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FRAGMENTATION OF LAND HOLDING SIZE IN KARNATAKA
---- A Spatio-Temporal analysis

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Introduction

Size of operational (cultivated) land holdings is a basic factor affecting agricultural production, especially in absence of advanced cultivation technologies. In India as a whole, marginal holdings of less than 1 hectare (ha) accounted for 60% of all holdings but only 20% of total cultivated area in 2001-02. On the other hand, holdings above 2 hectares accounted for only around 20% of all holdings but 60% of cultivated area, with holdings above 10 hectares accounting for just 1% of holdings, but 12% of area.(Agriculture census 2015)

Size of the land holdings has got a vital role to play in enhancement of agricultural development. Moreover size of land holding determines the status of cultivators in the rural areas. Further the size of land holding also determine the level of modernization of agriculture, use of modern methods of cultivation, mechanization of agriculture etc.

Agricultural development of any region depends upon mainly the man-land ratio. The higher man-land ratio allows mechanization of agriculture and better yield. The man-land ratio in case of agricultural economy is normally determined by the extent average land holding size (Shivalingappa B. N, 2008).

OBJECTIVIES:

1. To identify the nature of change in the structure of land holding size in Karnataka.
2. To examine the factors behind the changes in the structure of land holding size.

METHODOLOGY:

Any research work should follow a systematic methodology with regard to collection of data and analysis of collected data. To meet the above framed objectives, it is attempted in this study to make use of different, well-known techniques and methods which are available in the field of social science particularly in Cartography. This study is an attempt to analyze geographically, the structural changes in the landholding size of Karnataka based on secondary data collected at national, state, and district and taluk levels. After the collection of data the same was processed and tabulated according to the

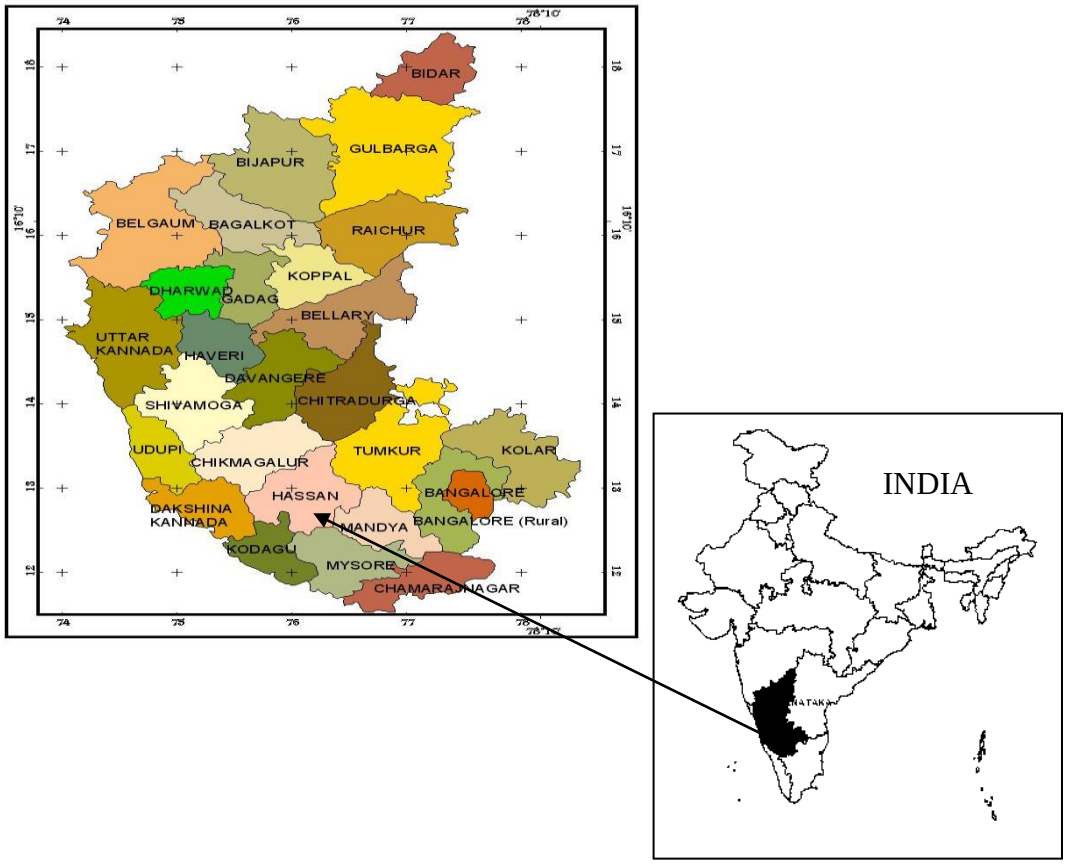
ISSN: 2278-4632
Vol-10 Issue-6 No. 5 June 2020

requirement of the study.. The GIS soft wares like Arc view and map info were used to prepare the thematic maps.

STUDY AREA:

The state of Karnataka extends roughly from 11°35' North latitude to 18°30' North latitude and 74°5' East longitudes to 78°35' East longitudes. The state is situated on table land where the western and Eastern Ghats range converge into the Nilgiri hill complex. It is located in the western part of the deccan peninsular region of India. The state extends about 760 Km from north to south and about 400 Km from east to west.

Fig: 1. Location of Karnataka State



FRAGMENTATION OF LAND HOLDING SIZE IN KARNATAKA

-- State level analysis

With the number of operational agricultural land holdings in Karnataka increasing sharply over the years as elsewhere in the country, the average size of holdings is gradually decreasing, making agriculture uneconomical. The smaller size of land holdings would mean

ISSN: 2278-4632
Vol-10 Issue-6 No. 5 June 2020

increased input costs and decreased scope for mechanisation.

Karnataka's agriculture is facing several structural problems and first and the foremost problem are increasing sub division and fragmentation of the land holdings. This has resulted in the increase of proportion of uneconomic holdings substantially (G.Thimmaiah 1999). The land tenure in Karnataka has been mostly ofRyotwari system under which the actual cultivators owns the land and pay the land revenue to the government. But the law of in heritance has made the average size of land holdings to decrease steadily during the past 35 years.

Table:1Changing structure of land holding size in Karnataka

Land holding size (in hectors)	1970-71	1985-86	2015-16
Average holdings	3.2	2.41	1.63
Marginal (0-1)	0.51	0.48	0.45
Small (1-2)	1.45	1.46	1.43
Semi medium (2-4)	2.79	2.78	2.71
Medium (4-10)	6.09	6.01	5.79
Large 10 and above	16.44	15.45	14.89

Source: CMIE, Profiles of State, Mumbai, and Karnataka statistical reports

The data in the above table throw light on changes in the landholding size of Karnataka over the reference period. It is observed from the table that average size of land holdings in the state which was 3.2 hectors in 1970-71 (before the land reform legislation was implemented) was declined to 2.41 hectors in 1985-86 and further to 1.63 hectors 2015-16. Only in case of large land holdings the changes are very negligible i.e. slightly declined from 16.44 hectors in 1970-71 to 14.89 hectorsin2015-16.

The main reason for the fragmentation and subdivision of land holdings in the state is land reforms act of 1974. This legislation included legal abolition of tenancy and putting a ceiling on the size of land holding owned by a peasant family. Both these policies were by and large implemented reasonably well from the point of social justice and equality but the long term economic impact of this legislation has been disastrous.Because this has led in to subdivision and fragmentation of land holding in a planned platform.

SPATIAL PATTERNS OFCHANGING LAND HOLDINGS

-- District level analysis

In Karnataka sub division and fragmentation of land holdings, due to law of inheritance, land reforms and break down of joint family system is a common problem. This

ISSN: 2278-4632
Vol-10 Issue-6 No. 5 June 2020

has increased the proportion of un-economic land holding subsequently preventing scientific cultivation in the state. In the previous part different categories of land holding size in three points of time was discussed and here distribution and size of average land holdings is discussed at district level in three points of time.

Table: 2. Distribution of average land holdings (in hectors)

Average holding	1956		1975		2015	
	No. of districts	percentage of districts	No. of districts	percentage of districts	No. of districts	percentage of districts
< 1	1	5.25	1	5.25	4	14.81
1 – 2	1	5.25	6	31.59	11	40.74
2 -3	4	21.05	4	21.05	11	40.74
3 – 4	3	15.77	4	21.05	1	3.7
> 4	10	52.63	4	21.05	-	-
Total	19	100	19	100	27	100

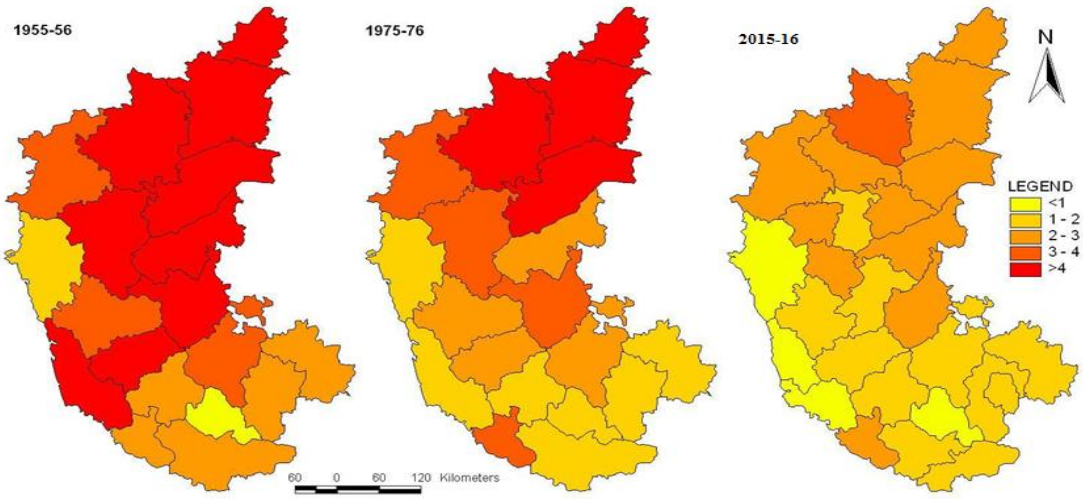
Source: Hand book of Karnataka 1975 and Suvarna Karnataka

Observation of the above table clearly reveals that fragmentation and subdivision of land holding is continuously taking place in the state since 1956-57. The districts having average land holdings of less than 1 hector was Mandya (1956-57 & 1975-76) and it is continued to stand in the same position even in 2015-16. But more number of districts was added to this (less than 1) category since 1956. In 2015-16 the districts in the category of 1-2 & 2– 3 have almost tripled over the period of 60 years and number of districts have been increased from one (1956-57) to 11 districts (2015-16) and 4 districts (1956-57) to 11districts (2015-16) respectively.

Spatial patterns of average land holdings havealso been changing over a period of 60 years. The average land holding size of more than 4 hectors was seen in 10 districts (1956-57) particularly in north and central part of the state and it is declined to nil (0) in 2015-16.

Fig: 2, Spatial distribution of average land holdings (in hectors)

ISSN: 2278-4632
Vol-10 Issue-6 No. 5 June 2020



SPATIAL PATTERNS OF LAND HOLDINGS
--TALUK LEVEL ANALYSIS

Marginal land holdings: The trend of spatial pattern of land holding at taluk level is similar like that of district level. The below table clearly demonstrates that number of marginal land holdings (below one hector) at taluk level are increasing and they are multiplied in some of the taluks over a period of 30 years. There were only 9 taluks in the category of more than 16000 marginal land holdings in 1975 and the number increased to 84 taluks in 2015. It is almost nine and half times more than the previous number

Table 3. Distribution of number of marginal land holdings to total land holdings(below 1 hector)

No.of marginal land holdings (below1hector)	No. of Taluks in 1975	%	No. of Taluks in 2015	%
<4000	84	48.00	12	6.86
4000-8000	43	24.57	27	15.43
8000-12000	25	14.29	24	13.71
12000-16000	14	8.00	28	16.00
>16000	9	5.14	84	48.00
Total	175	100	175	100

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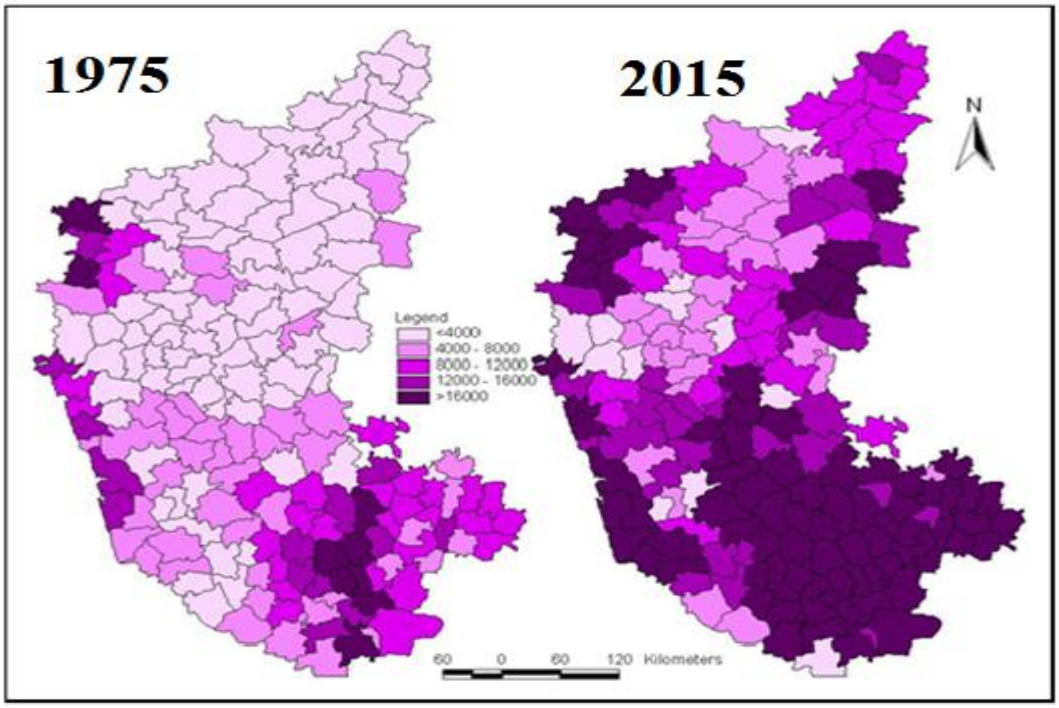
Vol-10 Issue-6 No. 5 June 2020

Source: District at a glance of 1975 & 2015.

In contrast there were 84 taluks in the category ofof less than 4000 marginal land holdings in 1975 and number decreased to 12 taluks in 2015. Hence it can be easily said that more number of marginal land holders are tremendously increasing over the period of 40 years. Similarly number of land holdings in the category of 12000 to 16000 was doubled in the reference period.

The below figure abundantly makes it clear that it is in the southern part of the state where more fragmentations of land holdings has taken place due to law of inheritance, high population growth and due to land reforms act. In north Karnataka the pace of the subdivisions although high but not on par withtaluks of southern part. However the size of land holdings in northern taluks is fairly large since ancient times. In coastal Karnataka also marginal land holders have increased. Further, land utilization for commercial activity is more in these taluks of the state . Similarly in southern taluks of the state population as well as density is very high and land value is also very high.

Fig 3, Spatial Distribution of number of marginal land holdings (below 1 hector)



ISSN: 2278-4632
Vol-10 Issue-6 No. 5 June 2020

Law of inheritance in the society has virtually converted large land holdings into uneconomic piece of land. In addition where ever population is high the sub division of land holdings is also high. Hence fragmentation and sub division of land holding is common in these parts of the state.

Large land holdings:

In Karnataka the distribution of large land holdings (above 10 hectors) is much localized i.e. almost 90 percent of large land holdings are concentrated in northern taluks of the state. Moreover the number of large land holdings has sharply decreased in recent years. The below table throw a flood lights on changing nature of land holding size in the last 35 years.

Table: 4. Distribution of number of large land holdings to total land holdings. (Above 10 hectors)

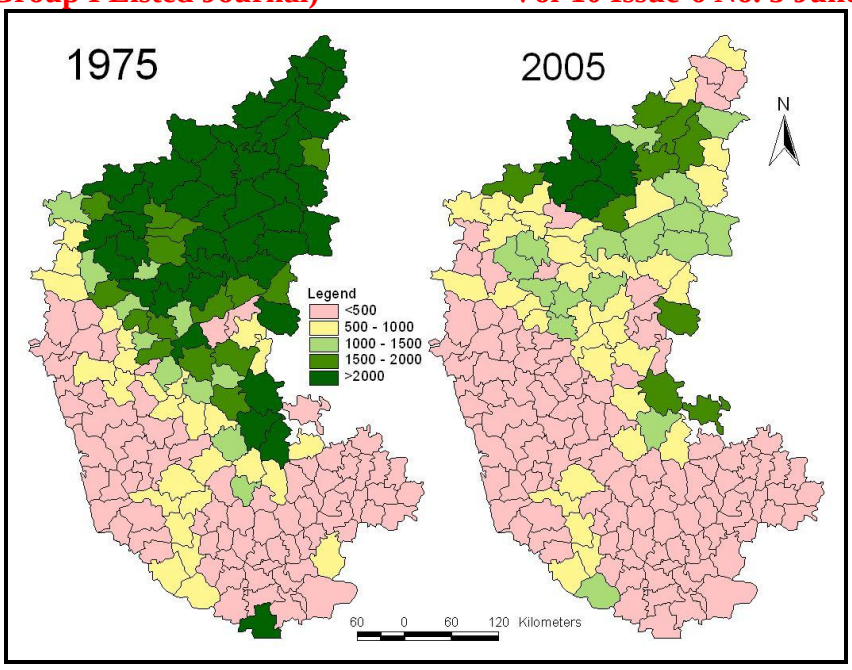
No. of large land holdings (above10hectors)	No. of Taluks in 1975	%	No. of Taluks in 2015	%
<600	91	52.00	112	64.00
600-1000	27	15.43	34	19.42
1000-1600	11	6.29	16	9.14
1600-2000	14	8.00	09	5.14
>2000	84	48.00	04	2.28
Total	175	100	175	100

Source: District at a glance of 1975 &2015.

Large land holders in the state particularly in the range of less than 600 category are increased from 91 taluks in 1975 to 112taluks in 2016. This change can be noticed in almost all taluks of the state except some taluks in Bijapur. (Fig 4) Similarly in the range of 600 – 1000 category there were 27 taluks in 1975 which are increased to 34taluks in 2015. In contrast in the category of more than 2000 which had 84 taluks in 1975 has decreased to only 4taluks in 2015.

Fig 4. Spatial Distribution of large land holdings (above 10 hectors)

ISSN: 2278-4632
Vol-10 Issue-6 No. 5 June 2020



This clearly indicates that sub-division and fragmentation of large land holdings have taken place in the state during the reference period. However even northern part of the state which had large size land holdings since ancient times also registered subdivision due to law of in heritance and land reforms act.

CONCLUSION

Creation of economic land holdings and prevention of subdivision of land holdings should be the immediate attention of the government.Present analysis at state, district and taluk level proves beyond doubt that there is disintegration of land holdings to a great extent which may affect total agricultural output. Secondly farmers should be encouraged to practice cooperative farming thereby enabling them to adopt scientific cultivation with modern equipment.

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