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Agricultural Risk and Crop Insurance in India: An Analysis of Public and Private Sector Involvement in Crop insurances

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Scientific debate

Abstract

Indian farming is risk based and every natural calamity or unforeseen weather change disrupts the farming practices altogether. It forces the farmers to depend more on public capital support to survive the natural calamity. Apart from government funding, insurance is a major source of capital support to the distressed farmers. Both public and private sector involve in crop insurance sector; however, the performance assessment report on crop insurance forces us to look at it critically. The data shows that it has become a source of extracting capital rather than supporting the capital formation of calamity/risk affected farmers. Companies are extracting money as premium payment and paying negligible percentage to the farmers. The basic principle of insurance is not being put into operation, which is further excluding the distressed farmers.

Key words: crop insurance, private insurance, risk based farming, low premium

1. INTRODUCTION

Risk taking behavior is not alien to Indian farming sector. As an agrarian society, farmers are the backbone of Indian economy. But the practices followed by the Indian farming system are directly dependent on the monsoon variations and hence, it becomes a planning challenge for the policy makers of the country. The Finance Minister of India, Mr Arun Jaitley, made an interesting observation in 2016 that the expected good monsoon would push the GDP growth to 8.5 percent in the year 2017. It is quite interesting to see whether farmers really believe the government in the context of

the poor economic support. Government support to farming community has gone into various forms and structures. It includes subsidies for irrigation, fertilizer, seed etc. These are meant to increase the farm output; however, this paper is on another area of farming support i.e., crop insurance system in India.

Crop insurance was a subject matter for Indian government for long. The first proposal for agricultural insurance had come up during the 1920s. Vyas and Singh (2009) observed that the credit for initiating crop insurance in India dated back to 1920. According to them, the objective of crop insurance scheme was to provide insurance coverage to the farmers in the case of any event or natural calamities, which affect the crops. Sinha (2007) explains the history and evolution of crop insurance in India. His paper explains that the comprehensive crop insurance started in India during 1985-1999. The National Agricultural Insurance Scheme (NAIS) was initiated during 1999-2000. He narrates the history of crop insurance in India. In 1956 Government of India decided to introduce the Crop Insurance Bill. After getting comments from the State governments, a model draft was prepared in 1970 and later the expert committee led by Dr Dharam Narain recommended implementing it in 1971. The government made many attempts to revamp the crop insurance schemes. Every revision aimed at enhancing the reach of the crop insurance schemes among farmers.

The present day agricultural distress and farmer suicides emphasize the need for crop insurance. The National Crime Record Bureau report proves that crop failure due to natural calamity forced 11 percent of farmers to commit suicide. Another 8.4 percent of farmers committed suicide due to crop failure for reasons other than natural calamities. Causes of farmer suicides is not the critical focus of this paper, instead it wants to focus on the crop insurance programmes in the country. In principle, crop insurance is a risk taking instrument and it ensures capital stock recovery after a calamity. Crop insurance has a potential market in India and it has yet to reach out to the people who,

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indeed, need such risk sharing support. The paper argues that crop insurance sector is yet to contribute the capital replacement of distressed farmers and that it has opened more options to companies to expand their capital base. Such disparity excludes distressed farmers from farming and increases the cost of capital among marginal farming community in the country¹.

2. RESEARCH SETTING

The National Disaster Management Authority (NDMA) categorizes that 68 percent of agricultural land in India is prone to drought. Agricultural risk is pertinent in India and the experience of drought and continuous farmer suicides proves the inadequacy of institutional support system. There are multiple institutional support systems available for farming, yet such support is not available to all farmers. Indebted farmers are forced to end their life, and their family continues to live with risk and poverty. The National Crime Record Bureau 2014 stated that 72.4 of the farmers who committed suicide were small and marginal farmers. These marginal farmers are the ones who are really contributing to India's food security; however, the government agencies yet to consider these facts. Farmer suicides, indeed, reflect the lack of inclusive risk governance in Indian farming system. Crop insurance is the most critical among them. Table 1 gives a detailed account of India's agricultural insurance system.

The information given in the table is, in fact, the critical concern of this paper. It proves that 73.04 percent of Indian farmers i.e., the farmers who own the land, are not covered under any insurance scheme. It

does not cover landless farmers and labourers. Hence, from an insurance perspective, India has huge market potential for crop insurance. However, the distressed farmers prefer to put an end to the life rather than fight for insurance coverage. The unequal distribution of risk coverage is an important instrument, which pushes the farmers into crisis. The crop insurance markets in India are well demonstrated by NDMA. According to NDMA, 40 mha i.e., one eighth of the total land area of India, are prone to floods. It shows the mounting risk prevailing in the Indian farming system and the huge gap that exists in risk reduction financing in India. However, the huge uninsured farmers and disaster prone areas have not influenced the agricultural insurance policy in India. The existing agricultural insurance schemes, Rashtriya Krishi Bima Yojna and Pradhan Mantri Fasal Bima Yojna, are the major State-funded schemes under operation. These two are primarily meant to provide crop insurance and to extend the support at the time of disaster years; so that crop loss during drought years gets compensated.

Like life insurance sector, crop insurance has also opened to private sectors. It is a recent phenomenon in the country wherein the private insurance companies are getting into crop insurance sector. It is a new business option as the conditions of Indian farm sector really need insurance as well. Therefore, the performance of private sector insurance is another factor this study wants to enquire into. The matter of fact is that the performance assessment of private companies in crop insurance sector in 2016-17 gives disturbing figures. Apart from that there is a huge gap between the claims made and the actual disbursement done. Refer to Table 2.

Table 1. Total crop insurance coverage in India.

	Farmers Insured under All Ongoing Insurance Schemes		Area Insured under All Ongoing Insurance Schemes. (Area in Hectare)	
	Total Farmers Insured	% of Number of Farmers Insured	Total Area Insured	% of Gross Cropped Area Insured
India	36,920,659	26.96%	45,392,158.59	24.34%

Source: Indiastate.com

¹ This paper is based on secondary data and published studies on agriculture practices and insurances. It has applied the method of perspective analysis of the sources to arrive at the analysis and discussion.

In fact, Table 2 explains why private companies are interested in crop insurance. The huge gap between the premium collected and paid shows the economic

Table 2. Performance of crop insurance companies in 2016-17.

Sr. No.	Name of the Company	Total Premium Collected (Rs in Crore)	Percentage of Claims Not Paid
1	Tata AIG	422.04	17.99
2	IFFCO-TOKIO	1159.82	85.55
3	SBI General Insurance	363.66	NA
4	Future Generali India Insurance Company Limited	183.36	NA
5	HDFC ERGO	725.21	46.75
6	ICICI Lombard	1234.73	81.01
7	Agricultural Insurance Company of India	3610.78	76.98
8	Universal Sampo GIC	594.96	0
9	CHOLAMS GIC	169.8	100
10	BAJAJ	576.89	98.58

Source: Centre for Science and Environment (CSE), State of India's Environment in Figure 2017.

interest of private sector. It is a profit-making venture for the private companies. The farmers put their money in these private sectors insurance companies on the expectation that it would support them to retain the capital which is lost in calamity. The table 2 tells that they are not going to get such support in the post calamity phase. CSE report (2017) also proves that the total insurance claim in the year 2016-17 was Rs 4270.55 Crore and disbursement was Rs 714.14 Crore i.e., only 16.72 percent has been disbursed. The media reports a statement of Agriculture Minister in the Lok Sabha that insurance companies collected Rs 21,500 crore as premium for 2016-17; however, only Rs 714.14 crore, or 3.31 per cent of the premium income collected, had been disbursed till 7 April, 2017 against claims of Rs 4,270.55 crore in Kharif 2016. The corporate houses have siphoned off the remaining 97 per cent of the premium income amount of 21,500 crore².

² The Hindubusinessline dated May 26, 2017. <http://www.thehindubusinessline.com/news/national/pms-crop-insurance-scheme-has-only-helped-insurer-congress/article9713505.ece>.

This information is available to public through various sources; however, the fact is that there is no action by the government to regulate or put restrictions on the operations of the crop insurance sector.

2.1. Conceptual framework and method

Insurance is a promise and which is depend on the the credibility of the institution which offers insurance. Individuals choose insurance when there is an higher utility of capital in the context of risk. Friedman and Savage (1948) theory argues that individual make particular set of decisions as if they calculate and compare the expected utility and understand the risk. As Borch (1985) argues insurance is based on the logic that a buyer buys security and contractor accepts risks. Insurance is spread across institutions and activities. Petak (1998) observed that insurance is meant to reduce the public burden of individual loss; however, according to him, it is less useful for reducing the economic loss due to disaster. Crop insurance is one of the major insurance coverages in the world. Unlike other insurances, crop insurance gets national attention. It ensures protection from uncertainties. Insurance covering helps quantify the expected loss of value for the buyers. Buying insurance does mean capability to forecast and manage the risk associated with the concerned sector. Outreville (1998:64) explains the idea of risk management as a process, which involves the application of management concepts along with the use of human, financial and physical resources to identify the risk. Risks associated with crops are multifaceted and the most important among them is natural disaster. Buying insurance against natural disaster is a complicated project in developing countries. And the economic losses in developing economies are higher than developed economies. Disaster risk is structurally distributed in the developing countries, and hence risk management is not a linear process. Williams and Heins (1989) define risk identification as „*the process by which a business systematically and continuously identifies property. Liability and personnel exposures as soon as or before they emerge*”. Proper assessment of risk is inevitable for risk reduction planning, including allocation for capital for risk reduction investments. The very existence of insurance is dependent on the risk assessment and validation. As defined by Covello and Merkhofer (1993), risk assessment is a systematic process for describing and quantifying the risks associated with hazardous substances, processes, action, or events. For agricultural sector, risk is more close to environment and its economic impacts. Environmental risk assessment is focused on comparing environmental

indicators, as they change over time. Such methodology predicts the current and future changes on the environment in a historical perspective. It analyzes the historic range of conditions, which are determined by monitoring of undisturbed areas and analysis of natural disturbance over a period of time. Comparison of future and historic effect of environmental risk is being determined by the cumulative impact of past development and disturbance. The future effect of the risk is being monitored on the basis of the long-term implications of their present risk management.

Indian agriculture is fully dependent on monsoon; and hence, the risk is well connected with environmental reasons. Indian farmers pray for better monsoon rather than market. Every farmer in India prefers to insurance against crop loss due to environmental risks. Flood and drought are the major environmental risks that the Indian agricultural sector is subjected to. These are frequent disasters in India. Raju and Chand (2008) observed that crop insurance is for large number of farmers. Hence, it necessitates the idea of sharing of cost i.e., the loss incurred in a particular area may be shared by people from other areas and regions. Therefore, according to them, good crop insurance includes both self along with multiple help systems. Crop insurance increases the risk bearing capacity of farmers. The logic of agricultural insurance in India is protecting crop and it is kind of transferring the responsibility. Agricultural sector in India is in need of continuous State support, and hence, crop insurance is the responsibility of public institutions. As Ahsan (1982) observed, agricultural sector in any economy is subject to uncertainty due to natural hazards. Market forces are never interested in offering agricultural insurance even in advanced market economies. Conceptually, an increasing risk taking implies higher expected output and income. Indian farmers are not expecting higher output all the time as market demands. In India, 67 percent of operational holding is less than one hectare of land³. It is obvious that private sector does not offer any kind of crop insurance to these farmers based on market output. Boulatov and Dieckmann (2012) analyses that disaster insurance fund is an additional asset, which is correlated with catastrophe risks. However, it has a different trade off between risk and return rather than the insurance product offer in the private market. Klein and Wang (2009) observed that disaster insurance can promote better demand and lower prices in the private market. Hence, according to them, disaster insurance decreases the extent of private profits. In India, it is the

public institutions, which can offer crop insurance to poor farmers. It needs an additional capital flow to meet the unexpected loss. The loss incurred by marginal farmers is seldom replaceable, and hence, no private sector can put money for that. The risk-affected people are willing to pay for insurance; however, the insurance agencies are quite limited to public owned. As Kaas et al (2008) explain, insurance industry exists because people are willing to pay for insurance. There is an economic theory of insurance that is based on the principle of utility. Every decision maker attaches a utility value $u(w)$ to her wealth w instead of w only. Hence, $u()$ is her utility function, and she assess the random losses X and Y . She also compares $E[u(w - X)]$ with $E[u(w - Y)]$ and chooses the loss with the highest expected utility. The utility value of Indian farmer products is dependent on public investments on infrastructure and other support systems. Reinikka and Svensson (2002) have analysed the linkages between poor public infrastructure and risk investments. Therefore, the return of investment depends on the stock of complementary capital invested, it could be either public or by themselves. Indian crop insurance sector is very much subjected to the willingness to pay and risk reduction investments. In India, crop insurance is associated with risk reduction as well; hence, the conventional utility fixation and risk transfer are hardly possible. Hence, it results into an agency crisis in determining the supply aspects of disaster insurance. The present performance of private insurance undermines the risk reduction and capacity building aspect of crop insurance. It is an institutional and policy level crisis as well.

3. CROP INSURANCE SCHEMES UNDER OPERATION IN THE COUNTRY

There are two schemes operated by the Government of India. The schemes are offers the guiding principle of crop insurance in the country.

3.1. Rashtriya Krishi Bima Yojna

It is mentioned in the introduction itself that more than 70% of rural Indians are engaged in agriculture as a way of life. It also mentioned that agriculture is the propeller of the nation's economy. Infrastructure inequality also got referred in the project proposal. It accepts the monsoon dependency of Indian agriculture and its impact on drought in some parts and plenty of production in some other parts of the country. Hence, the reason for implementing the scheme was to bring about a parity in agricultural production across the

³ Agricultural Land Holdings Pattern in India. NABARD Rural Pulse. Issue - I, Jan. - Feb. 2014. Based on 2011 data. https://www.nabard.org/Publication/Rural_Pulse_final142014.pdf

country. Frequent crop failure in rainfed areas give less income to the farmers and it also results in poor capital formation in agriculture. The scheme is expected to ensure better income to the farmers who cultivate in the rainfed areas, and to provide viable crop insurance covers to all farmers. A Comprehensive Crop Insurance Scheme was initiated in 1985. This is a choice-based scheme and the participation is on voluntary basis, and State governments were free to choose the scheme. Those farmers who take crop loan from commercial banks, regional rural banks and cooperative banks for paddy, wheat, millets, oilseeds and pulses were qualified for the scheme.

Coverage of the scheme was restricted to rainfed crops; hence, the scheme was not useful for the farmers in Punjab, Haryana and Western UP. The scheme covered only those farmers who took loan, and the maximum amount was Rs 10,000 taken as credit from financial institutions. The scheme was implemented across only 18 percent of the total cropped area in the country. Compensation had no direct relationship with the actual losses incurred. This was reason for bringing a new agricultural insurance scheme -Rashtriya Krishi Bima Yojna in 1998. It proposed to cover every farmer and every remote area of the country. It provided crop protection against all kinds of natural disasters and diseases.

The scheme was made available to all farmers irrespective of land holding size and made compulsory for loanee farmers and optional farmers. Premium is 3.5 percent of the Kharif crop of food crop and oil seeds, and 2.5 percent for other crops. It is 1.5 percent for wheat and 2.0 percent for other crop and oilseeds in Rabi season. It proposed to cover all crops in addition to three important cash crops of sugarcane, potato and cotton. In the case of premium payment, the scheme proposed 50 percent subsidy for marginal farmers. It proposed a phasing off of premium subsidy in the next five years. It is still going on.

The scheme proposed to cover all natural calamities under the scheme. And the payment was fixed according to the indemnity rates prescribed for the area. It also proposed to setup a separate agency for agricultural insurance.

3.2. Pradhan Mantri Fasal Bima Yojna (PMFBY) / Weather based crop insurance scheme (WBCIS)

PMFBY was introduced in 2016; it is otherwise called as the Weather Based Crop Insurance Scheme (WBCIS). It offers insurance coverage against the anticipated crop loss resulting from adverse weather conditions. It covers food crops (cereals, millets and

pulses), oilseeds and commercial/horticultural crops. The responsibility of selection of areas and crops rests with the State government. It has to consider historical weather data, minimum cropped area, perils of weather, which lead to loss. Government has to convene meeting with insurance providers and agro-meteorology experts from State agricultural universities and research institutes to finalize the triggers, and terms-sheets and pay-out etc. State government can setup a technical committee for selecting crop and areas, which are having potential losses. The scheme can be operated on the principle of 'Area Approach' in selected notified areas. Hence, the State government has to find a smallest possible area such as Village Panchayat / Revenue Circle / Mandal / Hobli / Block / Tehsil etc.

3.3. National crop insurance programme (NCIP) Modified National agricultural insurance scheme (MNAIS)

This scheme is meant for sustainable production in agricultural sector to ensure food security, crop diversification, and increase the growth and competitiveness of agriculture sector other than protecting farmers from risk in production.

These three schemes indeed act as an umbrella project, which facilitate private sector and public sector to participate.

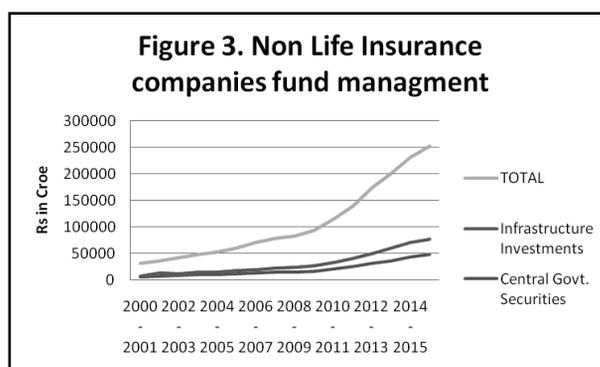
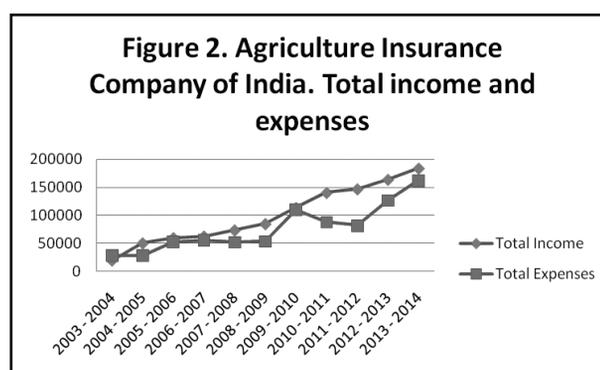
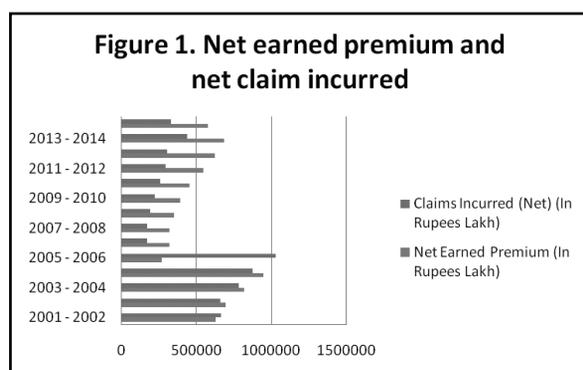
4. PRIVATE PROFIT AND PUBLIC LOSS

Technically, Indian agriculture has market potential for insurances. Private companies have made substantial progress in this area, and it is considered as a success from marketing perspective. Figure 1 explains the trend from 2001-2002 to 2014-2015; during these periods, the non-life insurance sector has grown substantially. Since 2001-2002 the net earned premium is higher than claims incurred. Figure 2 also supports the fact that there is an aggregate difference between income and expenses. The differences in the cash flow to insurance sector are considered as a positive element for the government since it flows to government securities and infrastructure investments. Figure 3 shows the trend of non-life insurance sector companies' investment in government securities and infrastructure sector. This is one of the key reasons for private sector involvement in the insurance sector, and the public impact of insurance sector privatisation. Table 3 is self explanatory in nature; it shows where these unpaid claim flows. It is adding up the capital stock of private sector.

Table 3. Number of holdings, operated area and average size of holdings – All Social Groups.

SL No	Size Groups	Operated Area (in 000)								
		1970-71	1976-77	1980-81	1985-86	1990-91	1995-96	2000-01	2005-06	2010-11
1	Marginal	14599	17509	19735	22042	24894	28121	29814	32026	35908
2	Small	19282	20905	23169	25708	28827	30722	32139	33101	35244
3	Semi-Medium	29999	32428	34645	36666	38375	38953	38193	37898	37705
4	Medium	48234	49628	48543	47144	44752	41398	38217	36583	33828
5	Large	50064	42873	37705	33002	28659	24160	21072	18715	16907
	All Sizes	162318	163343	163797	164562	165507	163355	159436	158323	159592

Source: www.indiastate.com



The evidence shows that crop insurance sector has also moved into a highly profiteering business. Unprecedented entry of private non-banking financial institutions in the crop insurance sector has, in fact, widened the capital base of private sector; however, it is a loss making investment for farmers. The manner in which private sector took benefit and has given up the basic concept of insurance itself, proved it. The schemes, which are referred in this paper, are crop insurance only and in principle these are essential for Indian farmers who are subject to risk on regular basis. For instance, the Pradhan Mantri Fasal Bima Yojna, which introduced weather based crop insurance scheme. It is quite useful for the farmers who live and cultivate in ecologically-sensitive and recurring disaster-occurring areas. However, the implementation of this

scheme is the responsibility of the State governments. Hence, it is directly proportional to the institutional support to agricultural sector. The implementation of agricultural insurance is possible only with the support of agricultural infrastructure support. It also connects with agricultural credit and capital formation in agriculture. The success of crop insurance is dependent on the extent of capital formation in the farming sector and effective use of resources. Indian farming sector is largely unorganized and the decisions are taken by the farmers themselves. Marginal and subsistence farmers are taking the decision of their own and are exposing themselves to risk at a higher rate than medium and large farmers.

Table 3 gives details of the position of marginal and small farmers in Indian agrarian economy. The table

52

shows that the total cropping area of marginal and small farmers are increasing over a period of time. It also shows that number of operational holdings of large farmers is decreasing. Hence, the food security of the country is dependent on the increasing operational holdings of marginal and small farmers. The two crop insurance schemes discussed in the paper give preference to marginal and small farmers in terms of premium payment. This needs to be discussed keeping in mind the fact that 75.66 percent of total crop area is not yet covered under any insurance scheme, and the original proposal of Rashtriya Krishi Bima Yojana wanted to phase off premium subsidy to marginal farmers within five years from its inception in 2006. It is not completed so far. The proposed Fasal Bima Yojna scheme is more on risk-based insurance, and it does not cover the operational challenges of small and marginal farmers. The scheme is critically silent on the risk associated with lack of infrastructure facilities such as water and minimum support price system. The unregulated participation of private insurance sector can convert the crop insurance into a profit making business, and it is possible only by not distributing the insurance claim i.e undistributed wealth/profit. The CES study and minister's statement in the Parliament proved that only a negligible number of farmers got benefitted and the companies made profit by not distributing the claim. It is possible in the country because farming is highly dependent on environmental risk and uncertainty. The risk and uncertainty gives more freedom for insurance companies to define the insurance product and take ownership on collected claim. No actions are initiated against these companies by the government. This is, in fact, a critical part of insurance sector privatization, and for public sector companies the money is still with the government for disposal. The premiums, which the farmers paid, are not considered as speculative investments. There is an expected utility of insurance premium and the cases prove that the expected utility is not being satisfied. The farmer who wants to put money in crop insurance is also expecting capital replacement after calamity; if no calamity in the year it would add into the surplus. Crop insurance by poor and marginal farmers expects a capital replacement. The farmers expect a certain amount of capital stock rather than flow in this context. Crop insurance is, in fact, a replacement of stock capital for poor and marginal farmers rather than flow. It is also an investment and expected capital formation; hence, for the poor farmers, crop insurance is a capital formation as well. The disparities in claim collected and distributed prove the fact that no replacement of capital and capital formation is happening at the ground level.

The loss is getting accumulated by non-payment of claims. It is cumulative loss to the farming community.

5. DISCUSSION AND CONCLUSION

It is true to state that Indian agriculture does not have a business model to try out. It is applicable to other countries as well, for instance Enjolras et al (2012) compared the crop insurance in Italy and France. It works under the European Common Agriculture Policy. In France government took over crop insurance after 1964 it is government initiated programme. In Italy the government constituted an agency for crop insurance in 1974. In Italy compensation is determined by the ministry of agriculture depends on the availability of funds. The study found that in relative terms French farmers benefit more from insurance than Italian farmers. Meuwissen et al (2003) analysed the impact of WTO policy on the European crop insurance sector. WTO policies have impacted in withdrawing the government funding in the agricultural insurance system. It suggests some form of an income insurance scheme to reduce the risk. The essential information this part shares is that there is a considerable change in the approach towards crop insurance in Europe as well. The core concern is the privatisation and challenges of public sector in engaging with crop insurance. Indian crop insurance is not different from the developed European countries.

India's farming is dependent on natural weather changes and not on market. Hence, predicting the prospect of agricultural production is an institutional project in India. Predicting agricultural risk is also associated with the institutional capability of the agencies. The accuracy of prediction is dependent on natural uncertainties. It is a move between natural risk and financial capabilities of both government and farmers themselves. The institutional structure of agricultural insurance agencies poses challenge for its own expansion. The poor and marginal farmers do not alter their farming to fit into the insurance agencies norms; hence, it is going to be long term struggle for them to get crop insurance covered. There should be an active policy level intervention by the government to ensure that the premium, which farmers pay, add into the agricultural capital stock. If not, the manner in which profiteering operates in this sector, would exclude many farmers from the livelihood dependent on agriculture. It has to be discussed in the context of the fact that gross capital formation in agriculture is also low.

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