



ISSN: 0976-3376

Available Online at <http://www.journalajst.com>

ASIAN JOURNAL OF
SCIENCE AND TECHNOLOGY

Asian Journal of Science and Technology
Vol. 6, Issue 04, pp. 1248-1263, April, 2015

RESEARCH ARTICLE

AGRICULTURAL DEBT WAIVERS AND DEBT RELIEF SCHEME – 2008: WHAT IMPACTS DOES THE PACKAGE HAVE ON RURAL TRANSFORMATION AND BENEFICIARY FARM HOUSEHOLDS' ECONOMY? (A FARM HOUSEHOLD LEVEL STUDY OF ANDHRA PRADESH AND MAHARASHTRA)

*Dr. Dnyandeo C. Talule

Department of Economics, Shivaji University, Kolhapur (MS), India

ARTICLE INFO

Article History:

Received 02nd January, 2015
Received in revised form
16th February, 2015
Accepted 20th March, 2015
Published online 30th April, 2015

Key words:

ADWDRS,
Debt Waivers,
Package,
Borrowing,
Repayments,
Over dues,
Loanee,
Crop Insurance,
Productivity,
Beneficiary,
Risk Mitigation.

ABSTRACT

Indian agriculture witnessed a flourishing and phenomenal success in crop yields and farm incomes during the green revolution. This was during the late 1970s and the 1980s. But during the 1990s, the agrarian distress caused by vulnerable yields and rural indebtedness happened to be the biggest challenge in India. Unending suffering of cultivators under the burden of rural indebtedness happened to be the biggest challenge. A large number of cultivators suffering under the debt and penury have committed suicides. No doubt that the plight is still unending. In order to arrest the increasing number of farm suicides, the government of India, in 2008, implemented the Agricultural Debt Waiver and Debt Relief Scheme (ADWDRS). Provision of the scheme was worked out to be INR 71,680 crore. The package was widely criticized to be a populist political measure proposed by the government, paying least regard to the root cause of the problem. Through the present study we attempt to analyze the impacts of the package on the beneficiary farm households in Andhra Pradesh and Maharashtra. Mainly from the farm households' point of view, the paper attempts to analyze the impacts of debt relief on investments, productivity, cropping pattern, access to irrigation, crop insurance, debt performance, credit composition and the immediate pre and post debt waivers demand and supply pattern of farm credit. Apart from the pre and post package debt composition of institutional vs. non-institutional credit, the history and post debt waivers credit repayment pattern are looked at as a proxy of the impact of debt waivers on the financial institutions. We carry out a survey of 366 debt relief recipient farm households from two districts each of Andhra Pradesh (Anantpur and West Godavari) and Maharashtra (Nanded and Nasik) state. In addition to this 10 farm households per district were interviewed as the control group. This group consisted of farmer households which had obtained bank loan but were not the recipients of the debt relief of 2008. These households being beneficiaries of the largest debt relief scheme of India the study brings out that the package couldn't have any positive impact on the farm yield levels and the net incomes received from cultivation. Viz-a-viz the debt waivers, apart from immediate farm credit swap could not improve the credit repayment behaviors which left banks with an option of moral hazard and adverse selection. Also the package does not improve investment or productivity climate of beneficiary households, but leads to a strong and persistent shift of borrowing from all available sources and purposes including non-formal and non-cultivation ones. The investigation further documents strong effect of debt relief on beliefs about the seniority of debt and the reputational consequences of default. The result from the entire exercise resonate with findings on personal bankruptcy and suggests that the arbitrary debt bailout programmes are of limited and immediate short term use in addressing problems of debt overhang, but have significant behavioral implications. Finally we dwell upon the possibility of the 'Nationwide Penetration of Crop Insurance', in the form of a policy debate i.e. the "Nationwide Crop insurance can it be the alternative to debt waivers?"

Copyright © 2015 Dr. Dnyandeo C. Talule. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Most of the Indian farmers belonging to all categories of land-holding need credit both for cultivation and agricultural investments. Also during the lean period and under unforeseen circumstances like drought mitigation they need credit for self-

consumption and maintaining the livestock. Many a time farmers have to borrow for managing earlier debts. Therefore an access to formal credit is an indispensable aspect for the farming community. Limited access to the institutional farm credit and low penetration (about 26 per cent) of agricultural insurance are underlying causes of persistent poverty in rural parts of the country (Townsend, 2006). This is true especially in the case of poor and predominantly agricultural economies like India, where bank credit is expected to serve the dual

*Corresponding author: Dr. Dnyandeo C. Talule
Department of Economics, Shivaji University, Kolhapur (MS), India

purpose of enabling productive investment and providing insurance against highly volatile income streams. However, in the Indian case the absence of sophisticated instrument to mitigate income risk, such as the insurance risk and future contracts, even farmers with initial access to institutional credit are found accumulating an extreme levels of debt (accruing to both the institutional and private agencies), factually excluding them from bank credit in future. This has resulted in about half of the (49 per cent) Indian farmers carrying cultivations with pending debt. In Indian case, generally the pending of farm debt is mainly on account of crop vagaries and low insurance penetration. Credit linked crop insurance launched in the 1970s has remained confined to about 24 per cent where the unit of application is the area and not the individual farmer. Low penetration of agricultural insurance coupled with frequent crop failures on many occasions leads to an accumulation of farm credit. This has its political repercussions on one hand. On the other low recovery of farm credit weakens the credit mechanism leaving the lending institutions with an option of moral hazards and adverse selection.

Potentially far-reaching macro-economic and political implications of extreme farm indebtedness have resulted into a range of large scale debt relief initiatives in the past. In India, during the period between 2000 and 2006, average household debt increased six-fold whereas in Mexico, annual increase in the outstanding consumer credit was 35 per cent and the same was more than doubled in Brazil (Fibelman, 2009). The recent farm credit waiver announced in the budget of 2008 for about Rs. 71 thousand crore was off-course not the first of its kind. Earlier India enacted a nationwide farm debt relief programme was in 1989 and the same was for US \$ 3 bn. The debt relief of 1989 was based on outstanding debt and was not based on the landholding criteria. The question that arises from such fiscal instruments is whether the credit waiver does actually benefit farmers or it is just a temporary relief to them and leaves the lending institutions with adverse selection in future. Therefore the post waiver response of farmers and the assessment of the impact of the same on these institutions need a careful scrutiny. Most often, the disciplined farmers those who are regular in repayment get excluded from the benefits of such schemes. Hence the post waiver trends of repayment and a surge in credit demand leaves banks with adverse selection.

With this context the paper attempts to focus on the comparison between the pre and post debt waiver pattern of farm credit demand and repayment patterns. And with this approach the impact of credit waiver both on banks and the farming economy benefitted by the package is attempted to assess. It is widely acclaimed that the benefit of such debt relief programmes are substantial. But their merit as an instrument to promote financial inclusion, investment and boost to agricultural productivity remains highly controversial. Contrary to this context, Mayers (1977) while building on theories of debt overhang and risk shifting argues that the extreme level of household debt distorts investment and production decisions so that the debt waiver holds the promise of productivity improvements. While commenting on the Agricultural and Rural Debt Relief Scheme – 1989 (ARDRS) Shailendra and Kartar Singh (1994) observed that the loan waiver schemes are bound to severely hamper the functioning

of credit institutions, as they did in Karnataka's co-operatives after 1989.

Scheme and the Guidelines of Implementation

The Scheme was to cover direct agricultural loans extended to 'marginal and small farmers' and 'other farmers' by Scheduled Commercial Banks, Regional Rural Banks, Cooperative Credit Institutions (including Urban Cooperative Banks) and Local Area Banks (hereinafter referred to compendiously as "lending institutions") as indicated in the Guidelines. The Scheme was expected to come into force with immediate effect.

Definitions

- '*Direct Agricultural Loans*' meant Short Term Production Loans and Investment Loans provided directly to farmers for agricultural purposes. This was also expected to include such loans provided directly to groups of individual farmers (for example Self Help Groups and Joint Liability Groups), provided banks maintain disaggregated (?) data of the loan extended to each farmer belonging to that category of group.
- '*Short Term Production Loans* were meant to be the loans that were disbursed in connection with the raising of crops which were to be repaid within 18 months. It included working capital loans, not exceeding Rs. 1 lakh, for traditional and non-traditional plantations and horticultural crops.
- '*Investment Loans* were categorized as (a) investment credit for direct agricultural activities extended for meeting outlays relating to the replacement and maintenance of wasting assets and for capital investment designed to increase the output from the land, such as the deepening of wells, sinking of new wells, installation of pump sets, purchase of tractor / pair of bullocks, land development and term loan for traditional and non-traditional plantations and horticulture; and (b) investment credit for allied activities extended for acquiring assets in respect of activities allied to agriculture e.g. dairy, poultry farming, goatery, sheep rearing, piggery, fisheries, beekeeping, green houses and biogas.
- '*Cooperative Credit Institution*' means a cooperative society that;
- provides short-term crop loans to farmers and was eligible for interest subvention from the Central Government; or ii) carries on banking activities regulated or supervised by RBI or NABARD; or iii) is part of the Short-Term Cooperative Credit Structure or Long-Term Cooperative Credit Structure in a State or Union Territory.
- Definitions of the Categories of Farmers / cultivators:
- *Marginal Farmer*: A farmer cultivating (as owner or tenant or sHa.re cropper) agricultural land up to 1 hectare (2.5 acres).
- *Small Farmer*: A farmer cultivating (as owner or tenant or share cropper) agricultural land of more than 1 hectare and up to 2 hectares (5 acres).
- *Other Farmer*: A farmer cultivating (as owner or tenant or share cropper) agricultural land of more than 2 hectares (more than 5 acres).

The Scheme was to cover direct agricultural loans extended to 'marginal and small farmers' and 'other farmers' by Scheduled

Commercial Banks, Regional Rural Banks, Cooperative Credit Institutions (including Urban Cooperative Banks) and Local Area Banks (hereinafter referred to compendiously as “lending institutions”) as indicated in the Guidelines.

MATERIALS AND METHODS

Entire analysis that forms the present paper is predominantly based on the primary data obtained from the sample ADWDRS – 2008 beneficiary farm households from two districts each of the states of Maharashtra and Andhra Pradesh respectively. These districts were Nasik and Nanded from Maharashtra and West Godavari and Anantpur from Andhra Pradesh. All these four districts from the two states were selected on the basis of the availability and an extent of irrigation cover. The primary information was obtained mainly through the household survey of beneficiary farmers’ households from these two states. Andhra Pradesh is a state which happens to be the largest beneficiary state of the debt waiver package whereas Maharashtra happens to be the agriculturally unique state in the country and also one of the severely affected states by farmers suicides. Most of the suicides in the state were due to the credit pendency on account of both the institutional and non-institutional sources (Parchure and Talule, 2012).

Sample Plan

As cleared in foregoing for the purpose of the collection of primary data two districts each from the state of Maharashtra and Andhra Pradesh were selected. While selecting the districts the basis was the availability and the extent of irrigation cover. 90 farmer households from each of the districts are covered for the purpose and thus in total the sample covered 180 farm households from each of the state (186 from Andhra Pradesh). Hence the total number of the sample beneficiary households belonging to four districts from two states is 366. In order to cover the farm credit delivery points one District Central Cooperative Bank (DCCB), one Commercial Bank (CB) and one Regional Rural Bank (RRB) were identified from each of the district of both the states. For this purpose the basis was the amount of debt waived under the ADWDRS – 2008 as well as the banks suggested by lead bank managers from the respective states or the NABARD officials. Further three (03) branches of each of these banks were selected. This was on the basis of the higher benefits received under the ADWDRS – 2008 or as suggested by the concerned bank higher authority.

Hence the selection of the concerned bank branches was based upon combination of two factors viz. the amount of the money received under the ADWDRS – 2008, as well as, the suggestions of bank officials. Therefore the selection of the bank branches had a strong and mutual base between the implementing banks and the study team which happened to be helpful in bringing a higher degree of accuracy in obtaining the data. List of beneficiaries available at the selected financial institutions was used as a source list to draw a sample of 30 farm households from each of the selected financial institution. In this way 90 farm households were surveyed from every selected district and the total of 180 farmers from each of the state were covered. In addition to this, 10 farm households per district were interviewed as the control group. This group consisted of the farmers’ households which had obtained bank loans but were not the recipients of the ADWDRS – 2008 (may be the regularly repaying households of loans, hence didn’t get the ADWDRS benefits). Also the officials from the financial institutions from the respective state were contacted in person. They were the branch managers, lead bank managers, chief officers of selected banks, etc. The attempt was also made to contact and interview the insurance officials to strengthen the understanding about different aspects of the problem related to farm credit and insurance.

Main Items of Observations

This being a multistage study about an enquiry into the socio economic issues of beneficiary farm households, banks and the government under the DWDRS-2008, the study team also intended to focus on the variables such as the sources of income of the households, sources of credit and proportion of institutional and non-institutional credit, the pattern and history of repayments, immediate pre and post ADWDRS-2008 farm credit demand and supply pattern and the insurance awareness of both the life and general insurance (i.e. the insurance of crops, cattle, livestock, etc.).

Profile of the Sample Debt Waiver Beneficiary Farm Households

Looking at the distribution of sample beneficiaries according to their caste categories, it emerges that in the state of Andhra Pradesh the beneficiaries belonging to SC category were maximum at about 46 per cent followed by those belonging to general categories, who were about 31 per cent. The percentage of OBC beneficiaries was about 19 per cent in Andhra Pradesh.

Table 1. Social Inclusion Status of the Debt Waivers Package-2008

Caste	Andhra Pradesh Total				Maharashtra				Aggregate of Andhra Pradesh and Maharashtra			
	Cooperatives	CBs	RRBs	Total	Cooperatives	CBs	RRBs	Total	Cooperatives	CBs	RRBs	Total
General	17	10	31	58	31	58	13	102	48	68	44	160
per cent	27.42	16.39	49.21	31.18	50.82	65.17	43.33	56.67	39.02	45.33	47.31	43.72
OBC	12	19	5	36	11	10	4	25	23	29	9	61
per cent	19.35	31.15	7.94	19.35	18.03	11.24	13.33	13.89	18.70	19.33	9.68	16.67
SC	33	27	25	85	3	3	4	11	37	30	29	96
per cent	53.23	44.26	39.68	45.70	6.56	3.37	13.33	6.11	30.08	20.00	31.18	26.23
ST		5	2	7	10	3	5	18	10	8	7	25
per cent	0.00	8.20	3.17	3.76	16.39	3.37	16.67	10.00	8.13	5.33	7.53	6.83
VJNT					5	15	4	24	5	15	4	24
per cent	0.00	0.00	0.00	0.00	8.20	16.85	13.33	13.33	4.07	10.00	4.30	6.56
Grand Total	62	61	63	186	61	89	30	180	123	150	93	366
per cent	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Field Study

Table 2. Holding Pattern of the Sample ADWDRS Beneficiary Farmers

Size of Holding	Andhra Pradesh				Maharashtra				Andhra Pradesh & Maharashtra Aggregate			
	Coop	CBs	RRBs	Total	Coop	CBs	RRBs	Total	Coop	CBs	RRBs	Total
Up to 1	17	15	16	48	9	13	12	34	26	28	28	82
per cent	27.42	24.59	25.40	25.81	14.75	14.61	40.00	18.89	21.14	18.67	30.11	22.40
1 to 2	23	29	39	91	12	21	6	39	35	50	45	130
per cent	37.10	47.54	61.90	48.92	19.67	23.60	20.00	21.67	28.46	33.33	48.39	35.52
2 to 5	12	12	7	31	26	42	7	75	38	54	14	106
per cent	19.35	19.67	11.11	16.67	42.62	47.19	23.33	41.67	30.89	36.00	15.05	28.96
5 to 10	7	4	1	12	11	8	3	22	18	12	4	34
per cent	11.29	6.56	1.59	6.45	18.03	8.99	10.00	12.22	14.63	8.00	4.30	9.29
> 10	1			1	3	4		7	4	4	0	8
per cent	1.61	0.00	0.00	0.54	4.92	4.49	0.00	3.89	3.25	2.67	0.00	2.19
Landless	2	1		3		1	2	3	2	2	2	6
per cent	3.23	1.64	0.00	1.61	0.00	1.12	6.67	1.67	1.63	1.33	2.15	1.64
Total	62	61	63	186	61	89	30	180	123	150	93	366
per cent	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Field Study

Table 3. Land Use Pattern of the Sample ADWDRS Beneficiary Farmers

Pattern	Andhra Pradesh				Maharashtra				Andhra Pradesh & Maharashtra Aggregate			
	Coop	CBs	RRBs	Total	Coop	CBs	RRBs	Total	Coop	CBs	RRBs	Total
1 Irrigated Land	51	6	52	109	41	78	14	133	92	84	66	242
per cent	82.26	9.84	82.54	58.60	67.21	87.64	46.67	73.89	74.80	56.00	70.97	66.12
2 Land Leased in	1		10	11			3	3	1	0	13	14
per cent	1.61	0.00	15.87	5.91	0.00	0.00	10.00	1.67	0.81	0.00	13.98	3.83
3 Land Leased Out			3	3	4		0	4	4	0	3	7
per cent	0.00	0.00	4.76	1.61	6.56	0.00	0.00	2.22	3.25	0.00	3.23	1.91
*Base	62	61	63	186	61	89	30	180	123	150	93	366

Source: Field Study

*Base = The Number of cases reporting Irrigation Availability.

However the ST beneficiaries were found to be less than 4 per cent among the sample households. A slightly different trend is observed in Maharashtra sample. In case of Maharashtra and in total sample, the proportion of beneficiaries belonging to general category is about 57 and 44 per cent respectively. SC, ST and OBC beneficiaries in Maharashtra sample were in the range of 13 to 16 per cent. In the total sample, however the group of SC beneficiaries was second largest group consisting of 26.23 per cent beneficiaries. The comparative analysis for the sample ADWDRS-2008 beneficiary farmers for Andhra Pradesh and Maharashtra presented in the table 2 points out that as the size of holding for these farmers increases, their proportion for both the states initially increases and it declines when the size of holding reaches beyond the medium size of the land (i.e. between 05 and 10 ha.).

For both the states the proportion of beneficiaries of the sample ADWDRS farmers and the size of holding bare positive relation at the initial stage and then becomes inverse when the land holding enters the phase of medium size of the land. This is indicative that most of the farmers from the marginal and the small group of holders are more dependent on the debt borrowings for their agricultural operations and also for investments. Therefore any eventuality in cultivation can push them into an adverse economic condition. This is the category of farmers that needs to be protected from adverse cultivation conditions. These protections may be in the form of crop, life, cattle and general insurance and the rural and agricultural investments by the government. Such farmers need protection either through the compulsory, crop specific or through the part sponsorship of insurance premium payments by the government. About the size of holding the proportion of the sample beneficiaries from Andhra Pradesh shows that it

is 25.8 for the holding up to 01 ha and 48.92 per cent for the holding up to 02 ha. It declines to 16.67 per cent for the category of holding up to 05 hectare. For the holding pattern of 10 ha, the proportion of the ADWDRS beneficiaries declines to 00.54 per cent. The case of the state of Maharashtra is similar to that of Andhra Pradesh. As for the size group of holding of up to 01 hectare the proportion of sample ADWDRS beneficiaries from both the states is 30.11 per cent and as the size of holding increases to 02 and 05 hectares the proportion of beneficiaries becomes 21.67 per cent for Maharashtra and 48.92 per cent for Andhra Pradesh. In case of the control group, evidently it emerges from the inferences about the pattern of holding and the proportion of the sample ADWDRS beneficiaries that relatively the size of holding of the farmers from Maharashtra is greater than their counterparts from Andhra Pradesh. For this category when the proportion of the farmers from Andhra Pradesh is 44.44 per cent for the holding size up to 01 ha. for the same category it is 11.76 per cent in Maharashtra and is nil for the holding size of up to 02 ha. It increases to 29.41 per cent for the higher size of holding of up to 05 ha. Subsequently it increases to 41 per cent for the higher size of holding i.e. up to 10 ha and becomes 17.65 per cent for the size exceeding 10 hectares.

Inferences on land use pattern by the sample farmers from both the states of Andhra Pradesh and Maharashtra as per the lending institutions is presented in table 3. It shows that of the total sample ADWDRS farmers from Andhra Pradesh, 109 have irrigation cover which is about 58.60 per cent. 11 farmers were cultivating on leased in land whereas 3 farmers have leased it out. Inference for Maharashtra shows that in all 133 sample ADWDRS farmers have the irrigation covers available for their lands.

Table 4. Sources of Irrigation Available for the Sample ADWDRS-2008 Farmers

Source	No. of Households			Source	Percentage of Households		
	Andhra Pradesh	Maharashtra	Total		Andhra Pradesh	Maharashtra	Total
	Groundwater				Groundwater		
Well	1	106	107	Well	0.92	79.70	44.21
Tube well	32	35	67	Tube well	29.36	26.32	27.69
	Surface Water				Surface Water		
Tank	1	2	3	Tank	0.92	1.50	1.24
Canal	48	14	62	Canal	44.04	10.53	25.62
River Stream		9	9	River Stream	0.00	6.77	3.72
Other	46		46	Other	42.20	0.00	19.01
Base*	109	133	242	Base*	109	133	242

Source: Field Study

*Base = The Number of cases reporting Irrigation Availability.

Table 5. Problems of Irrigation faced by the Sample ADWDRS-2008 Beneficiary Farmers

Problems	Andhra Pradesh				Maharashtra			Andhra Pradesh & Maharashtra Aggregate				
	Coop	CBs	RRBs	Total	Coop	CBs	RRBs	Total	Coop	CBs	RRBs	Total
Canal timing						1		1	0	1	0	1
Per cent	0.00	0.00	0.00	0.00	0.00	1.28	0.00	0.75	0.00	1.19	0.00	0.41
Capital	9	2	4	15					9	2	4	15
Per cent	17.65	33.33	7.69	13.76	0.00	0.00	0.00	0.00	9.78	2.38	6.06	6.20
Load Shedding	25		19	44	22	48		70	47	48	19	114
Per cent	49.02	0.00	36.54	40.37	53.66	61.54	0.00	52.63	51.09	57.14	28.79	47.11
No Problem						1		1	0	1	0	1
Per cent	0.00	0.00	0.00	0.00	0.00	1.28	0.00	0.75	0.00	1.19	0.00	0.41
Pipeline					3	1		4	3	1	0	4
Per cent	0.00	0.00	0.00	0.00	7.32	1.28	0.00	3.01	3.26	1.19	0.00	1.65
Provide drip					1			1	1	0	0	1
Per cent	0.00	0.00	0.00	0.00	2.44	0.00	0.00	0.75	1.09	0.00	0.00	0.41
Weak Source	25	5	40	70	3	9		12	28	14	40	82
Per cent	49.02	83.33	76.92	64.22	7.32	11.54	0.00	9.02	30.43	16.67	60.61	33.88
Base*	51	6	52	109	41	78	14	133	92	84	66	242

Source: Field Study

*Base = The Number of cases reporting Irrigation Availability.

Three farmers from the sample have leased out their land and 04 are cultivating on leased in land. For the control group there happened to be 09 farmers having irrigation cover. Three have leased in while only one farmer from this category has resorted to leasing out the land. Overall availability of irrigation cover to the sample beneficiary farmers is limited to about 66 per cent. This is indicative that the substantial proportion of farmers is dependent on vagaries of monsoon for their crop cultivation. For about three fourth (71.90 per cent) of the sample households, irrigation cover comes through groundwater which is dependent on the household level private investment and the maintenance expenditure. Mainly the use of groundwater consists of irrigation through wells and tube wells. Investment on tube wells is highly expensive and most often it goes beyond the reach of an average farmer. Investment required for tube well infrastructure is more than rupees two lakh.

Out of the total sample beneficiary households 109 from Andhra Pradesh and 133 of them from Maharashtra have the availability of irrigation facilities. They use both the ground water through wells and tube wells and surface water of canal and river stream for irrigating their crops. For the control group farmers in all 9 from Andhra Pradesh and 17 from Maharashtra have the access to irrigation. Most of the ADWDRS sample beneficiary farmers from Maharashtra used groundwater as a source of irrigation whereas the proportion of such farmers from Andhra Pradesh having canal irrigation stands at 44.04 per cent. The 29.36 per cent of the sample farmers from Andhra Pradesh tap groundwater through tube

wells which is costlier than any other mode of using groundwater. Inferences to the problems and sources of irrigation provided in the in tables (3 & 4) reveal that the penetration of irrigation is unsatisfactory and below the national average. The data in the above table (5) reveal that the farmers face various difficulties in creating and maintaining their irrigation infrastructure. Difficulties in managing irrigation infrastructure push them to the low yield conditions and thereby accumulation of debt. It is clear that the sample ADWDRS farmers of Andhra Pradesh do not have an access to canal irrigation but the farmers who have canal irrigation also have to face the problems like untimely canal rotations. Those who want to create their own source of irrigation have to face problem of capital investment. Even though the irrigation infrastructure is ready; the power cut off (load shedding) is a major problem during the peak agricultural season.

In such cases, irrigation infrastructure such as the wells, pump sets and pipelines is available, there is water in the wells but having no uninterrupted supply of electricity available, the farmers cannot operate this infrastructure. This is the case for the sample ADWDRS farmers from both the states of which the proportion is 40.37 per cent for Andhra Pradesh and 52.63 per cent for the Maharashtra. There is not even a single farmer sample ADWDRS farmer from Andhra Pradesh who does not report that there is no problem in the irrigation whereas the same is true for Maharashtra. For 33.88 per cent of the sample ADWDRS farmers the source of irrigation available is very weak and the same cannot be helpful in augmenting their crop

yields and ensure the timely debt repayment. The irrigation problems faced by the control group farmers from both the states also have the same grievances like their ADWDRS counterparts. The average proportion that emerges for two states for control group farmers who have these problems is as; capital (03.85 per cent), load shedding (50.00 per cent) and the weak source of irrigation (38.46 per cent) respectively. The state specific proportion for the control group regarding the irrigation problems show that there happen to be 11.11, 77.78 and 66.67 per cent of the farmers from Andhra Pradesh who have the problems of capital, load shedding and the weak source of irrigation respectively whereas for Maharashtra 35.29 per cent of the ADWDRS farmers face the problem of load shedding and another set of 23.53 per cent have to face the problem of weak source of irrigation.

RESULTS AND DISCUSSION

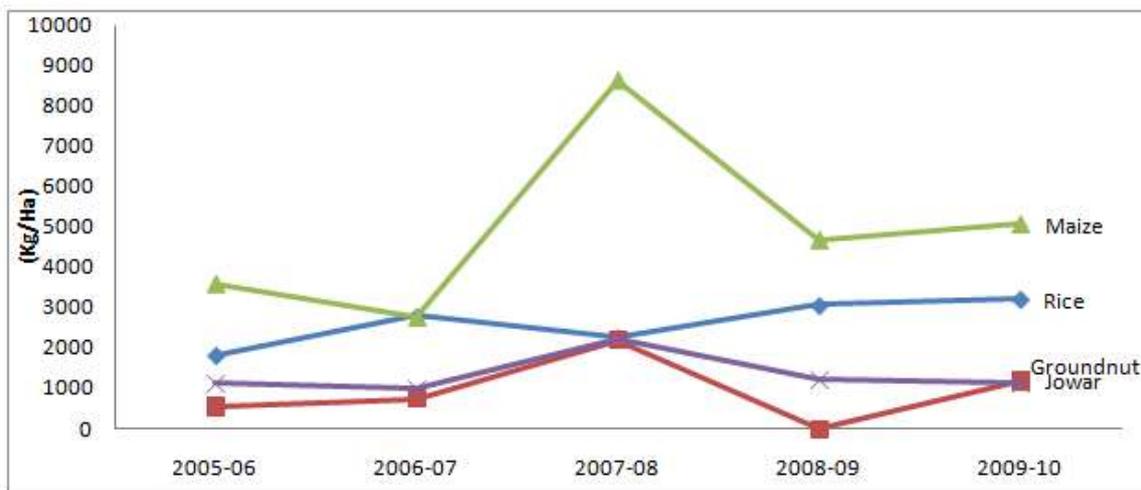
In pursuance of the announcement by the government of India the debt waivers for farmers in 2008 and issuance of the government of India guidelines, the Ministry of Finance identified NABARD as the nodal agency to oversee the implementation of the scheme relating to Cooperative Credit, Commercial Banks and the RRBs. The government of India guidelines and the subsequent clarification received from the GoI, were forwarded to all Cooperative, Commercial and the Regional Rural Banks by the NABARD through its ROs with instructions to initiate the process of preparation of the lists of small and marginal cultivators as well as other farmers eligible under the package. On 02.06.2008 all nodal officers were briefed on the issues concerning the implementation of the package. Also the ROs were instructed to complete the implementation within the schedule date i.e. 30.06.2008, so that the fresh loans could be issued to all eligible farmers. In order to have a speed and accuracy in implementation, a control room was also set up at the NABARD head office to oversee the implementation on a day-to-day basis and giving feedback to the Government of India accordingly. Further, CEOs of the State Cooperative Banks and CEOs of State Cooperative Agriculture and Rural Development Banks were appraised to firm up the modalities of the relief package under the ADWDRS – 2008.

Meanwhile the NABARD also formulated a draft of guidelines in respect of the ADWDRS – 2008. While it was a welcome move which was expected to open up the lines of credit from the banks for millions of Indian farmers, it was devolving a great responsibility on the NABARD combined with the immediate concern as to how to handle the expected spurt in farm credit demand at the ground level leading to liquidity concerns. In order to address the issue of maintaining the spurt in the post waiver farm credit demand the NABARD emphasized to initiate steps for augmenting the resources of Cooperatives and the RRBs. For this the enhanced refinance and liquidity support, arrangements were made by the NABARD. In this context, the announcement of Rs. 5000=00 crore funds for NABARD to augment its resources for the purpose was most opportune because the scheme was required to be implemented expeditiously and all eligible debt waivers were supposed to be provided latest by 30.06.2008.

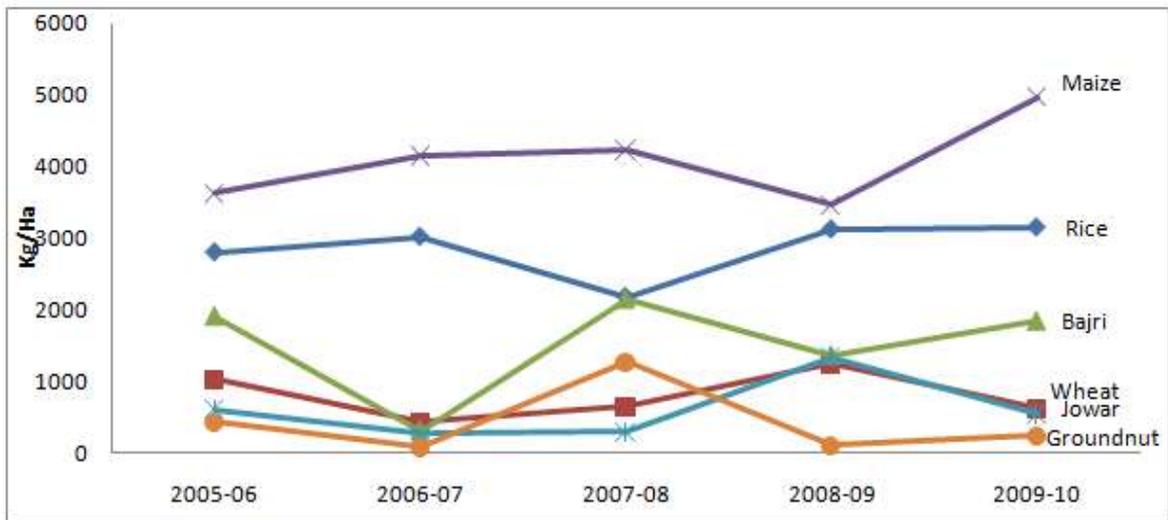
About the Productivity and Cropping Pattern

Yield Dimensions of Major Crops from Study Districts

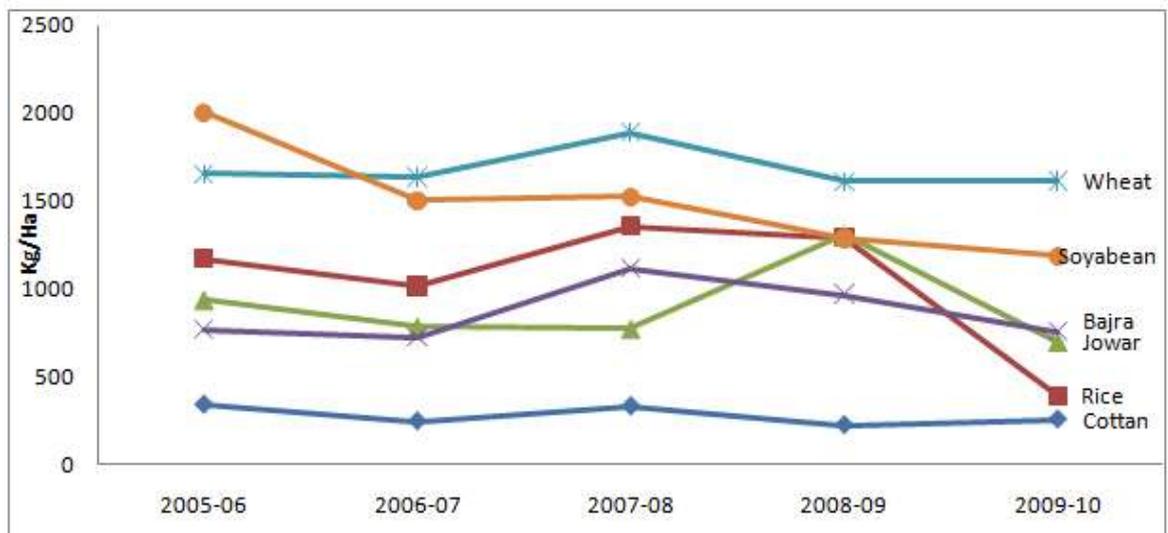
Main purpose of the debt waiver package was to clear unpaid bank credit pending on farmers' accounts and restoring back both the farmers and bankers to their credit and financing ability. It is true that the farmers from both the states have brought in some amount of change in their cropping pattern, but during the group discussions when asked specifically to respond about the productivity improvements, mostly the response was blanket negative. Therefore through primary data it was difficult to capture the impact of the package on productivity through. Hence to understand the change in productivity as a result of the package, secondary data for over a period of five years for the study districts from both the states was used. The productivity trend for major crops cultivated in all the study districts is shown in the subsequent graphs (viz. 1, 2, 3, 4 & 5). Also the all India trends of yield levels for different category of crops for the period of 2001 to 2010 emerge from the graphs 6, 7, 8, 9, 10, 11 and 12. This covers both the pre and post debt waivers periods. Both in case of the trends for study districts as well as all India level it is clear that the package has not resulted in any considerable improvements in productivity of major crops cultivated in all four study districts and at the national level.



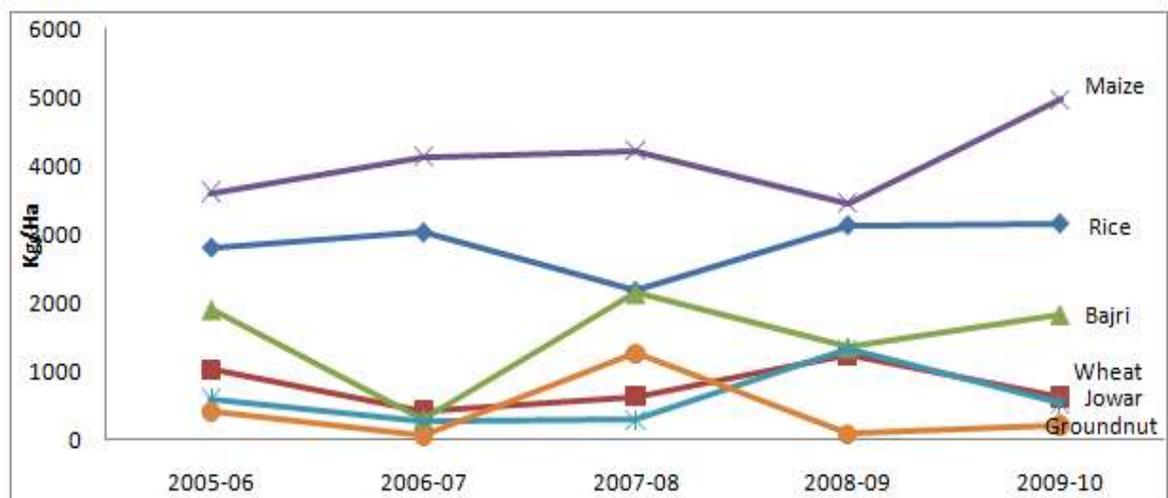
Source: Season and crop Reports for years, Directorate of Economics and Statistics, Government of Andhra Pradesh.
Graph 1. Productivity levels of the Major Crops in West Godavari District (AP) (Kg/Ha)



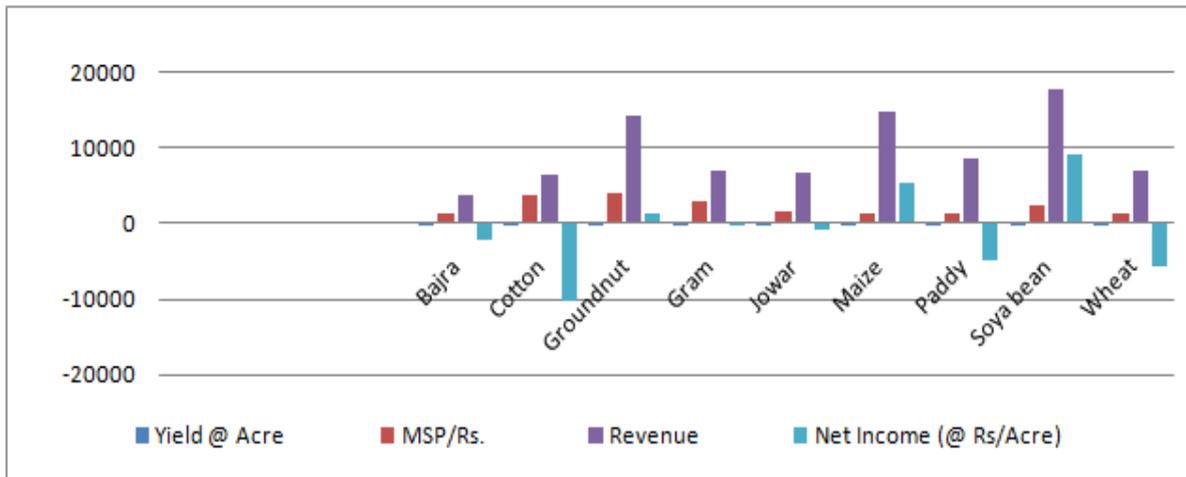
Source: Season and crop Reports for years, Directorate of Economics and Statistics, Government of Andhra Pradesh
Graph 2. Productivity levels of the Major Crops in Anantpur District (AP) (Kg/Ha)



Source: Area, Production and Yield data for years, Commissioner of Agriculture, Government of Maharashtra, Pune
Graph 3. Productivity levels of the Major Crops in Nasik (MH) District (Kg/Ha)



Source: Area, Production and Yield data for years, Commissioner of Agriculture, Government of Maharashtra, Pune
Graph 4. Productivity levels of the Major Crops in Nanded District (MH) (Kg/Ha)

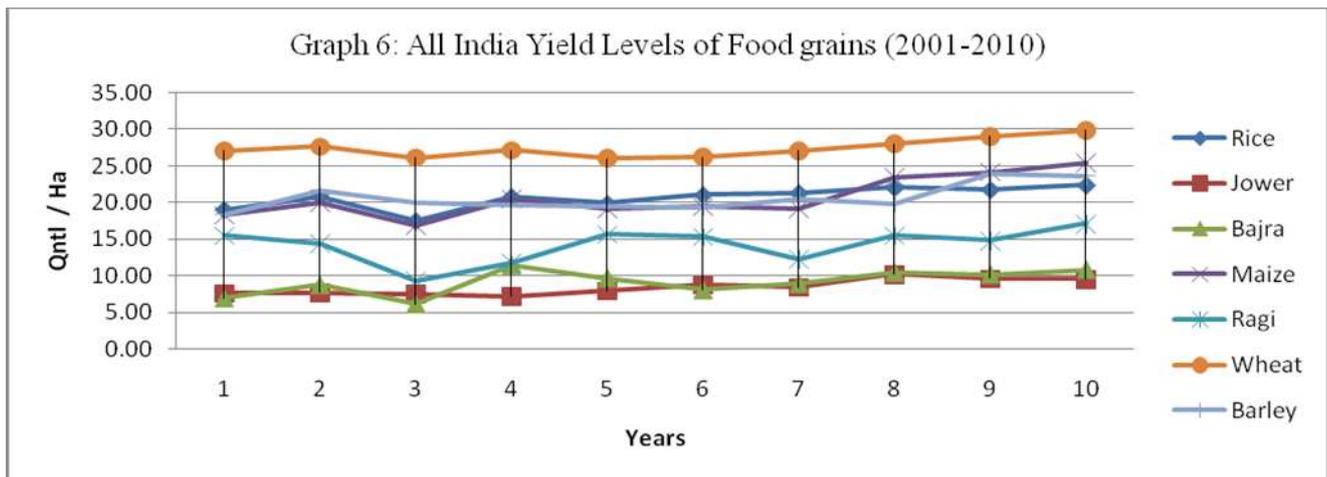


Source: Field Study

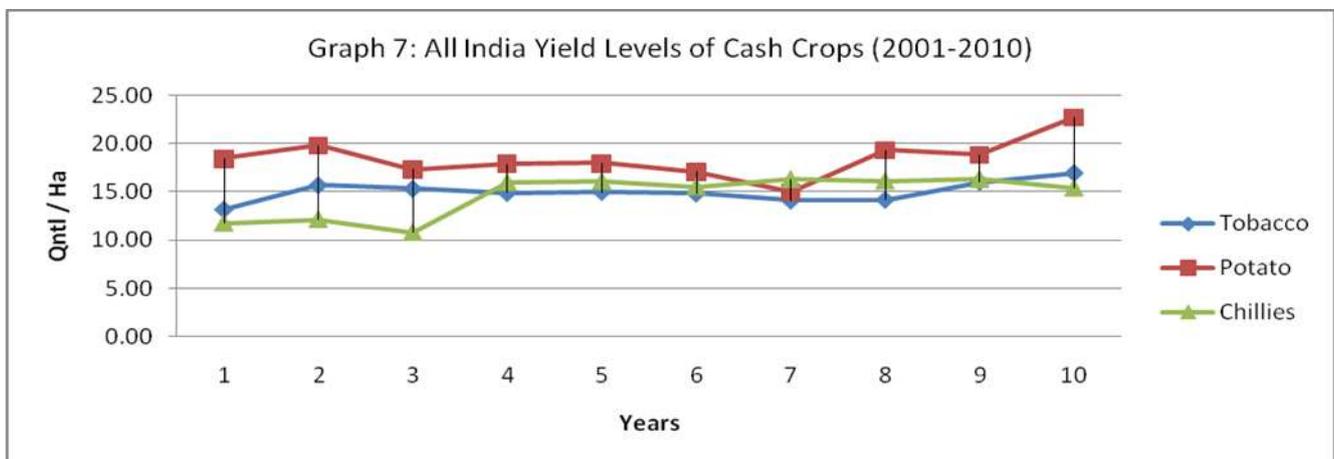
Notes:

- Per Acre Yield calculations are based on field data while the MSP and Cost of Cultivation are based on CACP-2013-14.
- Cost of Cultivation is Cost 'C2' which is exclusive of Marketing, Transportation Costs and the Insurance Charges

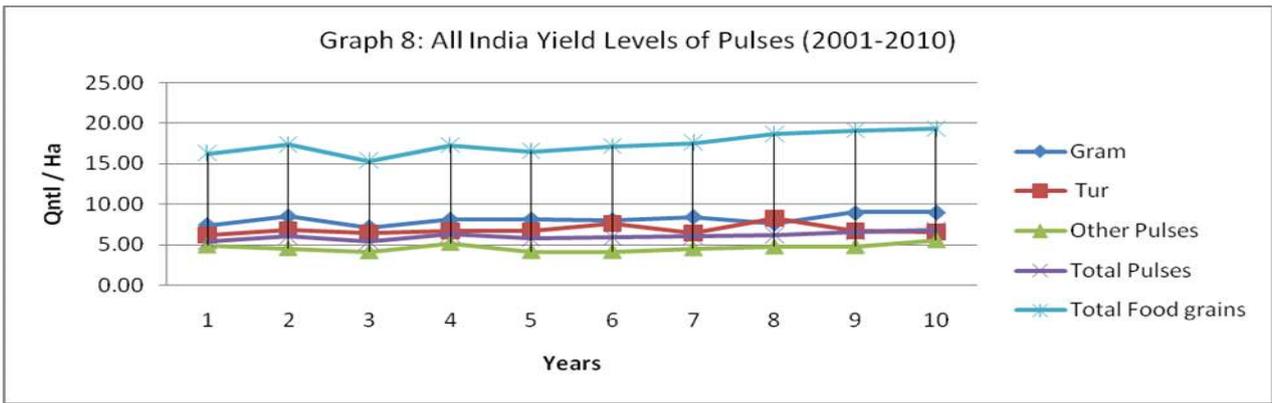
Graph 5. Yield, Per Acre Cost of Cultivation, Revenue and Net Income Received by the Package Recipient Farmers from the Cultivation of Major Crops (At MSP & Cost 'C2' of CACP-2013-14)



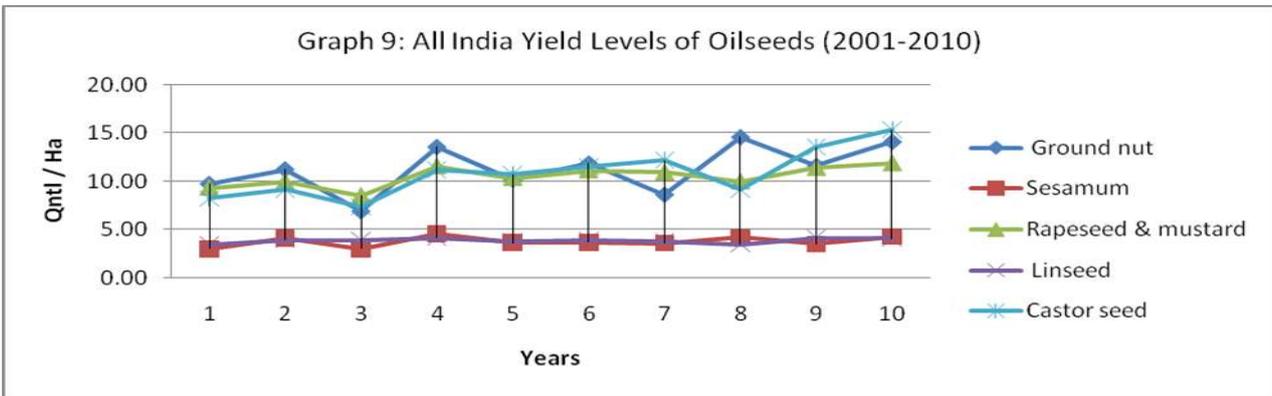
Source: www//data.gov in, Ref: Annex Table 3.



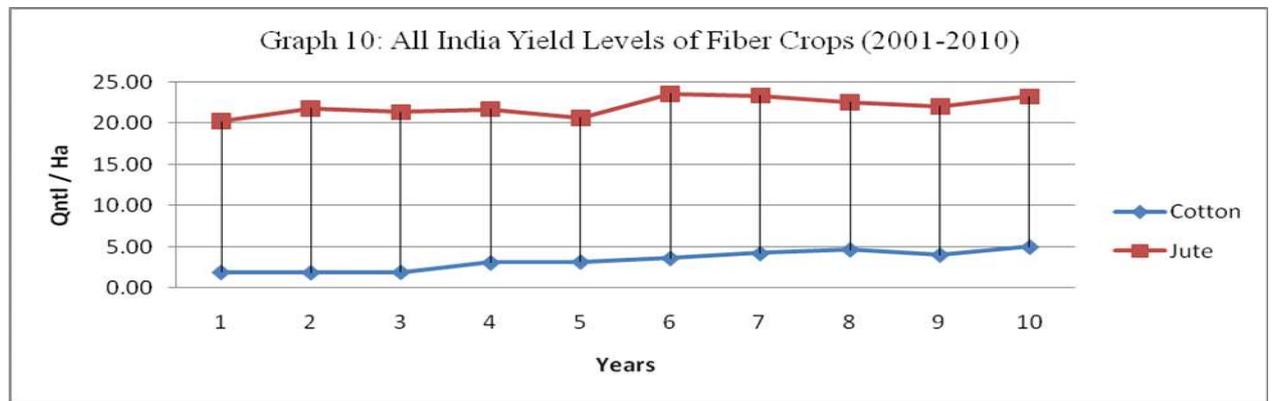
Source: www//data.gov.in, Ref: Annex Table 4.



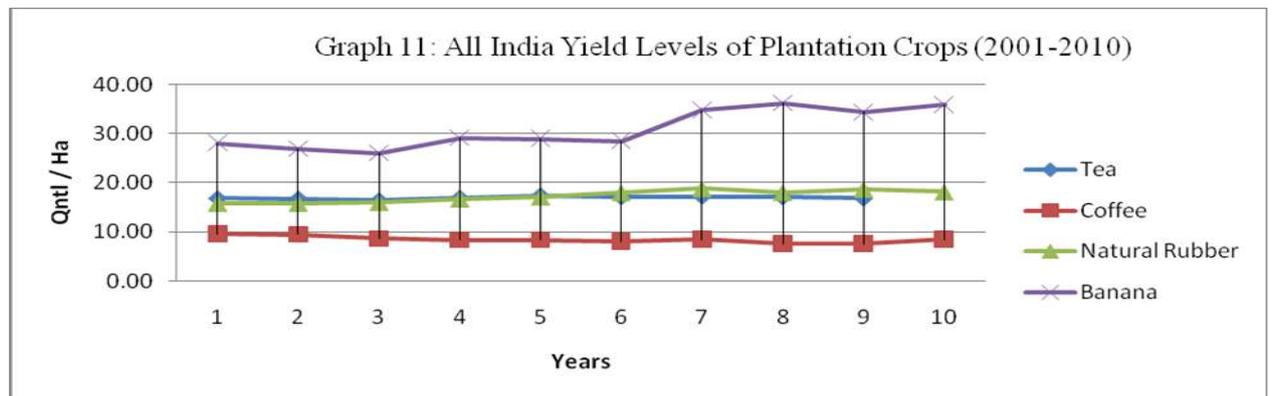
Source: www//data.gov.in, Ref: Annex Table 5.



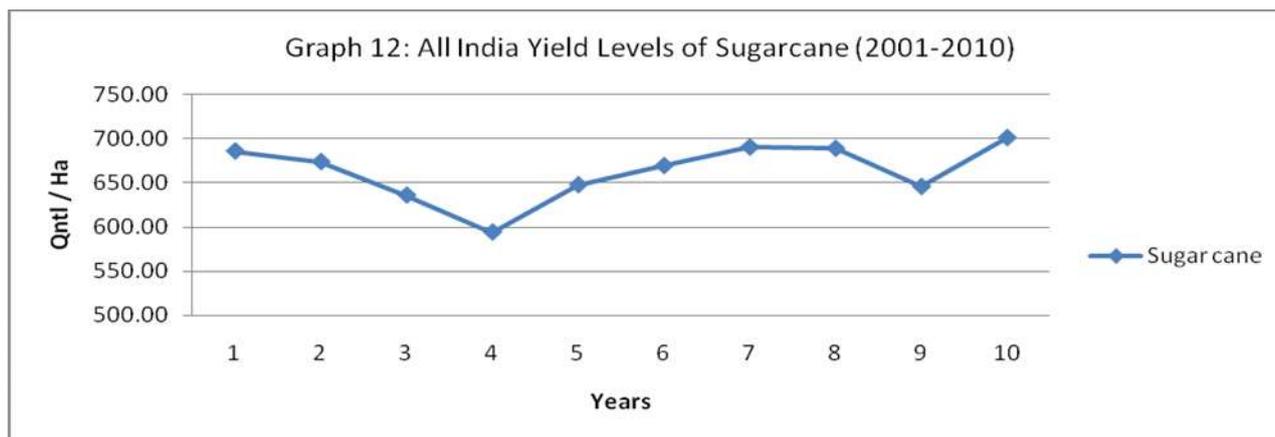
Source: www//data.gov.in, Ref: Annex Table 6.



Source: www//data.gov.in, Ref: Annex Table 7.



Source: www//data.gov.in, Ref: Annex Table 8.



Source: www//data.gov.in, Ref: Annex Table 9.

Table 6. Post Package Change in Cropping Pattern Introduced by the Beneficiary Farmers

Response	Andhra Pradesh				Maharashtra				Andhra Pradesh & Maharashtra Aggregate			
	Coop	CBs	RRBs	Total	Coop	CBs	RRBs	Total	Coop	CBs	RRBs	Total
YES	23	6	31	60	31	54	9	85	54	60	40	154
per cent	37.10	9.84	49.21	32.26	50.82	60.67	30.00	47.22	43.90	40.00	43.01	42.08
No	39	55	32	126	30	31	20	90	69	86	52	207
per cent	62.90	90.16	50.79	67.74	49.18	34.83	66.67	50.00	56.10	57.33	55.91	56.56
No Response						4	1	5	0	4	1	5
per cent	0.00	0.00	0.00	0.00	0.00	4.49	3.33	2.78	0.00	2.67	1.08	1.37
Grand Total	62	61	63	186	61	89	30	180	123	150	93	366

Source: Field Study.

Crop wise average per acre production of the farm households for study districts was considered for calculating net per acre returns from cultivation. Apart from getting per acre net positive income for cultivating the crops like Groundnut (Rs. 1335.44), Maize (Rs. 5360.36) and Soya beans (Rs. 9117.79) all other crops are cultivated at net negative income. When crop-wise per acre revenue as per the MSPs of 2013-14 are compared to the CACP's corresponding 'C2' (cost of cultivation), the net negative returns received by the sample ADWDRS farmers for cultivation were as; Bajra Rs. -2269.40-, Cotton - 10312.34, Gram Rs. - 128.40, Jowar - 725.17, Paddy Rs. - 4850.03 and for Wheat Rs. - 5755.60 respectively. Since the package could not bring any improvement in crop productivity it also could not result in bringing any significant change in the levels of revenue and net farm incomes.

All India Yield Dimensions for Different Category of Crops During Pre and Post Debt Waivers

The aggregate average for the change in cropping pattern after the ADWDRS-2008 that was reported by the sample beneficiaries for Andhra Pradesh is 32.26 percent and the same for Maharashtra it is 47.22 per cent. The state specific proportion of the sample beneficiary farmers who could not introduce any change in cropping pattern after they received the package benefits is 67.74 per cent in Andhra Pradesh and 50 per cent in the state of Maharashtra respectively. The state specific credit institution wise disaggregated proportion about the change in cropping pattern shows that it was 37.10, 49.21 and 9.98 per cent for the Cooperatives, RRBs. and the Commercial Banks from Andhra Pradesh and the same for Maharashtra it was 50.82, 30 and 60.67 per cent respectively. Overall combine proportion of these farmers from both the

states who have introduced some change in their cropping pattern after they received package benefits is limited to about 42.08 per cent. Data furnished in above two tables (7 and 8) bring out the total number and proportion of hectareage under the different crops for the sample ADWDRS farmers those who have reported the post ADWDRS change in cropping pattern. This is indicative of the post ADWDRS cropping pattern practiced by the beneficiary farmers and the relative significance of crops in their cropping pattern. The proportion of hectareage under different crops during this period bring out that Groundnut (46.30%) and Paddy (35.4%) are the major crops cultivated by Andhra Pradesh farmers whereas the post ADWDRS crop spread of Maharashtra shows that Cotton (17.48%), Soya beans (17.44%), Maize (11.76%) and Horticultural crops (10.84%) are predominantly cultivated crops.

Borrowing and Repayment Related Aspects

This section of the analysis attempts to evaluate the impacts of the package on the beneficiary farmers' households. The analysis is based on the field level primary data which was obtained from the sample ADWDRS beneficiary viz- a -viz the non-beneficiary control group farmers from Andhra Pradesh and Maharashtra. Particularly the data are related to the number of times of borrowing by these farmers, reason wise details of borrowings and the pattern of repayment and overdue, source wise borrowing, repayment and overdue, the use of credit money which farmers could save due to the ADWDRS, total amounts of borrowing, repayment and debt waiver and the opinion of both the group of farmers about demoralization on account of the schemes like debt waivers. The evaluation of all this information gathered from the field study has also helped in bringing out the impacts of the debt

Table 7. Crop Specific Change in Cropping Pattern Package (Area / Ha.)

Crops	Andhra Pradesh				Maharashtra				Grand Total			
	Co-Op	CBs	RRBs	Total	Co-Op	CBs	RRBs	Total	Co-Op	CBs	RRBs	Total
Bajra	0.4	0	0	0.4	6.6	7.91	0	14.51	7	7.91	0	14.91
Cotton	7.6	3.4	1.8	12.8	23.63	57.9	13.59	95.12	31.23	61.3	15.39	107.92
Fodder	0	0	2	2	3	3.6	2	8.6	3	3.6	4	10.6
Groundnut	48.04	92.51	43.38	183.93	0.4	6.8	0	7.2	48.44	99.31	43.38	191.13
Gram	1.6	0	0	1.6	12.05	14.2	3.5	29.75	13.65	14.2	3.5	31.35
Horticulture	3.7	1.2	5.4	10.3	8.82	49.35	0.8	58.97	12.52	50.55	6.2	69.27
Jowar	0.6	0	0.4	1	7.7	18.65	8	34.35	8.3	18.65	8.4	35.35
Maize	20.52	0	2.4	22.92	37.41	26.62	0	64.03	57.93	26.62	2.4	86.95
Mung	0	0	0	0	1.2	0.6	0.8	2.6	1.2	0.6	0.8	2.6
Millets	0	0	0	0	3.7	0	0	3.7	3.7	0	0	3.7
Other	1.86	0	5.8	7.66	4.2	0.8	0.8	5.8	6.06	0.8	6.6	13.46
Paddy	49.59	0	91.06	140.65	7.15	1.8	0	8.95	56.74	1.8	91.06	149.6
Soya beans	0	0	0	0	23.92	42.36	28.65	94.93	23.92	42.36	28.65	94.93
Sugarcane	0	0	10.8	10.8	4.2	8.2	5.2	17.6	4.2	8.2	16	28.4
Turmeric	0	0	0	0	0.64	4.6	0.4	5.64	0.64	4.6	0.4	5.64
Arhar	0	0	0	0	3	3.2	1.3	7.5	3	3.2	1.3	7.5
Urad	0	0	0	0	0.8	1.1	1.2	3.1	0.8	1.1	1.2	3.1
Vegetables	3.2	0	0	3.2	24.36	25.7	1.54	51.6	27.56	25.7	1.54	54.8
Wheat	0	0	0	0	8.4	20.5	1.4	30.3	8.4	20.5	1.4	30.3
GCA*	137.11	97.11	163.04	397.26	181.18	293.89	69.18	544.25	318.29	391	232.22	941.51

Source: Field Study, *GCA = Gross Cropped Area.

Table 8. Crop Specific Change in Cropping Pattern after Package (Area / %)

Crops	Andhra Pradesh				Maharashtra				Grand Total			
	Co-Op	CBs	RRBs	Total	Co-Op	CBs	RRBs	Total	Co-Op	CBs	RRBs	Total
Bajra	0.29	0.00	0.00	0.10	3.64	2.69	0.00	2.67	2.20	2.02	0.00	1.58
Cotton	5.54	3.50	1.10	3.22	13.04	19.70	19.64	17.48	9.81	15.68	6.63	11.46
Fodder	0.00	0.00	1.23	0.50	1.66	1.22	2.89	1.58	0.94	0.92	1.72	1.13
Groundnut	35.04	95.26	26.61	46.30	0.22	2.31	0.00	1.32	15.22	25.40	18.68	20.30
Gram	1.17	0.00	0.00	0.40	6.65	4.83	5.06	5.47	4.29	3.63	1.51	3.33
Horticulture	2.70	1.24	3.31	2.59	4.87	16.79	1.16	10.84	3.93	12.93	2.67	7.36
Jowar	0.44	0.00	0.25	0.25	4.25	6.35	11.56	6.31	2.61	4.77	3.62	3.75
Maize	14.97	0.00	1.47	5.77	20.65	9.06	0.00	11.76	18.20	6.81	1.03	9.24
Mung	0.00	0.00	0.00	0.00	0.66	0.20	1.16	0.48	0.38	0.15	0.34	0.28
Millets	0.00	0.00	0.00	0.00	2.04	0.00	0.00	0.68	1.16	0.00	0.00	0.39
Other	1.36	0.00	3.56	1.93	2.32	0.27	1.16	1.07	1.90	0.20	2.84	1.43
Paddy	36.17	0.00	55.85	35.41	3.95	0.61	0.00	1.64	17.83	0.46	39.21	15.89
Soya beans	0.00	0.00	0.00	0.00	13.20	14.41	41.41	17.44	7.52	10.83	12.34	10.08
Sugarcane	0.00	0.00	6.62	2.72	2.32	2.79	7.52	3.23	1.32	2.10	6.89	3.02
Turmeric	0.00	0.00	0.00	0.00	0.35	1.57	0.58	1.04	0.20	1.18	0.17	0.60
Arhar	0.00	0.00	0.00	0.00	1.66	1.09	1.88	1.38	0.94	0.82	0.56	0.80
Urad	0.00	0.00	0.00	0.00	0.44	0.37	1.73	0.57	0.25	0.28	0.52	0.33
Vegetables	2.33	0.00	0.00	0.81	13.45	8.74	2.23	9.48	8.66	6.57	0.66	5.82
Wheat	0.00	0.00	0.00	0.00	4.64	6.98	2.02	5.57	2.64	5.24	0.60	3.22
GCA	100	100	100	100	100	100	100	100	100	100	100	100

Source: Field Study, *GCA = Gross Cropped Area.

Table 9. Post Package Borrowing by Beneficiary Households

Yes/No	Andhra Pradesh				Maharashtra				Total			
	Co-Op	CBs	RRBs	Total	Co-Op	CBs	RRBs	Total	Co-Op	CBs	RRBs	Total
Yes	56	32	59	147	52	86	30	168	108	118	89	315
%	90.32	52.46	93.65	79.03	85.25	96.63	100.00	93.33	87.80	78.67	95.70	86.07
No	6	29	4	39	9	3	0	12	15	32	4	51
%	9.68	47.54	6.35	20.97	14.75	3.37	0.00	6.67	12.20	21.33	4.30	13.93
Grand Total	62	61	63	186	61	89	30	180	123	150	93	366
%	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Field Study.

Table 9 (A). Post Package Borrowing by Control Households

Yes/No	Andhra Pradesh	Maharashtra	Total
Yes	15	17	32
%	83.33	100.00	91.43
No	3		3
%	16.67	0.00	8.57
Grand Total	18	17	35
%	100.00	100.00	100.00

Source: Field Study.

waivers on the financial institutions. Particularly the information about multiple borrowing, source wise details of repayments and over dues and the purpose wise borrowing and repayments are the indicators of short as well as long term impacts of the package on the lending institutions. The proportion of over dues of all sources and purposes of borrowing shows that the ADWDRS has not helped in changing the repayment behavior of farmers and thereby the pattern of over dues and the NPAs. Most of the ADWDRS beneficiary farmers across all four districts from both the states have their post debt waiver package loans pending or remaining unpaid. Despite the pendency of earlier credit, often the farmers have to borrow for agricultural operations. The main reason for this is that the farmers continuously need credit assistance for subsequent agricultural operations. Therefore even during the post package period we find that many farmers resorting to re-borrowing from the available sources. Hence the post debt waiver continuation of borrowing is observed both by the sample ADWDRS beneficiary and the non-beneficiary control group farmers from the two states of Andhra Pradesh and Maharashtra. About 86.07 per cent means 315 of the sample beneficiary farmers have resorted to borrowing from the various sources during the post package period.

The proportion of borrowing during this period by the control group farmers was also as high as 91.43 per cent. The maximum frequency of borrowing by both these groups of farmers is observed to be nine times. Looking at the proportion of farmers and the frequency of their borrowing, it emerges that in all 54.24 per cent of the farmers from Andhra Pradesh have borrowed for one time, 26.53 per cent for two times, 12.93 per cent for three times and 4.08 per cent have borrowed for nine times. Similar kind of picture emerges for the sample ADWDRS farmers from Maharashtra. The proportion of the borrowers and the frequency of the borrowing is observed as; 40.48 per cent of the farmers have borrowed for one time, 23.81 per cent for two times, 15.48 per cent for three times and 6.54 per cent have borrowed for four times during the post package period. Overall picture for both the states emerges as; 46.98 per cent (once), 25.08 per cent (twice), 14.29 per cent (thrice), 4.44 per cent (four times), 2.54 per cent (five times), 2.86 per cent (six times) and 2.22 per cent of them happened to be the borrowers for nine times. The proportion of the control group farmers from both the states of Andhra Pradesh and Maharashtra shows that they also have borrowed for more than once. The maximum times of borrowing by this group from Andhra Pradesh are three and for their counterparts from Maharashtra it is four (see Annex Table. 1 & 2).

Table 10. Pre and Post Package Reason wise Details of Borrowing and Repayments by the Sample beneficiaries

Pre Debt Waivers (Rs)					
Purpose of Borrowing	Loan Amount	Repayment	Repayment (%)	Overdue	Overdue (%)
Agriculture	2211000	641400	29.01	1195000	54.05
Education	900000	594000	66.66	400000	44.44
Consumption/Health	150000	00	0.00	150000	100.00
Housing	590000	800000	135.59	1250000	211.86
No Response	40000	30900	77.25	20000	50.00
Post Debt Waivers (Rs)					
Agriculture	9191000	2355013	25.62	17156820	186.67
Irrigation	550000	1219000	221.64	1935000	351.82
Education	3035000	147200	4.85	2652700	87.40
Consumption/Health	2764000	487000	17.62	4152800	150.25
Housing	6580000	688000	10.46	6371000	96.82
No Response	105000	111500	106.19	75000	71.43

Source: Field Study.

Table 11. Source-wise Pre and post Package Comparison of Loan Account Performance of the Sample Beneficiaries

Pre Debt Waivers (Rs)					
Source of Borrowing	Loan Amount	Repayment	Repayment (%)	Overdue	Overdue (%)
RRBs	472300	739700	156.62	935300	198.03
Commercial Bank	642000	3012000	469.16	2115000	329.44
Pvt. Persons	2120000	95000	4.48	840000	39.62
Total	3234300	3846700	118.93	3890300	120.28
Post Debt Waivers (Rs)					
RRBs	1270000	840123	66.15	3827000	301.34
Commercial Bank	3160000	3402430	107.67	14059000	444.91
Pvt. Persons	14023000	1469200	10.48	13177300	93.97
SHG	470000	10000	2.13	480000	102.13
Total	18923000	5721753	30.24	31543300	166.69

Source: Field Study.

Table 11 (A). Pre and Post Package Comparative Scenario of the Farm Credit Access

Particulars	Pre Debt Waivers	Post Debt Waivers	Change (%)
No. of Loan Accounts/Cases	133	613	460.90
Total amount of Loan (Rs)	3234300	18923000	585.07
Average Amount of Loan per Account (Rs)	24318	30869	126.94

Source: Field Study.

Inferences based on primary data in the above table (10), reveal the case of moral hazard / adverse selection for the banks / lending institutions. Comparing the total amount of pre debt waivers loans borrowed and repaid with the corresponding proportions of the same during the post debt waivers period it is seen that the proportion of repayment of agricultural loans has declined from 29.01 per cent (which already was unsatisfactory) to 22.53 per cent whereas the proportion of overdue has shot up from earlier 54.05 per cent to 186.67 per cent indicating the pendency of both the principals and interest amounts. The comparison of overall (all purpose credit) credit performance between pre and post debt waivers period shows that the over dues have increased from 103.67 to 145.53 per cent. As the over dues were pending for over a long period the 'overdue-principle' ratio becomes greater than 100 per cent. It is mainly because of the accumulation of long pending interest amounts along with the original principal borrowed. As discussed in foregoing the striking character of comparison between the pre and post package source wise credit, its repayment and its over dues emerges as a significant indicator of moral hazard / adverse selection for the lending institutions.

Overall performance of repayment has declined by almost four times whereas the proportion of overdue shows a rise of about 40 per cent. The available primary data for both the institutional and non-institutional sources indicate that no lending agency has an exception of better recovery performance during both the periods of pre and post package. On the contrary post package picture indicates deterioration in the farm credit accounts performance. This means that the debt waiver could not bring any better recovery performance so that the lending institution will have better future. During the post package period the SHGs have added to the earlier sources of lending but the recovery rates also remain confined at a drastic low of 2.13 per cent and the over dues exceeded 100 per cent (i.e. overdue principal ratio). Assessment of the comparative change between the pre and post debt waivers credit access to farmers through change in number of loan accounts, total and the average amount of loans per account borrowed indicated that the post package period has emerged as the period of greater access to credit for farmers.

Table 12. Utilization of the Money that the Farmers Saved due to the Package Receipt

Use of Money	Study Households		Total
	Andhra Pradesh	Maharashtra	
Bank Deposit	1	17	18
per cent	0.54	9.44	4.92
Business	1	1	2
per cent	0.54	0.56	0.55
Family	1	39	40
per cent	0.54	21.67	10.93
Farm related work	20	74	94
per cent	10.75	41.11	25.68
Not Utilized	148	2	150
per cent	79.57	1.11	40.98
Others	4	1	5
per cent	2.15	0.56	1.37
Purchase of livestock		2	2
per cent	0.00	1.11	0.55
No Response	11	44	55
per cent	5.91	24.44	15.03
Grand Total	186	180	366
per cent	100.00	100.00	100.00

Source: Field Study.

The number of loan accounts of the same farm households of two states has increased by more than four times and the total borrowings by about six times (585.07 per cent). The average amount of loan per account indicates an increase of about 126 per cent. In fact no beneficiary farmer of the ADWDRS-2008 was to get any direct monetary benefits. Their credit accounts were to be cleared and the banks' NPAs were to be made nil. So that the clearance of both the NPAs of the banks and farmers' credit accounts were supposed to restore the credit ability of the loanee and the credit paying capacity (monetization) of banks. The presumption about the farm credit use is that mostly the farmers use their credit money either for unproductive or for ceremonial purposes. But both i.e. our earlier study (*Parchure & Talule 2012, Agricultural Distress and Farmers Suicides in Yavatmal District, NABARD Study*) and the present study showed that such type of presumption is negative and hence biased. In the case of the present study no sample ADWDRS farmer from any of the two states is observed to have used the money saved due to the debt waivers for unproductive purposes. When their debt accounts were cleared through the ADWDRS and the money they were supposed to pay to the banks were saved in such cases, some of them have purchased livestock such as the mulching cows, a pair of bullocks or small animals like sheep and goats. But the proportion of such farmers is almost negligible and that is just 1.1 per cent in Maharashtra. Some of them have used the saved installment money for agricultural cultivation and their proportion is 10.75 per cent in Andhra Pradesh and 41.11 per cent in the state of Maharashtra. A few farmers from Maharashtra also used this money in the form of the bank deposits.

Conclusions

Usually the schemes like debt waivers are not expected to bring any direct benefit for cultivators nor does it improve the financial efficiency of the banking sector in the long term. On the contrary as the debt waivers often includes only the defaulting farmers and excludes disciplined and regular repaying ones, the schemes like this leaves the entire banking sector with a mandatory option of an adverse selection. Therefore it is necessary to work out the feasibility of public investment in agriculture and allied sectors and find out whether an efficient subsidy mechanism can be a substitute or can it replace the requirement of frequent farm debt waivers that usually fail to bring in any long term transformation in the country's agricultural sector. Mainly the present study was based on the review and evaluation of the farm debt waiver package - 2008. Under the package the Government of India waived an accumulated farm debt inclusive of principal and interest amounts for about Rs. 60,000 crore. The package covered over 36 million cultivators. The basic objective of our exercise was to evaluate the immediate pre and post debt waivers farm credit demand and supply pattern and to assess the overall impact of the package on the beneficiary farm households. Primary data from the sample ADWDRS beneficiary and the control group farmers from four districts of Andhra Pradesh and Maharashtra were obtained. It was obvious that most of the farmers have borrowed for various purposes and from all the available sources at their disposal. The farmers also continued to do so during the post package period.

Moreover the post package loan overdue pattern does not exhibit any acceleration in the rate of repayment of loan principals and interest. During the post package period the maximum frequency of borrowing by the study farmers from both the states is observed to be of nine times. Lending institution wise disaggregation of the proportion of the multiple and repetitive borrowing by these farmers is continued during the post package period. Some study farmers, despite being beneficiaries of the debt relief package were not insistent on continuation means reoccurrence of the programme. Instead they expressed a preference for policies that would help them to become self-reliant for example easy access to irrigation. Productivity trends for the major crops cultivated in all the four study districts do not exhibit any evidence that the package has brought in considerable improvements in it. During the post package period the proportion of the study farmers from both the states those who have introduced a change in cropping pattern is 32.26 and 47.22 per cent respectively from Andhra Pradesh and Maharashtra. As the package money cleared farm debt accounts and the amounts farmers were supposed to pay to the banks were saved, in such cases some of them have purchased livestock such as the mulching cows, a pair of bullocks or small animals like the sheep and goats but no significant productive investment by these farmers is done which in fact was not possible. About the package, the control group (consisting of disciplined borrowers) farmers from both the states have a feeling of demoralization and hence are not in favour of debt waiver programmes to reoccur in future.

The main conclusion is that the programmes like debt waiver being completely an arbitrary gift of money to loanee farmers create conditions for moral hazards in the utilization of scarce government resources. It undermines at a stroke all the hard work done both by the lending and insurance agencies in disbursing and recovering the loans. Credit linked crop insurance system such as the one operating in India has several advantages as compared to the policy of blanket debt waivers. The element of compulsion in agricultural insurance has come under the scanner of the courts and the law because going by the established legal principles it is viewed unfavorably. The economic argument would suggest otherwise. The problems like food security and the farmers' income security are nationwide. This applies to both the loanee and non-loanee farmers. In case of the loanee farmers, the risk faced by them has ripple effects on the solvency of loan portfolio of lenders. In case of non-loanee farmers the risks have to be absorbed by the farmers themselves when they are in fact unable to bear them. Considering this it may be desirable to amend the IRDA Act and to make Agricultural Insurance compulsory for all farmers having the size of holding below say five hectares of land. This will greatly facilitate the task of extending larger credit flow towards agricultural sector.

Post Script

Risk Mitigation and Policy Issues

Indian agriculture is characterized by

- Ubiquitous geographically scattered preponderance of small land holdings (of 120 million farm holdings 63 per cent have an average holding of 0.4 hectares) all over the

country.

- High risk, in particular, due to vagaries of the monsoons, that results in droughts and floods.
- Labour intensive production processes with low-technology.

Agricultural activity is subject to several sources of risk; risk of not realizing the expected yield, risk of not realizing the expected price, risk of not realizing the expected quality of output, risk of deterioration in the output in the stages of storage and transportation, input risks of various types etc. Crop Insurance is a mechanism to mitigate only the first of these risks, the risk of not realizing the expected yield. Other sources of risk can be mitigated by other instruments e.g. MSP for price risk. Of course there are some risks for which there may be no feasible risk transfer mechanism, so that the risks have to be self-insured by farmers. The combined effect of the three characteristics of Indian agriculture and of the various risks, leads to a situation, in which an economic activity with the highest risk is being carried out by a large number of poor farmers, whose risk-bearing capacity is the lowest. The large scale misallocation of risk that this represents has necessitated the introduction of crop insurance as a risk mitigation tool for governments, both central and state, playing the role of residual risk-bearers (Parchure, 2013).

Indicator of the development of agricultural insurance in a country is its penetration. Crop insurance in India has achieved a penetration of about 25 per cent. Approximately it covers 22.5 million Indian farmers. This figure is impressive considering that the NAIS having been launched in 1983 just has completed three decades of its existence. Of the 22.5 million crop insured farmers, about five million of them are loanee and of these about 2.5 million are insured (Parchure, 2013). The remaining farmers can easily be covered provided the funds that are periodically spent on the schemes such as the agricultural debt waiver are routed through India's crop insurance mechanism. By doing this not only the debt waiver funds will be uniformly spent among all farmers but such disbursement will enhance creditworthiness of farmers and will also help to enhance the flow of organized credit to agriculture (Parchure, 2013). Looking at the combined proportion of both the states of Andhra Pradesh and Maharashtra related to the awareness of agricultural insurance among the sample ADWDRS farmers, it shows that the same is closer to the national average (25.69 per cent). But looking at the state wise average of the same; for Andhra Pradesh it is 34.31 per cent which is ahead of the national average and for Maharashtra being 16.75 per cent is lower than the national average which demands a better spread and awareness of the crop insurance among the state farmers.

From both the categories of farmers of Andhra Pradesh i.e. the study and control group, most of the farmers are not interested in subscribing to the insurance on their own. The proportion of such farmers from Andhra Pradesh is 69.35 and 66.67 per cent respectively whereas the same for Maharashtra it is nil for the control group whereas for the study group farmers the proportion is just 5.56 per cent. The proportion of control group farmers of Maharashtra willing to subscribe to the insurance is 94.12 and for the study group it is 77.22 per cent. This reveals that the farmers of Maharashtra are aware of the advantages of insurance and therefore what they need is a

Table 1. Beneficiary Farmers' Awareness of Crop Insurance

Insurance	Andhra Pradesh				Maharashtra				Andhra Pradesh & Maharashtra Aggregate			
	Coop	CBs	RRB	Total	Coop	CBs	RRB	Total	Coop	CBs	RRB	Total
Yes	38	16	12	66	6	12	11	29	44	28	23	95
per cent	61.29	26.23	19.05	35.48	9.84	13.48	36.67	16.11	35.77	18.67	24.73	25.96
No	24	45	51	120	55	77	19	151	79	122	70	262
per cent	38.71	73.77	80.95	64.52	90.16	86.52	63.33	83.89	64.23	81.33	75.27	71.58
Grand Total	62	61	63	186	61	89	30	180	123	150	93	366
per cent	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	97.54

Source: Field Study.

Table 2. Willingness of the ADWDRS Farmers to the Subscription of the Insurance

Willingness of Insurance	Control			Study		
	Andhra Pradesh	Maharashtra	Total	Andhra Pradesh	Maharashtra	Total
Not interested	12		12	129	10	139
per cent	66.67	0.00	34.29	69.35	5.56	37.98
Willing to pay	6	16	22	49	139	188
per cent	33.33	94.12	62.86	26.34	77.22	51.37
No Response		1	1	8	31	39
per cent	0.00	5.88	2.86	4.30	17.22	10.66
Grand Total	18	17	35	186	180	366
per cent	100.00	100.00	100.00	100.00	100.00	100.00

Source: Field Study.

proactive role of the government in outreaching in this regard or even can make the crop insurance popular and compulsory either by the whole or part premium payment through the fiscal provisions like the debt waivers package of 2008. This will multiply the benefits such as the, avoidance of negative opinion of public about the debt waiver package, inclusion of the loanee and non-loanee in fiscal transfers and the equal fiscal benefits to all.

Extending Credit and Insurance to Non-loanee Farmers

The case of 70 million non-loanee farmers and the need to bring increasing proportion of them within the fold of organized agricultural credit and agricultural insurance deserves special consideration. At present only about two million of the 70 million non-loanee farmers avail of insurance which means a penetration of hardly three per cent. For various reasons which include lack of affordability, lack of awareness and uncertainty about the benefits of insurances, buying of insurance in this large segment of Indian agriculture has remained extremely low. Also being non-loanee farmers they are subject to the risk of having to raise money from unorganized sectors at higher costs. And lack of access to organized credit implies also a relative lack of access to better inputs, technologies, knowhow and the like. The solution to this seems to lie in a strategy of a joint penetration of agricultural credit and agricultural insurance as complementary to one another. And the first mechanism that needs to be operationalised to achieve this would be to activate the large network of 1, 30,000 PACS and a network of over 1, 00,000 Common Service Centres (CSCs) to

- Identify non-loanee farmers
- To conduct financial literacy programs among groups of non-loanee farmers
- To explain to farmers the benefits of agricultural credit, agricultural insurance and the state support that these activities enjoy.

On parallel lines second level agricultural extension programme officers must also be trained to create awareness

among non-loanee farmers about the benefits of agricultural credit and insurance as necessary preconditions for adopting better agricultural technologies. Incidentally, there has been a marked tendency on the part of groups of farmers, particularly non-loanee farmers, to seek insurance much after the cut-off dates for payment of premiums. This is true of both the weather based crop insurance schemes as well as NAIS. Every time there is adversity the implementing States have made it habit to approach the GoI to extend the cut-off dates for participation of non-loanee farmers. This is in contrast to the utility value and universal principles of insurance. This adverse selection strategy by States and farmers' groups has resulted in greater claims cost ratios. This is a matter that must be primarily addressed by the GoI and the Banks. Late entry into agricultural insurance is permissible if and only if farmers pay successively larger differential premiums, and participate within a reasonable time after sowing. The schedules of differential premia for both the weather based insurance and NAIS are available with the AICI as part of their actuarial rating exercises and should be made available to banks with strict guidelines for implementation. Another suggestion to minimize the risk of high claim ratios arising out of adverse selection is to promote multiple season/year insurance contracts wherein farmers are encouraged to buy insurance for a couple of seasons/years, in advance. This will also help in discounting the premiums to some extent (Parchure, 2013).

Debt Waiver v/s Crop Insurance: Relative Efficacy

A word is in order regarding the relative merits of a credit linked crop insurance system such as the one operating in India over the policy of debt waivers. A debt waiver is a completely arbitrary gift of money to loanee farmers. Besides creating conditions for adverse selection and morale hazards in the utilization of scarce government resources both among farmers and populist politicians, debt waivers undermine at a stroke all the hard work done by the lending and insurance agencies in giving out and recovering the loans. Not only that the debt waivers are in fact costlier than indemnities paid out through crop insurances. To get an idea of the magnitudes, consider this. The annual subsidy both on central and state

government accounts at 50 per cent coverage of loanee farmer works out to 1558 crores (Refer Row No. 5, Annex. Table, 10). If crop insurance is up scaled to all loanee farmers this figure will double to 3116 crores. Over a period of a decade (which is roughly the periodicity of debt waivers in the past) the total subsidy works out 31160 crores which is less than half of 70,000 crore debt waiver doled out in 2008 budget on central government account alone! Indeed if all non-loanee farmers are covered as well, the annual subsidy on the central and state governments would be 7790 crores which over the course of a decade will stand at 77900 crores distributed over 120 million loanee and non-loanee farmers. In terms of political economy this makes much more sense than doling out 70,000 crores to 25 million loanee farmers on central government account alone. In fact even if the sum insured is increased in line with the recommendation made in 4 (iv) to cover input cost plus subsistence the annual subsidy on both central and state government accounts will not exceed 13,350 crores (Parchure, 2013).

REFERENCES

- Directorate of Agriculture, Govt. of Maharashtra, Pune.
- Feibelman, A. (2009), Consumer Bankruptcy as Development Policy, Seton Hall Law Review, Forthcoming.
- Martin Kanz 2011. What does Debt Relief do for Development (Evidence from a Large-Scale Policy Experiment), The World Bank, Oct. 22. 2011.
- Mayers, S. C. 1977. Determinants of Corporate Borrowing, Journal of Financial Economics, 5, 147-175.
- Parchure Rajas 2013. Strategies for Increasing Agricultural Insurance Penetration in India, Working Paper, Gokhale Institute of Politics and Economics, Pune.
- Parchure, Rajas and Talule Dnyandev 2012. Agricultural Distress and Farmers Suicides in Yavatmal District, A NABARD Study, Gokhale Institute of Politics and Economics, Pune, March.
- Season and Crop Reports for Years, Department of Economics and Statistics, Govt. of Andhra Pradesh, Hyderabad.
- Townsend, R. 2006) Credit Intermediation and Poverty Reduction, in Abhijit Banerjee, Roland Benabou and Dilip Mukharjee (Eds) Understanding Poverty, Oxford University Press.
- [www//data.gov.in](http://www.data.gov.in)
