Working Paper 320

# Uncertainty, Risk and Risk Mitigation: Field Experiences from Farm Sector in Karnataka

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# Uncertainty, Risk and Risk Mitigation: Field Experiences from Farm Sector in Karnataka

**Meenakshi Rajeev and B P Vani***

## Introduction

Agricultural sector in Karnataka is at a crossroads with different forces operating on it simultaneously. Primarily, it is the predominance of the rain fed agriculture in the State that inhibits the growth, followed by other vagaries of the weather. Consequent high instability in productivity is but a natural outcome of this situation which sets back the development clock in the agricultural sector. The State has a very low share of area under irrigation and therefore, protective irrigation does not play any significant role. Due to the domination of the low-value low- density crops, the farmers' income is continuously depressed, and given the periodic increase in prices of inputs (specifically of the cash inputs), farmers' net income tends to shrink continuously, putting them under financial stress[1].

A farmer needs to make investment every season in working capital, which makes timely credit a necessary condition for the success of production activities. Even after making right investments, a farmer may not get due returns because of unforeseen reasons, most often beyond her/his control. In other words, farm income being uncertain, appropriate risk mitigation strategies are necessary for stabilizing the income of the farmers.

There are mainly three types of risks emanating from as many sources of uncertainties. These are:

(1) Production risks,
(2) Price risks, and
(3) Input risks.

While Production risk may arise owing to two major factors viz., weather risk and risk from pests and diseases, price related risk occur due to sudden change of demand and instability in expectation formulation. As is well known farm households mainly face the price risk because production decisions are made far in advance of the date when output is realized. Input risk occurs when there is either a shortage of inputs or when their prices vary (see also Ramaswani et al, 2003; Deshpande, 2008).

While all three types of risks appear to be present in Karnataka agriculture, production risk arising from uncertain weather is more significant. The limited purpose of the current paper is to discusses the details of some of the risk- related issues based on a primary survey conducted in the state of Karnataka. However, before moving on to the results from the survey, the paper also presents

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[1] For a discussion on agrarian situation and credit market conditions faced by farmers see Bardhan (1989), Basu (1983, 1984, 1987, 1989), Basu and Bell (1991) Ghatak (1975), Rajeev et al (2006), Bhattacharjee and Rajeev (2009)) Patnaik (2005).

an analysis of NSSO 59th round data on Situation Assessment Survey of the Farmers. In this backdrop, the paper unfolds as follows: The next section briefly discusses the findings from the NSSO Situation Assessment of Farmers' Survey to highlight risk and mitigation related issues. Section 3 elucidates the field survey details, and in this context, discusses the sampling techniques and basic sample characteristics. The next three sections discuss different types of risks faced by the farmers, based on the field survey. Findings on mitigation strategies, particularly that of insurance are taken up in the penultimate section. A concluding section follows at the end.

## Risk and Mitigation: Findings from NSSO Survey

Union ministry of Agriculture wanted to have a comprehensive assessment of the situation of farmers in the country at the beginning of the millennium. The purpose was to understand various aspects concerning farmers, which include farmers' levels of living, income and productive assets they possessed, farming practices and preferences they had, availability of resources, their awareness on technical developments and access to modern technology in the field of agriculture etc. To provide information on these aspects to the ministry of agriculture, National Sample Survey Organisation (NSSO), as a part of 59th round, conducted the Situation Assessment Survey of farmers (SAS) the period of survey being January to December 2003. As of today, this is the latest secondary level data available on rural indebtedness and farmer's insurance. Though the survey provides rich macro level data, there is not much analysis of unit record household level data (see also Bhattacharjee and Rajeev, Rao and Tripathi, 2001; Gothaskar, 1988 ) from this survey.

The survey was limited to only the rural areas of the country, and the respondents were members of farmer households. A farmer household is defined as one which has at least one member as farmer, possessing some land, and is engaged in agricultural activities on any part of the land during the preceding 365 days. In all 51,770 households were surveyed in the central sample. Only seven states participated in the state sample, and Karnataka is not among them.

In order to ensure profitable production especially in case of agriculture, risk management undoubtedly is critical.

Consequently, working group on Risk Management in Agriculture has dealt with this issue in detail. The group classifies the sources of risk into following components:

1. Production risk
2. Price or market risk
3. Financial and credit risk
4. Institutional risk
5. Technology risk
6. Personal risk

As these factors not only affect the income of farmers but also the viability of agriculture. , understanding the possible strategies and mechanisms to mitigate risk assumes importance. World Bank in its world development report (2001) classifies the risks management strategies into informal and

formal strategies and the following Table reproduced from World Development Report (2001) provides a clear picture of the possible management strategies (see Table 1).

**Table 1: Risk Management Strategies in Agriculture**

| | | Informal Mechanisms | Formal Mechanism | |
|---|---|---|---|---|
| | | | Market based | Publicly Provided |
| Ex-Ante Strategies | On Farm | Avoiding exposure to risk | | Agricultural extension |
| | | Crop diversification and inter-cropping | | Supply of quality seeds, inputs, etc |
| | | Plot diversification | | Pest management systems |
| | | Mixed farming | | Infrastructures (roads, dams, irrigation systems) |
| | | Diversification of income source | | |
| | | Buffer stock accumulation of crops or liquid assets | | |
| | | Adoption of advanced cropping techniques | | |
| | | (Fertilization, irrigation, resistant varieties) | | |
| | Sharing Risk with Others | Crop sharing | Contract marketing | |
| | | Sharing of agricultural equipment, irrigation sources etc.. | Futures contracts | |
| | | Informal risk pool | Insurance | |
| Ex-Post Strategies | Coping with Shocks | Reduced consumption patterns | Credit | Social assistance (calamity relief, food for work etc..) |
| | | Deferred / low key social & family functions | | Rescheduling loans |
| | | Sale of assets | | Agricultural insurance |
| | | Migration | | Relaxations in grain procurement procedures |
| | | Reallocation of labor | | Supply of fodder |
| | | Mutual aid | | Cash transfer |

**Source:** World Bank

Understanding the scope of the above strategies as well as the extent to which these have been followed by our farmers, calls for an in-depth discussion with the farming community. However, the Situation Analysis Survey has collected some information on the awareness created about a few Government initiatives such as the minimum support price, crop insurance schemes and so on. Table 2 presents the details of awareness about these programmes at the State level. It is found that the general awareness level of the Indian farmers regarding risk mitigation measures such as crop insurance is quite low. It can be seen that at the All India level, only 29% of the households are aware of the Minimum Support Price and identical is the awareness level of Karnataka Farmers also. The States which have higher awareness level are Haryana, Punjab and Kerala, where the share of households aware of these risk mitigation measures is over 61%. For certain crops, since the price related risks would originate from the international markets, information on import policy and World Trade Organisation (WTO) related measures plays an important role. However the data shows that the

share of households that are aware of WTO stipulations is as low as is only 8% at All India level. Karnataka's score is one percent less than the All India figure, i.e., 7%. Kerala is the only state, where 44% of the farmer households are aware of it. Punjab stands second with 23% of households being aware of WTO related norms. The rest of the Indian States have negligible share of households being aware of WTO (see Table 2).

**Table 2: Awareness of the Risk Management Schemes and WTO**

| States | Share of Households Aware of Minimum Support Price | Share of Households who have Insured Crop | Share of Households who are not Aware of Crop Insurance | Share of Households who are Aware of WTO |
|---|---|---|---|---|
| Andhra Pradesh | 29.23 | 6.77 | 75.05 | 5.47 |
| Assam | 21.61 | 0.19 | 63.81 | 10.49 |
| Bihar | 18.88 | 0.85 | 40.89 | 8.41 |
| Chhattisgarh | 35.29 | 7.26 | 66.08 | 1.41 |
| Gujarat | 25.44 | 19.81 | 48.21 | 5.81 |
| Haryana | 64.14 | 0.12 | 40.96 | 11.46 |
| Jharkhand | 12.49 | 0.57 | 66.86 | 10.69 |
| Jammu & Kashmir | 26.99 | 0.22 | 25.00 | 7.15 |
| **Karnataka** | **29.22** | **7.90** | **53.79** | **7.02** |
| Kerala | 61.10 | 5.06 | 29.24 | 44.06 |
| Maharashtra | 27.68 | 10.74 | 62.93 | 5.84 |
| Madhya Pradesh | 29.41 | 2.24 | 59.86 | 2.75 |
| Orissa | 12.37 | 7.66 | 76.68 | 2.34 |
| Punjab | 62.49 | 1.25 | 19.64 | 23.38 |
| Rajasthan | 10.51 | 0.65 | 54.74 | 2.30 |
| Tamil Nadu | 48.40 | 2.65 | 55.91 | 12.11 |
| Uttar Pradesh | 32.91 | 1.23 | 55.65 | 4.56 |
| Uttaranchal | 23.03 | 0.07 | 54.06 | 13.03 |
| West Bengal | 30.35 | 1.06 | 64.53 | 11.88 |
| All India | 29.16 | 4.04 | 56.63 | 7.73 |

**Source:** Author's analysis of NSSO data

Moving on to the aspect of crop insurance, it is found that only 4% of the household had insured their crop at All India level while in case of Karnataka the figure is slightly higher revealing 8% of the households obtaining crop insurance. The main reason for not being insured is the lack of awareness about this programme. It is found that 57% of households at All India level were not aware of insurance facility and Karnataka again roughly shows the same picture, i.e. 54% of the households were not aware of it. Expectedly Punjab on the other hand shows a different picture where, only 20% of the households are not aware of the programme; but surprisingly, even though majority of the households had awareness , only 1.25% of the households had insured their crop. What actually is the reason for such low insurance coverage of agricultural households even when they are aware of the facility? Is it because the programme is not user friendly? If so the usefulness of the crop insurance

programme and how viable it is for different sections of the farmers need to be studied with the aid of primary and secondary data as also intensive field visits to find answers to the above questions.

## Sampling Technique and basic Sample Characteristics

In order to understand the kind of risk faced by the farmers as also the mitigation strategies followed, a survey has been carried out in three districts in the state of Karnataka. As in the absence of proper mitigation strategies farmers tend to borrow at times of distress, We have therefore purposively selected 3 districts viz., Mandya, Chamarajanagar, and Haveri which have rather high level of indebtedness as per NSSO survey ($59^{th}$ round). Mandya and Chamarajanagar are among the top five highly indebted districts of South Karnnataka, while Chamarajanagar has the highest indebtedness amongst all districts in Karnataka. Among the districts of North Karnatka, Haveri has the highest level of indebtedness.

Further, these three districts have been selected also considering their varied performances levels in agriculture sector. Dr D M Nanjundappa committee report on regional imbalances provides a detail assessment of the Talukas of Karnataka in terms of their agriculture productivity and infrastructure. The above report puts, Mandya district under the group of districts with good agriculture infrastructure as also performance. Using the same report, one can place Haveri as a middle performing district and Chamarajanagar as a low performing district. Using the agriculture infrastructure and performance indices constructed in Dr Nanjundappa committee report, one backward and one better performing Taluka from each district were identified. Thus, as is clear, the purposive sampling technique is used here is to arrive at a balanced view on farmers' situation in Karnataka.

Subsequently from each district two Talukas were selected and from each chosen taluka 50 households were selected where, in order to select our samples in each Taluka, we took the assistance of Raita Samparka Kendras (RSK). For example, in Mandya district we selected two Taluks viz., Maddur (a better performing one) and Mallavalli (as a backward taluka). There are four RSKs in Maddur Taluka and from the purview of each RSK, we selected 2 villages. Further, from each village we have selected about six households at random using the list of households provided by the RSKs.. Number of sample households selected from Maddur and Mallavalli talukas is 50 each, making a total of 100 households. Similarly, we have selected two Talukas from Chamarajanagar districts viz., Kollegal (having 5 RSKs) and Elandur (2 RSKs). We have selected five households from each village of Kollegal and in case of Elandur, to arrive at a sample size of 50 respondent households we selected 4 villages from each RSKs and 6 households from each village. Following the same procedure, we have selected 50 samples each from Kollegal ( a backward taluka) and Yelandur (a better performing Taluka). Similarly, in Haveri district, we have selected two Talukas Viz., Haveri (backward), and Ranibennur (better performing) and selected 50 households each.

An alternative approach would have been to select equal number of households from each village. However that would make some Talukas much less representative in our sample and therefore we decided against this approach.

The basic characteristics of our sample households are as follows.. In regard to the economic condition of households, it is observed that on an average 55 % of the households are below poverty

line (as per ration card classification) and 45% above poverty line in the sample, showing that the sample has a good mix of poor and no so poor farmers. Sample also captures caste background of the respondent households; in particular, we have 16% of SC population and about 80% of OBC population in the sample while Muslims constitute about 2% of our sample farmers. Principal occupation of the respondents is farming, though they have other supplementary occupations such as working as agricultural labourer, small business ownership etc. There are about 40% marginal farmers, 25% small farmers and 35 % medium farmers in our sample. Our respondent households also earn supplementary income through other occupations of the family members and these occupations include daily wage labourer both in agricultural and non agricultural (27% households income) activities, animal rearing (8% of households), small business (30% of households) and other such occupations.

A structured questionnaire was personally canvassed by us to understand the nature of indebtedness and the risk and mitigation strategies of the farmers. A farmer in Karnataka faces risks arising out of vagaries of weather as well as input and market risks, issues relating to which are discussed below.

## Production Risk

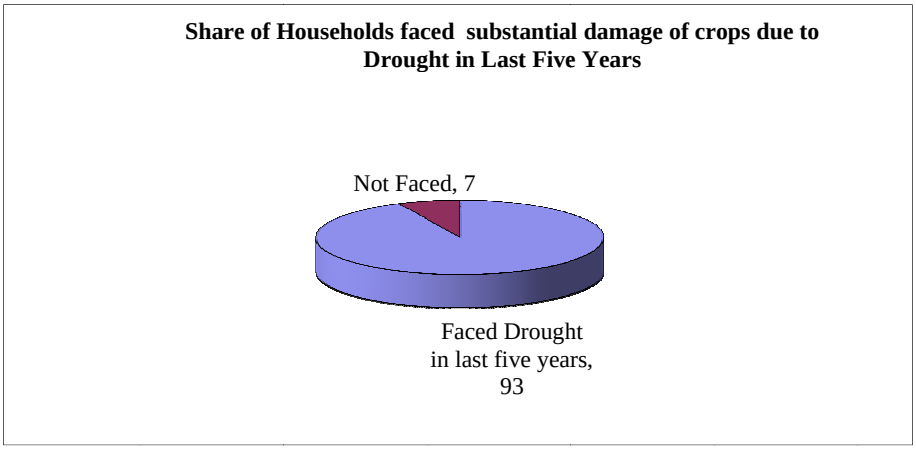
### 1. Uncertain Weather

As is well known, Karnataka is largely a drought prone state with comparatively low amount of rainfall. Two-thirds of Karnataka's geographical area is arid or semi-arid where out of 27 districts, 18 districts are drought prone with annual normal rainfall of less than 750 mm. The normal annual rainfall in the state is 1,139 mm. received over 55 rainy days' (see Karnataka Crop Insurance Study, September 2003). Irrigation facilities in the state are yet to develop adequately to address the problems of the farmers. Our survey includes both irrigated and rain fed areas, and there is stark difference in farmers' conditions between these two situations. It is worth noting that in the recent past, the state had faced disaster due to flood as well. Though the state of Karnataka have an early warning system to understand the climatic aberrations, it would be necessary to translate this into contingency plans for remedial action at the very first signs of climatic distress. In order do so effectively, it will be necessary to provide institutional training to the farmers as well as enhance the capability of the farmers to be receptive to early warnings

There is also severe shortage of agriculture extension officers who are supposed to impart technical knowledge to the farmers as many farmers reported during our survey that they hardly ever see an extension officer in their village. Further farmers also felt that extension officers themselves lacked the knowledge and that they should be trained in soil testing, identifying appropriate pesticides and other such necessary techniques.

During our survey, we have observed that weather related disaster impacted almost all the farmers (Fig. 1). Only 7% of households reported that though they faced adversities, their crops had not been destroyed substantially (see fig 1).

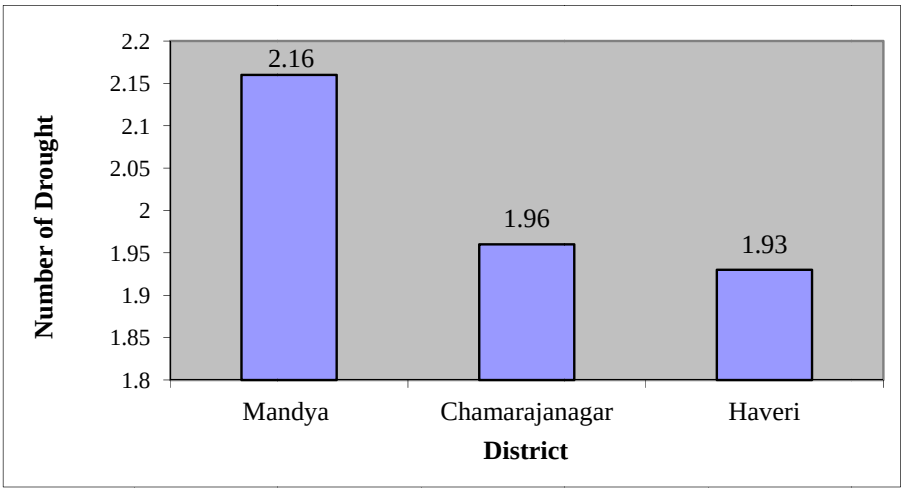
**Figure 1: Share of Households Faced Substantial Damage of Crops due to Drought or Flood at Least Once in the Last 5 Years**




**Source:** Primary Survey

The average number of drought situation (which had severe impacts on crop) faced in preceding 5 years by farmer households was about 2. Thus, one can observe that every alternate year one is faced with weather related adversities (Fig 2). Given the intensity with which a farm household is subjected to whether related risk, it is essential to address the issue effectively. In this regard, it is worth mentioning that lack of irrigation facilities have severely affected farmers even in the parts of developed districts like Mandya or Chamarajanagar.

**Figure 2: Average Number of Droughts Faced in the Last Five Years**

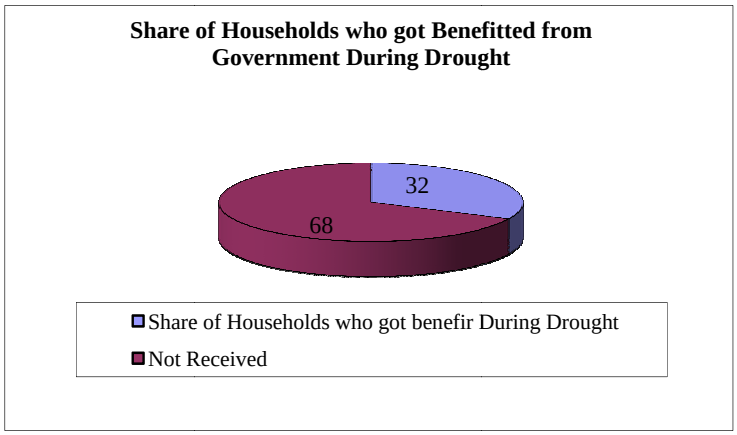



**Source:** Field Survey

In case of severe drought, the Government declares aid to the farmers in that area. However, despite the noble intentions and efforts of the Government, such help seldom reaches the needy. In our sample, though almost all farmers faced weather related disasters, it is important to note that only a

few (about 30%) received Government help (see Fig 3) and such lacuna in the implementation process needs to be dealt with seriously.

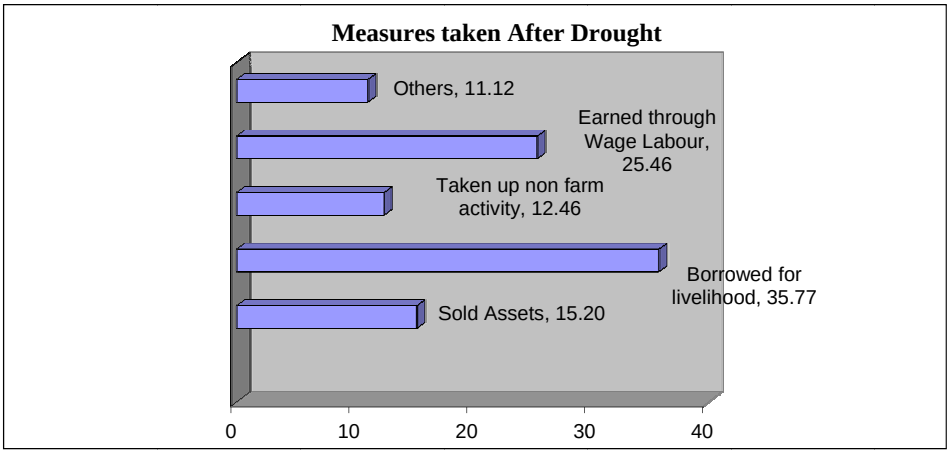
**Figure 3: Share of Households who got Benefited from Government during Drought**




**Source:** Field Survey

Understandably, natural disasters drastically reduce a farmer's income. As far as mitigation strategies are concerned our survey shows that marginal and small farmers usually have little savings; so a large percentage of such farmers essentially need to borrow in order to meet their expenses. Economically better off friends and relatives often provide loans to the farmers in distress. Alternatively, farmers seek wage labour in agriculture or other occupations for their sustenance and of late, we have also observed that farmers with small land holdings are working under NREGA programme. A few farmers who have small business like petty shops fall back on the income earned from such non-farm activities. The survey also revealed that about 15% of farmers had to sell assets for their sustenance. . Fig 4 gives graphic details (bar chart) of the survival strategies adopted by farmers after visitations of drought.

**Figure 4: Means of Survival After Drought (shown in terms of percentage of Farmers)**




**Source:** Field Survey

It is clear that the strategies adopted by farmers to cope during weather related aberrations are rather weak, and a systematic approach to the problem is absolutely necessary to ameliorate farmers' distress. Developing non-farm activities is one such option, and the problems related to this are discussed in the sequel hereto. In addition, irrigation can go a long way and we have seen the significant difference between the farmers having access to irrigation facilities and those who do not. Risk mitigation strategies like insurance coverage are essential. but at present insurance coverage is very meager, and this issue will be taken up for a detailed discussion in the sequel hereto.

## 2. Production Risk Arising from Pest and Diseases

Another critical production related problem faced by the farmers as revealed during our survey is that of pest and disease, which in turn reduces their output and income. Our survey has revealed that While paddy growers also need to cope with the ills , mulberry crop growers, especially are faced with disease related problems during winter due to certain worms attacking the plants. On the other hand the most commonly faced problem of paddy growers are blast disease, disease from yellow stem borer, disease from brown plant hopper, Gandhi Bug, and Udubatta disease. The cotton producers, on the other hand mainly face problems from borer insects. During our survey, the farmers complained that though they did spray insecticides,but due to substandard insecticides, insects become resistant to them and destroyed crops. Rat menace has also been reported by farmers. Farmers do not seem to have upgraded their mitigation strategies in this regard yet.

## Price Related Uncertainties

As mentioned earlier, in addition to weather and disease related uncertainties, farmers also face price related uncertainties, and the study covers this issue as well**.** The major crops covered in our study area are Paddy, Ragi, Maize, Sugarcane, and Cotton, and we have collected information on the minimum support price of these crops and presented in table 3.

**Table 3: Minimum Support Prices over the Years**

| Year | Paddy | Ragi | Maize | Sugarcane | Cotton |
|---|---|---|---|---|---|
| 2000-01 | 510 | 445 | 445 | 59.5 | 1625 |
| 2001-02 | 530 | 485 | 485 | 62.05 | 1675 |
| 2002-03 | 530 | 485 | 485 | 69.5 | 1675 |
| 2003-04 | 550 | 505 | 505 | 73.5 | 1725 |
| 2004-05 | 560 | 515 | 525 | 74.5 | 1760 |
| 2005-06 | 570 | 525 | 540 | 79.5 | 1760 |
| 2006-07 | 580 | 540 | 540 | 80.25 | 1770 |
| 2007-08 | 645 | 600 | 620 | 81.18 | 1800 |
| 2008-09 | 850 | 915 | 840 | 81.18 | 2500 |

**Source:** Cost of Cultivation Survey

It is seen that the increase in minimum support price had been minimal till around 2008-09 and the initial jump in minimum support price was witnessed only during 2008-09. It was also revealed by our survey that though government declares minimum support price, procurement at the declared price is minimal.. While many farmers wish to sell to the state agencies at the minimum support price, they are unable to do so due to lack of demand. Thus, they feel that declaring minimum support prices is not of much use to them as procurement would be far below the quantity available for sell.

The farmers often sell their produce at market prices mostly due to economic compulsions. Therefore, it is necessary to highlight the trends of market prices of these crops for the regions of our interest and we have used both secondary data and primary information to shed light on this aspect. It is observed that market prices of crops have fluctuated over the years (table 4). This clearly shows the kind of market situations and uncertainties faced by the farmers. However, data collected from farmers in the recent year points to increase in market prices of all crops (compare table 4 and 5). This may corroborate the sharp increase in food price inflation during the last few years.

**Table 4: Prices of Different Crops across the Selected Districts at Different Points of Time**

| Year | Paddy | | Ragi | Maize | | Sugarcane | Cotton |
|---|---|---|---|---|---|---|---|
| | Mandya | Haveri | Mandya | Chamarajanagar | Haveri | Mandya | Haveri |
| 2006-07 | 660 | 626 | 663 | 944 | 625 | 900 | 2188 |
| 2005-06 | 687 | 577 | 475 | 540 | 745 | 1100 | 1865 |
| 2004-05 | 637 | 697 | 401 | 659 | 688 | - | 2075 |
| 2003-04 | 557 | 706 | 444 | 500 | 492 | - | 2324 |
| **mean** | **635** | **651** | **496** | **661** | **637** | - | **2113** |
| **Standard deviation** | **56.03** | **61.21** | **115.55** | **200.54** | **108.67** | 141.42 | **194.16** |

**Note:** Prices for all crops are not available for all districts as these crops are not grown

**Source:** Cost of Cultivation Survey

**Table 5: Summary Measures of Prices from Primary Survey from Different Households: 2009-10**

| | Paddy | Ragi | Sugar | Maize | Mulbery | Cotton |
|---|---|---|---|---|---|---|
| Mean | 877 | 883 | 1217 | 766 | 123 | 2514 |
| Median | 850 | 800 | 1100 | 770 | 120 | 2500 |
| Mode | 900 | 800 | 1100 | 800 | 120 | 2200 |

**Source:** Field Survey

## Input Risks

In addition to production and price risks, farmers suffer from input related risks as well. During our survey almost all the farmers informed that they faced shortages of seeds and fertilizers; further there exists problem of timely supply of the inputs, which in turn also reduce production. Most of the farmers avail seeds and fertilizers from Raita Samparka Kendras (farmers' help centre) ,but quantity supplied

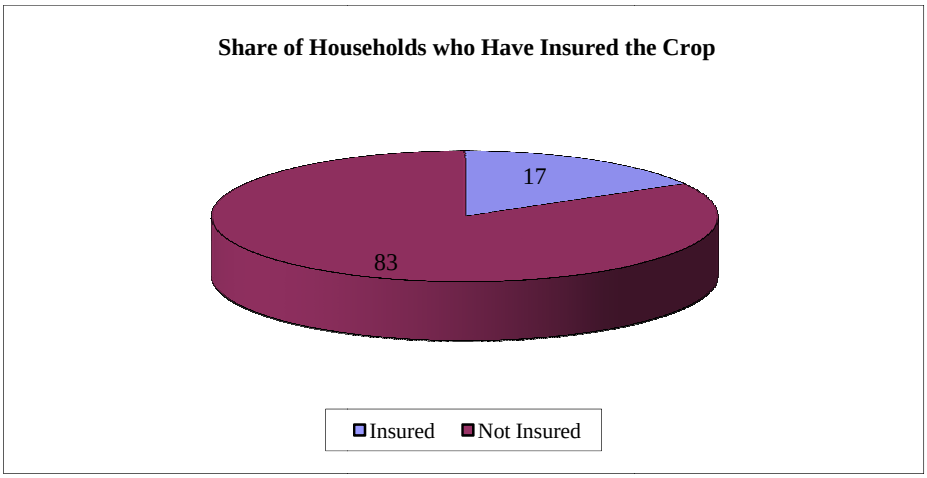
being insufficient they are forced to depend on private traders who often provide substandard inputs at higher prices.

## Risk Mitigation

### 1. Crop Insurance

One of the standard ways of mitigating risk is through crop insurance. Unfortunately, however, use of crop insurance is not wide spread in Karnataka as we observe that among our sample households, only 17% of the households are covered by insurance scheme while the rests have remained totally uncovered (fig.5) and consequently will be driven to a distress situation in the event of crop failure.

**Figure 5: Share of Households with Crop Insurance**




**Source:** Field Survey

One of the major reasons for not taking crop insurance is lack of awareness among farmers and the absence of insurance scheme in the regions. Thus, we feel that formulation of appropriate crop insurance schemes as per need of specific regions is of significant importance. We also notice from our sample that around 40% of the farmers are ***not interested*** in crop insurance (fig. 6) as the area based approach of the insurance scheme and the resulting conditionalities do not appeal them.

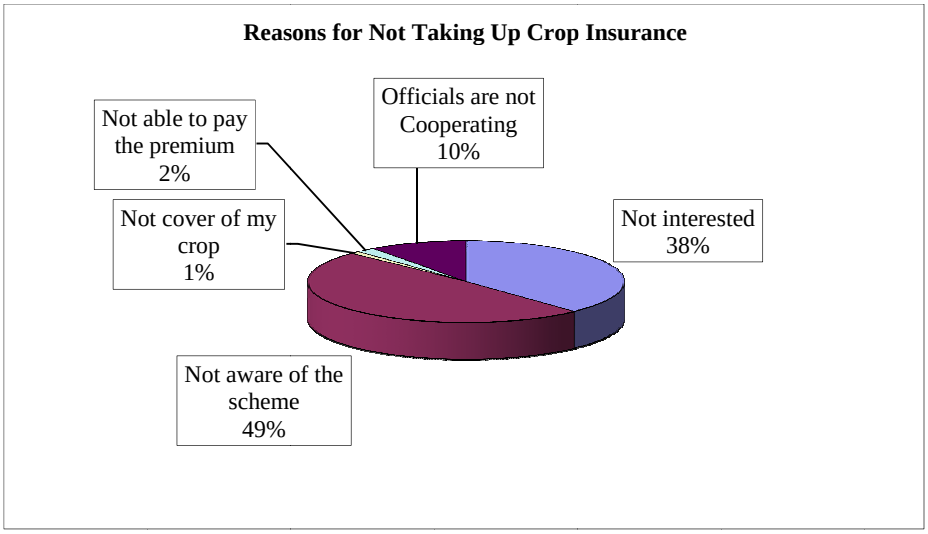
Indemnity under the "area approach" is offered as per the results of crop-cutting experiments for which each year a certain number of plots with the insured crops in a certain "area" are taken as the indicators of an individual farmer's losses within that area. Insured farmers receive indemnity based upon the difference between the threshold yield and the yield of the crop-cutting experiments in their area. Crop yields naturally vary even over small areas and even localized natural calamities can cause distress. While such situations are not un-common farmers may not be compensated for their loss.

Therefore, a farmer is wary about getting compensation, as he rightly feels that he /she may be paying insurance premium unnecessarily. If there is a large scale calamity, he would in most cases get government compensation without any insurance cover. Thus, a farmer considers an individual, his

or her own land based insurance as the best option. However, such options have much higher level of premium implications which they fail to grasp.

Given this scenario, it is necessary to take the farmers into confidence while formulating crop insurance policies. What can be the premium related implications of an individual based insurance, should also be discussed; otherwise, the entire exercise is going to be futile.

**Figure 6: Reasons for not Taking up Crop Insurance**



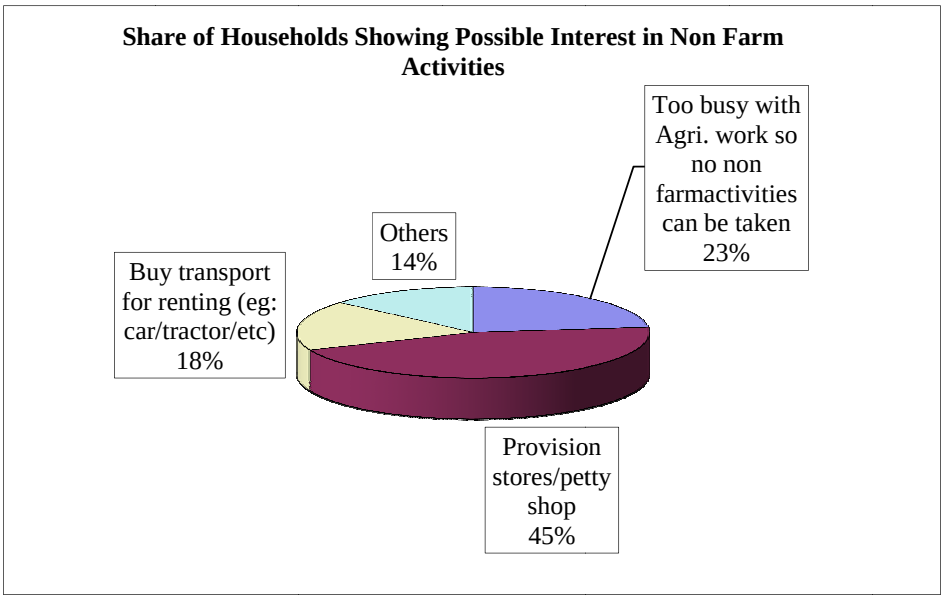

**Source:** Field Survey

## 2. Non Farm Activities

When a farmer faces a situation of depressed income, he can at least get over the distress condition, if he has any gainful nonfarm activities. Most of the farmers in our sample do not have non-farm activities. Therefore, the study has also sought information from the respondents about the possible non-farm activities they would like to take up.

An interesting fact revealed in our survey is that farmers seldom have the knowledge or imagination about diverse non-farm activities available (Fig. 7). Most farmers consider certain petty businesses like opening a small shop or buying a capital good such as a tractor or truck for renting is the only option. Thus, there is a need to provide training to the farmers as per the resource base of a region to develop meaningful non farm activities. This can go a long way in ameliorating their distress.

**Figure 7: Share of Households Showing Interest in Different Types of Nonfarm Activities**




**Source:** Field survey

Currently most farmers do not take up non-farm activities due to lack of information and resources. Also, it is rather difficult to get credit from formal sector for such activities without a proper project plan.

## Conclusion

It is clear from the discussions above that the farmers of Karnataka in its entire agricultural regions face all the three major types of risks and this is a scenario that holds for the country as well. Availability of irrigation facilities however is a critical element that determines the outcome of a weather related crisis; however providence of this facility is rather poor in the state in spite of it being a dry region. Though risks are all pervasive mitigation strategies are rather weak for the agrarian community across the nation as can be seen from our analysis of NSSO data at the all India level and Karnataka experience. In particular risk mitigation strategies in terms of crop insurance are highly under developed across the country in general and also in the state.

In this context it is rather interesting to note that in our sample, around 40% of the farmers are not interested in crop insurance. This is because crop insurance is usually area based. Thus even if a farmer's crop is destroyed his/ her compensation would depend on whether the area in which the farmer is cultivating comes under the insurance coverage or not. Therefore a farmer feels that he /she may be paying insurance premium unnecessarily. In this background, it is necessary to take the farmers into confidence while formulating the insurance policies. What can be the premium related implications of an individual based insurance should also be discussed; otherwise, the entire exercise would be futile.

Development of non-farm activities is another major initiative that is necessary. Most farmers currently consider certain petty business like opening a small shop or buying a capital good such as tractor or truck for renting as the only option. Thus there is a need to provide training to the farmers as per the resource base of a region to develop meaningful non farm activities. This can go a long way in ameliorating their distress during crop failure.

## References


Bardhan, P (ed) (1989). *The Economic Theory of Agrarian Institutions*. Claredon Press.

Barro, R J (1976). The Loan Market, Collateral, and Rates of Interest. *Journal of Money, Credit and Banking*, 8 (4): 439-56.

Basu, K (1983). The Emergence of Isolation and Interlinkage in Rural Markets. *Oxford Economic Papers*, 35 (2): 262-80.

———— (1984). Implicit Interest Rates, Usury and Isolation in Backward Agriculture. *Cambridge Journal Of Economics*, 8: 145-59.

———— (1984). *The Less Developed Economy: A Critique of the Contemporary Theory*. Oxford: Basil Blackwell.

———— (1987). Disneyland Monopoly, Interlinkage and Usurious Interest Rates. *Journal of Public Economics*, 34 (1): 1-17.

———— (1989). Rural Credit Markets: The Structure of Interest Rates, Exploitation and Efficiency. In Bardhan (ed), *The Economic Theory of Agrarian Institutions.* Claredon Press.

———— and C Bell (1991). Fragmented Duopoly: Theory and Application to Backward Agriculture. *Journal of Development Economics*, 36: 145-65.

———— (1997). *Analytical Development Economics: The Less Developed Economy Revisited*. MIT Press.

Basu, P (2006). *Improving Access to Finance for India's Rural Poor*. Washington, D.C.: The World Bank.

Bhaduri, A (1977). On the Formation of Usurious Interest Rates in Backward Agriculture. *Cambridge Journal of Economics*, 1 (4): 341-52.

Bhattacharjee, Manojit and Meenakshi Rajeev (2010). Interest Rate Formation in Informal Credit Markets in India: Does Level of Development Matter? *Brooks World Poverty Institute Working Paper Series 12610*. BWPI, The University of Manchester.

Chakravarti Committee Report (1985). *Report of the Committee to Review the Working of the Monetary System*. Bombay: Reserve Bank of India.

Ghatak, S (1975). Rural Interest Rates in the Indian Economy. *Journal of Development Studies*, 11 (3): 191-201.

———— (1977). Rural Credit and the Cost of Borrowing: Interstate Variations in India. *Journal of Development Studies*, 13 (2): 102-24.

Gothaskar, S P (1988). On some Estimates of Rural Indebtedness. *Reserve Bank of India Occasional Papers*, 19 (4): 299-327.

King and Levine (1993). Financial Intermediation and Economic Development. In Colin Mayer and Xavier Vives, (eds), *Capital Markets and Financial Intermediation*. London: Centre for Economic Policy Research.

National Sample Survey Organisation (2003). *Situation Assessment Survey of Farmer Households*. New Delhi: NSSO.

Patnaik, P (2005). Financial Liberalization and Credit Policy. In Ramchandran, V K and M Swaminathan (ed), *Financial Liberalization and Rural Credit in India*. *Tulika Books.*

Rajeev, Meenakshi, B P Vani and Manojit Bhattacharjee (2011). Credibility of Equal Access to Credit: Does Gender Matter?. *Economic and Political Weekly*, XLVI.

Rangarajan C (2008). Report of the Committee on Financial Reforms. http://www.nabard.org/pdf/report_financial/Full%20Report.pdf

Rajeev, M, R Ranade and S Deb (2006). *Why Do Poor Farmers Default Less?: Case of Indian Informal Credit Market A Game Theoretic Exploration*. http://mpra.ub.uni-muenchen.de/768/01/MPRA_paper_768.pdf. Posted: 17 November 2006

Ramaswami, B, R Shamiika and S D Chopra (2003). Risk Management in Agriculture. *Indian Statistical Institute, Planning Unit, Discussion Paper 03-08.*

Rao, K R and A K Tripathi (2001). Indebtedness of Households: Changing Characteristics. *Economic and Political Weekly May* 12: 1617-26.

Srinivasan, T N (1989). On Choice Among Creditors and Bonded Labour Contracts. In Bardhan (ed), *The Economic Theory of Agrarian Institutions*. Claredon Press

Stiglitz, J E and A Weiss (1981). Credit Rationing in Markets with Imperfect Information. *American Economic Review*, 71: 393-410.

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