6 | 32.8 | 9.2 | 29.2 | 9.1 | 16.59 | 6.47 | 13.91 | 8.86 |
| Bangalore (R) | | | | | | | | | 16.19 | 5.44 | 11.33 | 6.06 |
| Chikkballapur | | | | | | | | | | | 14.22 | 4.34 |
| Kolar | 38.3 | 16.2 | 36.8 | 15.6 | 34.7 | 11.9 | 30.2 | 10.0 | 16.63 | 5.78 | 15.41 | 4.26 |
| Ramanagar | | | | | | | | | | | 14.14 | 6.25 |
| **Bangalore Regions Total** | **75.4** | **34.3** | **74** | **30.2** | **67.5** | **21.1** | **59.4** | **19.1** | **49.41** | **17.69** | **69.01** | **29.77** |
| Mysore | 37.8 | 19.4 | 37.1 | 18.0 | 32.1 | 11.8 | 29.0 | 10.3 | 18.06 | 6.37 | 15.73 | 6.40 |
| Mandya | 42.6 | 21.1 | 41.0 | 14.9 | 33.4 | 11.5 | 29.9 | 10.8 | 16.79 | 7.34 | 13.66 | 8.82 |
| Chamarajanagar | | | | | | | | | 18.20 | 7.55 | 15.14 | 6.26 |
| **Mysore Regions Total** | **80.4** | **40.5** | **78.1** | **32.9** | **65.5** | **23.3** | **58.9** | **21.1** | **53.05** | **21.26** | **44.53** | **21.48** |
| Chitradurga | 41.0 | 18.4 | 38.0 | 12.6 | 33.2 | 9.2 | 32.8 | 10.0 | 21.79 | 7.5 | 17.06 | 7.53 |
| **Chirtradurga Regions Total** | **41.0** | **18.4** | **38.0** | **12.6** | **33.2** | **9.2** | **32.8** | **10.0** | **21.79** | **7.5** | **17.06** | **7.53** |
| Tumkur | 39.3 | 17.8 | 36.9 | 16.1 | 33.0 | 11.8 | 28.3 | 9.7 | 20.22 | 6.93 | 17.01 | 6.2 |
| Hassan | 44.6 | 18.3 | 39.9 | 15.6 | 32.6 | 10.9 | 29.7 | 9.6 | 18.23 | 6.37 | 15.11 | 5.58 |
| **Tumkur Regions Total** | **83.9** | **36.1** | **76.8** | **31.7** | **65.6** | **22.7** | **58** | **19.3** | **38.45** | **13.3** | **32.12** | **11.78** |

Source: "Estimation of vital rates for district of Karnataka, (P.J. Bhattacharjee, director, population center Bangalore and Karnataka Socio-economic.

During the 50 years under review, the CBR and CDR have not been uniform in all the districts. Some had high rate of CBR and CDR and other had moderated. The reveals that there has been a declining trend of CBR and CDR in almost all the district from decade to decade. But an important to be noted is that there has been some relation between the CBR and CDR.

The table shows that along with the decrease in CBR, the CDR also has decreased from decade to decade some district have witnessed higher CBR and CDR. Whereas some other districts have experienced lower CBR and CDR, this indicating positive relation between the two variables. Hence, the analysis below shows the changing nature of CBR and CDR. The distribution of variations districts in the state by the range of CBR and CDR from the decade of 1951-61 to 1991-2011.

## Distribution of districts in the Southern Maidan of Karnataka by the range of CBR & CDR during 1951-2011

| CBR | 1951-61 | 1961-71 | 1971-81 | 1981-91 | 1991-2001 | 2001-2011 | CDR | 1951-61 | 1961-71 | 1971-81 | 1981-91 | 1991-2001 | 2001-2011 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ranges** | **Number of districts** | | | | | | | **Number of districts** | | | | | |
| Below state average | Bang, Kol,Mys, Tumk=04 | Bang, Kol,Mys, Tumk =04 | Bang , Mand ,Mys , Hassan, Tumk=05 | Bang , Mand ,Mys , Hassan, Tumk=05 | Bang(R), (U), Kol, Myso, Mand,Chama,Tumk, Hass,=08 | Bang(R), (U), Mand, Ramang, Chik, ,=05 | <state average | Bang , Kol, Hass, , Tumk=04 | Bang, Kol,Hass,, Mandya=04 | Kol, Myso, Mandya, Tumk, Hass,=05 | Bang ,Kol, Myso , ,Tumk, Hass, =05 | Bang(R),(U), Kol, Myso, Mand,Chama,Tumk, Hass,=08 | Bang,(U), Kol, Myso, Chama, Ramang, Chik, Tumkur, Hass,=08 |
| Above state average | Hassan & Mandya =02 | Hassan & Mandya=02 | Kolar=01 | Kolar=01 | Nil | Chama, Mys,Chit , Hasan, Kolar,Tumk=05 | >state average | Mand , Mys. =02 | Tumkur, Mys.=02 | Bangalore=01 | Mand, =01 | Nil | Bang(U),Chit ,Mandya=03 |

During the period of 1951-61, all the districts of the state were showing very high rate of both CBR and CDR but in 2001 situation is entirely reverse. All the districts have appeared in the range of low birth and low death rate The state's average of CBR was 41.6 per thousand, 4 districts were experienced the above the state average, remaining 4 districts accounted lower than the state average. The CDR also was higher in range of districts. Only four districts had CDR below the state average (19 person/1000 population).

During this period, some parts of had very high CBR and CDR region, predominately due to the impact of Malaria and under development of health care centers, The district of Hassan shows the higher CBR which was more than the state average, and low CBR belt was situated in the district of Mysore, Bangalore, and Tumkur.

Decade 1961-71, shows the declining trend of CBR and CDR, but differ among the districts and another. 1 districts had medium CBR, 2 districts had low and remaining 1districts had high CBR The death rate also shows variations, 2 district had medium CDR, districts had low CDR and remaining district had high CDR.

The CBR and CDR had decreased from the last decade, because of improvement in the field of health and education. In this period, family planning programme entered into the rural area and hilly zone. That is why the birth rate has slightly decreased but death rate has drastically decreased compared to the last decades.

The reveals the spatial pattern of the CBR and-CDR during the decade of 1971-81. Two districts had medium 1districts had high CBR and some districts were having low CBR. Chithradurga districts were having the state rate of 10.2 per thousand of population; CDR was also different from district to district The medium CDR in the range of 10 and 16 was found in2 districts, the state's CDR was 8.8 per thousand. The low CDR was (Below 10/1000) experienced in 2districts.

Bangalore urban and rural districts, due to the development of medical institution and increased age at marriage.

The reveals the pattern of CBR and CDR in the decade of 1981-91 in Southern Maidan ofKarnataka. The state's CBR decreased from 9.4 (1971-81) to 8.7 (1981-91). The high CBR and CDR was concentrated the northern part of Karnataka both in Hyderabad and Mumbai Karnataka region. The relationship between CBR and CDR is found to be positive since wherever there is high CBR, CDR also high.

The low CBR belt consist of costal, Malnad and some part of southern region due to the awareness of the family planning and some important developments took place this region.

During 2001 both CBR and CDR are showing the drastic decline and that is why the population growth rate decreased to 7:25 percent. In this year, the average state CBR is 9.47 per 1000 population and CDR is 3.99 per thousand of population thus both CBR and CDR are appearing to be declining. Out of 5 districts 2 district

## CBR AND CDR IN SOUTHERN MAIDAN OF KARNATAKA
## A REGIONAL ANALYSIS

There has been high variation of the CBR and CDR from the one region to another. The state is divided into four major geographical regions and also one region further divided into two more sub regions viz., Northern maidan region, into Hyderabad and Mumbai Karnataka region. These Southern Maidan regions are studied separately to understand the demographic characteristics of the CBR and CDR. which are not same in the entire region.

## CBR and CDR during 1951-2001

| Decades | 1951-1961 | | 1961-1971 | | 1971 | 1981 | 1981-1991 | | 2001-2011 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Regions and sub regions | CBR | CDR | CBR | CDR | CBR | CDR | CBR | CDR | CBR | CDR |
| Southern Maidan | 39.35 | 18.5 | 37.83 | 13.2 | 33.2 | 10.9 | 29.61 | 9.98 | 25.77 | 6.77 |

Source: "Estimation of vital rates for district of Karnataka 1951-91 (Revised for Bhattacharjee,) director, population center Bangalore and 2001 census.

According to this data, CBR and CDR of the state decline from 41.6, and 1951-61 to 9.2 and 7.2 per thousand in 1981-91 respectively and again to and 6.99 respective in 2001. The total CBR was fell by 6.13 per thousand CDR fell by 12.01 per thousand. It is also evident from the table that positive correlation between CDR and CBR. Hence, we can conclude that at present is in better position. This declining CBR and CDR in the state's to better health and education facilities in the state. And also National five years plans were quite successful in bringing the CDR to lower level.

The southern maidan region is a little developed, compared to the other regions. Perhaps that's why birth and death rate is lower compared to the other regions. The reveals the birth rate has decreased from 19.5 in 1951-61 to 18.61 per thousand in 1981-91. The death rate has also decreased from 11.5 to 4.54 per thousand. The total birth rate fell by 5.15 and death rate fell by 5.54 during the 1951-61to 1981-91. During the 1991-2001 ,2001-2011, also the region has again witnessed decline in both CBR and CDR because of in this decade a number of health and education facilities are more widespread in this region. Here all the decade show the declining trend of both CBR and CDR; particularly in 1991-2001, both CBR and CDR have drastically changed.

In Bombay Karnataka region, both the birth and death rate were slightly higher than the state average but little less than the whole northern maidan region. Both CBR and CDR, decreased from decade to decade, the total birth rate has decreased by 10.37 and the death rate was decreased by 7.85 in the 40 years. The birth rate has gradually decreased from 1951-61 to 1981-91 but the CDR was suddenly decreased during 1971-81 and 2001, because of the development of medical facilities compared to previous decades.

Karnataka has always received as well as exported population across its border to other states and other countries. The volume of in migration during the four decades is shown by the above the adjusted figures.

## CONCLUSIONS

Analysis in the Preceding section of the trend of fertility, mortality and in Southern Maidan of Karnataka from available data lead to fallowing conclusions.

1.Both CBR and CDR were higher in decade of 1951-61 but there was change in subsequent decades. In 2001, all the districts had the lower rate.

2.All the decades show the higher gap between CBR and CDR and Where ever CBR is high, those districts also show the higher CDR,

3.Malnad and Northern Karnataka region show higher rate of CBR and CDR compared to other region of the state in 1951-61 .

4.Bangalore districts have received to more people over a period of time Tumuk districts have received

lower population.

5.Chamaraja Nagara districts received the higher migrants in 2001 than the previous decade.

6.Percentage of inter-district in migration is more along the Malnad and south eastern of the state due to plantation and urban development.

7.High net in-migration was seen in the district of Bangalore in both decades of 1971-81 and 1981-91, high net out-migration was seen in the Tumkur and districts and other districts show both low net In and Out migration.

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