



Performance of Cattle Insurance in Select Districts of Karnataka

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ABSTRACT

The study was conducted in Kolar, Shivamogga and Dharwad districts representing Southern, Malnad and Northern regions of the Karnataka. The data was collected from secondary sources for the selected districts and State. The study employed Compound Annual Growth Rate (CAGR). The results showed that number of animals insured under National Livestock Insurance (NLM) scheme in Karnataka between periods (2006-18) grew from 9487 to 236332 with CAGR of 28.52 per cent. The claim to premium percentage varied from 20 to 81 per cent. Number of animals insured was found to be higher under Cattle Group Insurance scheme (26278 to 37477) than NLM scheme (970 to 7360) in Kolar district between periods (2015-18). The lowest claim to premium percentage was observed in Dharwad under NLM scheme ranging between 13.32 to 25.46 per cent in the period of 2015-16 to 2017-18.

Keywords: Physical and Financial performance, National Livestock Insurance Scheme, Compound annual growth rate, Karnataka

The livestock insurance scheme had its genesis in Germany, since then, the livestock insurance schemes have been evolving and presently several types of schemes have come into existence. Among developing countries, livestock insurance schemes have developed with a differential success across countries. Currently, several types of national livestock insurance systems exist in most developed countries but are still evolving in the developing countries. Therefore, in India too, the livestock insurance was conceived as an effective instrument to protect this vital farm asset, long ago, but organized Cattle Insurance Scheme was initiated through the Small Farmers Development Agency (SFDA) in 1971. But, the scheme got a real impetus only when nationalized banks started financing for the cattle and agreed to collect premium from beneficiaries under Integrated Rural Development Programme (IRDP). But, in spite of concerted efforts by the Central and State governments, it has not picked up at the desired pace. The coverage is very restrictive. A serious debate has been raging on to strengthen the agriculture and livestock insurance in the country.

Government of India introduced the livestock insurance scheme on a pilot basis during the years 2005-06 and 2006-07 of the 10th Five Year Plan (2002-07) in 100 selected districts through Department of Animal Husbandry, Dairying and Fisheries. The high yielding cattle and buffaloes were insured at maximum of their current market price. The premium prevailed at the rate of 4 per cent of the value of animal chosen and varied over the period, schemes, term to insured, etc. In the case of non-scheme animals, the premium rate was 4 per cent in co-operative dairies, 5 per cent for private farmers or bank finance and for scheme animals was 2.25 per cent for one year term. The rate of premium was not to exceed 4.5 per cent for annual policies and 12 per cent for three-year policies. The premium of the insurance was subsidized to the tune of 50 and 70 per cent to above poverty line (APL) and below poverty line (BPL) / Scheduled Caste (SC)/ Scheduled Tribes (ST) dairy farmers respectively. Of the 50 per cent subsidy to APL dairy farmers, 25 per cent was from Government of India (GOI) and 25 per cent from Government of Karnataka (GOK). Whereas, the share of subsidies for BPL/SC/ST dairy farmers



was 40 per cent and 30 per cent from GOI and GOK respectively. The insurance was restricted to two animals per beneficiary under the scheme and has been given for one-time insurance to animal up to three years. The twin objectives of National Livestock Insurance scheme were to serve as protection mechanism to the farmers and cattle rearers against any eventual loss of their animals due to death and to demonstrate the benefit of the insurance of livestock to the people and popularize it with the ultimate goal of attaining qualitative improvement in livestock and their products. The scheme was implemented in states by State Livestock Development Board (SLDB) or the State Animal Husbandry Departments. There are about 190 million cattle and 108.9 million buffalo population in the country (Livestock Census, 2012). Around 8.25 million animals were insured (8.3 lakh per annum) between the periods of 2006-07 to 2015-16 under National Livestock Insurance scheme in country (Indiastat.com).

Similarly, Cattle Group Insurance scheme was steered by District Cooperative Milk Unions (DCMU) in selected districts of Karnataka which executed under the assistance of Karnataka Milk Federation (KMF) and reached through Primary Dairy Cooperative Societies (PDCS) to dairy farmers by providing premium subsidy to the extent of 50 per cent (25% DCMU + 25% KMF) and remaining 50 per cent premium to be borne by the beneficiary farmers. There was no limit on the number of animals to be insured under this scheme. The premium rate was around 1.5 per cent of the value of the animal. Taking into account the importance of livestock to poor farmers, the insurance is available at different subsidized premium rate to different categories of farmers under Central and State sponsored scheme.

The study was about to distinguish the cattle insurance performance in the study area. In this paper mainly discussed National Livestock Insurance Scheme (NLM) and Cattle Group Insurance Scheme (CGIS) were the main livestock insurance schemes which have been present in the study area and enlightened above.

MATERIALS AND METHODS

Karnataka state is divided into three distinct regions namely Northern plain region, Malnad & coastal region and Southern plain region based on topography, cropping pattern and animal husbandry. The North Karnataka is

dominated by buffalo, South Karnataka by crossbred cattle and Malnad & coastal region by indigenous cattle. Kolar, Shivamogga and Dharwad districts were selected from the Southern, Malnad and Northern regions of the state respectively. Kolar district is having relatively maximum proportion of crossbred cattle population (1.73 lakhs) as compared to Shivamogga and Dharwad. Kolar district ranks first in terms of livestock insurance. No empirical research was conducted in the past in these districts. These districts also represent the progressive dairy farming regions of Karnataka, besides the good coverage of cattle insurance scheme.

The secondary data regarding to total geographical area of the selected district, land use pattern, cropping pattern, bovine population, milk production, various inputs & outputs of milk production, cattle insurance access, number of animals insured, premium rate, premium amount, number of claims made, number of claims settled and claim amount paid to the beneficiaries in the study area was collected from various published and unpublished sources from various departments like Karnataka State Department of Agriculture, Department of Animal Husbandry and Veterinary Services, Karnataka Milk Federation, District Milk Unions and Primary Dairy Cooperative Societies (PDCs) and District Statistical Office. The study employed compound annual growth rate for analysing growth rates.

Compound annual growth rate

Compound annual growth rates were calculated using exponential form /semi-log model for number of animals insured, premium amount collected, total number of claims lodged, total number of claims settled, total claim amount paid under National Livestock Insurance Scheme and Cattle Group Insurance for selected districts of Karnataka state. The exponential form of the model is as below:

$$Y_t = a b^t u_t$$

For the purpose of estimation, above equation was transformed into log-linear form and parameters were estimated using Ordinary Least Square (OLS) technique.

$$\text{Log } Y_t = \text{log } a + t \text{ log } b + u_t$$

$$\text{Log } Y_t = \beta_1 + \beta_2 (t) + u_t$$

The compound growth rate (g) in percentage was then computed from the following relationship:

$$\text{Growth rate} = \{\text{Antilog}(\beta_2) - 1\} \times 100$$

where,

Y = Explained variable or dependent variable

β_1 = Intercept or constant term

β_2 = Regression coefficient

t = Explanatory or independent variable (years which taken the value 1, 2, 3, n)

u_t = Disturbance term

RESULTS AND DISCUSSION

The number of animals insured, claims lodged, claims settled have been analysed in terms of growth rate and worked out the claims lodged to animal insured, claims settled to claim lodge percentages (Physical progress). Further, the growth rate in premium rate, premium collected, claim settled and claim to premium percentage (Financial progress) were worked for the schemes (National Livestock Insurance scheme) for the period from 2006-07 to 2017-18. This Central Government scheme was implemented by Department of Animal Husbandry, Dairying and Fishery, in state through Karnataka Livestock Development Authority (KLDA)/State Animal Husbandry Department. Physical and financial progress of National Livestock Insurance scheme and Cattle Group Insurance scheme in selected districts of Karnataka were worked out for the period 2015-16 to 2017-18.

Trends in districts covered and premium rate under National Livestock Insurance Scheme in Karnataka

The districts covered and premium rate under National Livestock Insurance scheme in Karnataka is presented in Table 1. Only four district were covered at the time of implementation period (2006-2007). However by 2014-15 all the districts of the state were covered under National Livestock Insurance Scheme (NLM) scheme.

The NLM scheme was implemented in Kolar district in 2006-07 along with Bengaluru rural, Bengaluru urban and Mandya district. Shivamogga and Dharwad districts were selected in 2014-15 for the implementation of NLM scheme.

Table 1: Number of districts covered and premium rate under National Livestock Insurance scheme in Karnataka

Year	District covered (no.)	Premium rate (%)
2006-07	4	4.50
2007-08	4	3.56
2008-09	4	3.56
2009-10	8	3.56
2010-11	14	2.75
2011-12	17	2.75
2012-13	17	3.25
2013-14	17	3.25
2014-15	30	2.50
2015-16	30	2.50
2016-17	30	2.50
2017-18	30	2.00

This might be a major reason for the progress of cattle insurance in Kolar as compared to Shivamogga and Dharwad districts, besides more crossbred cattle population in Kolar. While, present (2017-18), premium rate of cattle insurance is 2 per cent of market value of the animal which has been reduced from 4.5 per cent during the implementation period 2006-07.

Table 2: Number of animals insured and claim status under National Livestock Insurance scheme in Karnataka

Year	Animal insured (no.)	Claim lodged (no.)	Claim settled (no.)	Claim lodged/ animal insured (%)	Claim settled/ claim lodged (%)
2006-07	9487	843	816	8.89	96.80
2007-08	13853	1030	1023	7.44	99.32
2008-09	14235	602	481	4.23	79.90
2009-10	16043	839	787	5.23	93.80
2010-11	67877	1979	1356	2.92	68.52
2011-12	79315	3803	3301	4.79	86.80
2012-13	80000	3316	3097	4.15	93.40
2013-14	73002	1217	919	1.67	75.51
2014-15	31400	663	513	2.11	77.38
2015-16	236332	2435	1170	1.03	48.05
2016-17	92166	2228	1748	2.42	78.46
2017-18	165451	2989	2190	1.81	73.27
CAGR (%)	28.52	10.24	6.69	—	—

Animals insured and claim status under National Livestock Insurance Scheme in Karnataka

The number of animals insured and claim status of NLM scheme in the state during the period 2006-07 to 2017-18 is presented in Table 2. The number of animals insured increased over the years, which varied from 9487 during 2006-07 to 165451 during 2017-18 at the CAGR of 28.52 per cent. More number of animals (236332) were insured in the year of 2015-16 and is due to reduction in the rate of premium from 3.56 to 2.75 per cent of the value of the animal and also the number of districts covered improved from 17 to 30.

The number of claims lodged varied from 602 to 2989 and grew at an annual compound growth rate of 10.24 per cent. In 2011-12, more number of claims were lodged and claimed due to outbreak of foot and mouth disease (FMD). The number of claims settled varied from 481 to 3301. Claim settled grew at annual compound growth rate of 6.69 per cent. More number of claims were settled (3301) during the year 2011-12. While the claims settled to claims lodged (93.80 %) was high in 2009-10. The extent of claims lodged to animal insured decreased from 8.89 per cent in 2006-07 to 1.81 per cent in 2017-18. This might be due to the improvement in health services. This percentage should be low for healthy financial viability of the insurance scheme. The claim settled to claim lodged per cent varied from 48.05 to 99.32 per cent. But, it is low in the year 2017-18 (73.27%) which indicates the existence of misappropriation, delayed and improper submission of documents for claim and negligence of farmers about getting the claim amount. This percentage should be higher for the long run sustainability of the insurance scheme. These results are in agreement with the findings of Singh (2015).

Premium collected and claim paid under National Livestock Insurance Scheme in Karnataka

It can be seen from the Table 3 that premium collected and claims paid under National Livestock Insurance scheme in Karnataka increased over the years at the CAGR of 22.33 and 24.91 per cent respectively. The premium collected varied from ₹ 143.04 lakhs to ₹ 2208.82 lakhs and claim paid amount varied from ₹ 30.91 lakhs to ₹ 931.91 lakhs. Claim to premium ratio varied from 19.80 to 80.68 per cent between the period 2006-07 to 2017-18.

The highest premium (₹ 2208.82 lakhs) was collected in the year 2015-16 which is largely due to more number of animal insured during this period (2,36,332). The lowest claim to premium ratio was during 2015-16 which can be attributed to less disease incidence and delay in the submission of documents for availing claim. Premium collected per animal per year was calculated by dividing the total premium collected by number of animals insured. The premium amount collected per animal per year decreased from ₹ 1507 during 2006-07 to ₹ 851 in 2017-18 at the CAGR of 4.81 per cent. The claim settled per animal per year was calculated by dividing the total amount of claim paid by number of animals claimed in that particular period. The claim settled per animal per year increased over the year at the CAGR of 17.08 per cent due to increase in the value of the animal. The claim settled per animal was ₹ 42,553 for the year 2017-18. The claim paid per animal per year was hiked in 2008-09 due to modification in the scheme where high yielding cattle and buffaloes were also included. During the same year, this scheme was also extended to all the districts and was implemented on regular basis. Similar findings were reported by Singh (2015).

Table 3: Premium collected and claim paid under National Livestock Insurance scheme in Karnataka

Year	Premium collected (₹ in lakh)	Claim settled (₹ in lakh)	Claim to premium (%)	Premium collected per animal per year (₹)	Claim settled per animal per year (₹)
2006-07	143.04	30.91	21.61	1507.75	3788
2007-08	193.84	110.45	56.98	1399.26	10797
2008-09	204.6	125.21	61.20	1437.30	26031
2009-10	225.36	142.85	63.39	1404.72	18151
2010-11	694.28	239.68	34.52	1022.85	17676
2011-12	786.8	535.91	68.11	991.99	16235
2012-13	841.72	679.08	80.68	1052.15	21927
2013-14	932.5	258.1	27.68	1277.36	28085
2014-15	286.45	163.63	57.12	912.26	31897
2015-16	2208.82	437.4	19.80	934.63	37385
2016-17	886.70	672.68	75.86	962.07	38483
2017-18	1408.10	931.92	66.18	851.07	42553
CAGR (%)	22.33	24.91	—	-4.81	17.08

Animals insured and claim status under different schemes in select districts of Karnataka

The number of animals insured and claim status under different schemes in Kolar district is presented in Table 4. National Livestock Insurance (NLM) scheme and Cattle Group Insurance (GIC) scheme were the two main schemes involved in insuring the animals in the district. In NLM scheme, the number of animals insured varied from 970 to 7360, while, under CGI scheme it varied from 26,278 to 37,477 during the period 2015-16 to 2017-18. The number of animals insured through GCI scheme was higher than NLM scheme in Kolar. This is largely due to District Dairy Milk Union under Karnataka Milk Federation which facilitated the insurance programme to reach the farmers. The CGI scheme was easily accessible to the farmers which involves lower transaction cost, there is no restriction on number of animals to be insured and low premium rate and high claim paid per animal and high claim to premium ratio to NLM scheme. The number of animals insured witnessed an increase over the years in both the schemes due to farmers awareness about the importance of insurance. The number of claims lodged

varied from 501 to 793 and claims settled varied from 419 to 749 during period 2015-16 to 2017-18 under CGI scheme. Claim settled was also higher in CGI Scheme than NLM scheme as the number of animal insured was also high. The ratio of claims settled to claims lodged was 94 and 92 per cent under CGI and NLM scheme, respectively during 2017-18.

In the case of Shivamogga, both NLM and CGI schemes were performing well in terms of number of animals insured. In NLM scheme, the number of animals insured grew from 6879 to 8400, while under CGI scheme it increased from 3012 to 8550. There was no much difference in number of animal insured during 2017-18. The claims lodged to animals insured varied from 1.70 to 1.90 per cent under NLM scheme. Whereas, it was ratio of 1.46 per cent to 1.71 per cent in CGI scheme during the period 2015-16 to 2017-18. The claims settled to claims lodged ratio was higher in CGI scheme (varying between 73.29 to 86.36 per cent) than NLM scheme (varying between 75.52 to 78.46 per cent) between period 2015-16 to 2017-18 (Table 5).

Table 4: Number of animals insured and claim status under different schemes in Kolar

Categories	NLM Scheme			Cattle Group Insurance scheme		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Animal insured (no.)	970	4185	7360	26378	30340	37477
Claim lodged (no.)	18	67	113	501	618	793
Claim settled (no.)	13	58	104	419	592	749
Claim lodged /animal insured (%)	1.86	1.60	1.54	1.90	2.04	2.12
Claim settled /Claim lodged (%)	72.22	86.57	92.04	83.63	95.79	94.45

Table 5: Number of animals insured and claim status under different schemes in Shivamogga

Categories	NLM Scheme			Cattle Group Insurance scheme		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Animal insured (no.)	6839	7429	8400	3012	6926	8550
Claim lodged (no.)	130	123	143	44	114	146
Claim settled (no.)	102	91	108	38	82	107
Claim lodged/ animal insured (%)	1.90	1.66	1.70	1.46	1.65	1.71
Claim settled /claim lodged (%)	78.46	73.98	75.52	86.36	71.93	73.29

The cattle insurance scheme has not been implemented in Dharwad as in the case of Kolar and Shivamogga because of dominance of buffaloes and indigenous cattle as compared to crossbred cattle. Farmers were not interested to insure indigenous cattle and buffaloes. The number of animal insured varied from 3000 to 5500 in between the period 2015-16 to 2017-18 under NLM scheme. The claim lodged and claim settled was ranged 11 to 32 and 10 to 28, in respective periods. The claim lodged to animal insured percentage varied from 0.37 to 0.58 per cent was low as compared to Kolar and Shivamogga districts due to low incidence and less susceptible for diseases from the wide distribution of buffaloes and indigenous cattle (Table 6).

Table 6: Number of animals insured and claim status under National Livestock Insurance scheme in Dharwad

Categories	NLM Scheme		
	2015-16	2016-17	2017-18
Animal insured (no.)	3000	3604	5500
Claim lodged (no.)	11	19	32
Claim settled (no.)	10	16	28
Claim lodged/ animal insured (%)	0.37	0.53	0.58
Claim settled /claim lodged (%)	90.91	84.21	87.50

Premium collected and claim paid under different schemes in select districts of Karnataka

Total premium collected increased to ₹ 70.50 lakhs from ₹ 10.02 lakhs and is due to the increase in number of animals insured. The claim amount paid was ₹ 5.37 lakhs, ₹ 24.59 lakh and ₹ 49.81 lakhs during 2015-16, 2016-17 and 2017-18 respectively. Claim to premium percentage increased from 53.39 to 70.65 per cent between the period 2015-16 to 2017-18 under NLM Scheme in Kolar. Premium

amount collected per animal decreased from ₹ 1033 to ₹ 958 and claim paid per animal increased from ₹ 41321 to ₹ 47891 (Table 7). Decrease in the premium amount collected per animal is due to reduction in premium rate from 2.5 per cent to 2 per cent.

In the case of Cattle Group Insurance, the total premium collected increased from ₹ 186.77 lakh to ₹ 296.06 lakh and is due to increase in the number of animals insured from 26378 to 37477 between 2015-16 to 2017-18. Premium collected per animal was lower in CGI scheme than in NLM scheme this is due to lower premium rate under CGI scheme. The premium rate decreased to 1.58 per cent in 2017-18 from 1.69 per cent in 2015-16. Claim to premium ratio was high in CGI scheme than in NLM scheme. The average claim to premium ratio was 78.63 per cent and 59.89 per cent in CGI and NLM scheme, respectively. The difference in claim to premium ratio is because of easy accessibility to CGI scheme as this is implemented by District Diary Milk union. Claim paid per animal was also more under CGI scheme compared to NLM scheme. Claim paid per animal was ₹ 47,891 and ₹ 49998 under NLM and CGI scheme respectively for the year 2017-18 (Table 7).

Premium collected and claim paid under NLM scheme and CGI scheme in Shivamogga is presented in Table 8. The results revealed that, despite more number of animals insured in CGI scheme (8550 in 2017-18) than NLM scheme (8440) in 2017-18. The premium collected was high under NLM scheme (₹ 68.7 lakh in 2017-18) than in CGI scheme (₹ 56.59 lakh) this is because of higher premium rate charged under NLM scheme (2% in NLM and 1.58% in CGI during 2017-18). It is interesting to note that, the premium collected per animal was low and claim paid per animal high under CGI scheme compared to NLM

Table 7: Premium collected and claim paid under different schemes in Kolar

Categories	NLM Scheme			Cattle Group Insurance scheme		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Premium rate (%)	2.5	2.5	2	1.69	1.65	1.58
Total premium collected (₹ in lakh)	10.02	44.54	70.5	186.77	219.26	296.06
Total claim amount paid (₹ in lakh)	5.37	24.69	49.81	175.55	259.28	374.49
Premium collected per animal (₹)	1033.03	1064.28	957.82	708.06	722.67	789.97
Claim paid per animal (₹)	41321	42571	47891	41897	43798	49998
Claim to premium (%)	53.59	55.43	70.65	59.18	81.92	94.81

Table 8: Premium collected and claim paid under different schemes in Shivamogga

Categories	NLM scheme			Cattle Group Insurance scheme		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Premium rate (%)	2.5	2.5	2	1.69	1.65	1.58
Total premium collected (₹ in lakh)	62.26	69.51	68.7	19.04	43.91	56.59
Total claim amount paid (₹ in lakh)	37.14	34.06	44.16	14.22	31.51	44.82
Premium collected per animal (₹)	910.33	935.63	817.82	632.28	634.01	661.88
Claim paid per animal (₹)	36413	37425	40891	37413	38425	41891
Claim to premium (%)	59.65	49.00	64.28	74.68	71.76	79.20

scheme. This is also one of the reasons for more number of animals insured under CGI scheme. The claim amount paid varied between ₹ 34.06 to ₹ 44.16 lakh and ₹ 14.22 to ₹ 44.82 lakh under NLM and CGI scheme, respectively during 2015-16 to 2017-18. Claim to premium ratio was 64.28 and 79.20 per cent during 2017-18 under CGI and NLM scheme, respectively. Higher claim to premium ratio was observed under CGI scheme.

In Dharwad the premium collected increased from ₹ 25.82 lakhs to ₹ 42.77 lakhs and is because of the number of animals insured during the period 2015-16 to 2017-18. (Table 9). The total claim paid also increased from ₹ 3.44 lakhs to ₹ 10.89 lakhs over the period. Premium collected per animal decreased from ₹ 860.53 to ₹ 777.56 and is attributed to decrease in the premium rate from 2.5 to 2.0 per cent of animal value. The claim paid per animal increased from ₹ 34421 (2015-16) to ₹ 38878 per animal (2017-18). The claim to premium percentage varied from 13.32 to 25.46 per cent between the period 2015-16 and 2017-18.

Table 9: Premium collected and claim paid under National Livestock Insurance scheme in Dharwad

Categories	NLM Scheme		
	2015-16	2016-17	2017-18
Premium rate (%)	2.5	2.5	2
Total premium collected (₹ in lakh)	25.82	31.94	42.77
Total claim amount paid (₹ in lakh)	3.44	5.67	10.89
Premium collected per animal (₹)	860.53	886.3	777.56
Claim paid per animal (₹)	34421	35452	38878
Claim to premium (%)	13.32	17.75	25.46

CONCLUSION

The number of animals insured was found to be higher under Cattle Group Insurance scheme than in NLM scheme in Kolar district. The CGI scheme was easily accessible to the farmers which involved lower transaction cost, there is no restriction on number of animals to be insured and low premium rate and high claim paid per animal and high claim to premium ratio to NLM scheme. The lowest claim to premium percentage was observed in Dharwad under NLM scheme because of dominance of buffaloes and indigenous cattle as compared to crossbred cattle. Farmers were not interested to insure indigenous cattle and buffaloes. The coverage of cattle insurance is still very low, so there is a need put effort by the insurance implementing agencies to increase the coverage.

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