Farmer Distress

The Problem

Agriculture and allied sectors in India account for 14% of GDP and were a source of livelihood for 58% of the population for the fiscal year 2016-17 (Central Statistics Office, Government of India, 2016). India has around 260 million people living in poverty and 80% of them live in the countryside. About 72% of land holdings are small and marginal land holdings (less than 2 hectares) and they cannot reap the benefit of economies of scale. Since 1960 real agriculture growth rate in India has been on an average of 2.8 percent. Indian farmers are in a state of distress and this is manifested by the increasing number of farmer suicides. Between 1995 and 2012, a total of 284,673 farmers committed suicide in India.

This paper seeks to research on the reasons for farmer distress in the state of Andhra Pradesh (AP), and research on the interventions for alleviating the distress.

Solutions

Interventions	BCR	Benefit (INR crores)	Cost (INR crores)
Cold Chain Infrastructure (time horizon 10 years)	8.8	101,451	11,482
Local Food Processing (time horizon 1-3 years)	Approx. range 1-4	Depends on local conditions and type of processing	Depends on local conditions and type of processing
Farm Loan Waiver (time horizon 5 years)	0.99	24,629	24,860

Total costs & benefits are discounted at 5%

The full paper by professor **Nilanjan Banik** of Bennett University is available on www.appriorities.com/agriculture-and-food-security.

Farm Loan Waiver

The Problem

Andhra Pradesh has one of the highest rates of farmer suicide. Between 2010 and 2012, there were 47 farm suicides per 1000 population. The corresponding figure for all India during the same period was 15 per 1000 population (Mishra, 2014).

The Solution

This intervention assumes a hypothetical farmer loan waiver scheme that waives all formal loans of individuals with land holding sizes less than 2ha. Government of Andhra Pradesh recently announced a loan waiver of INR 24000 crore (Rao, 2017).

Costs

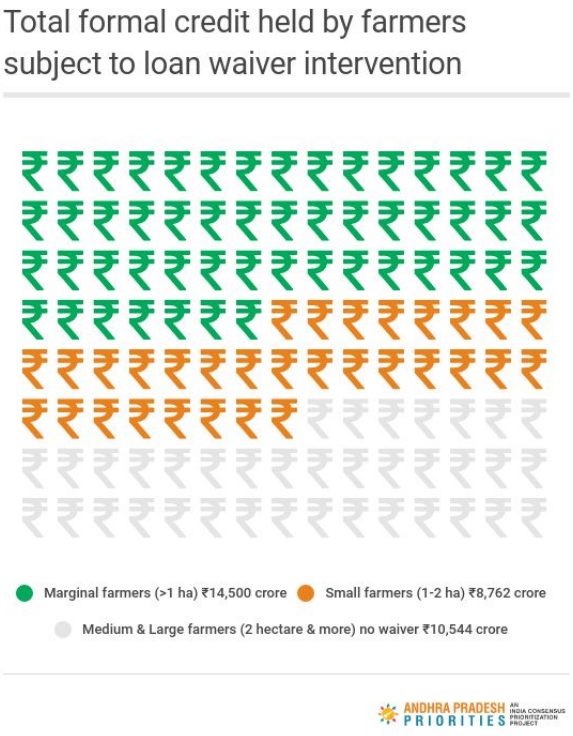
At a macro level, loan waiver program may cost the state exchequer to the extent that less money is available for other development activities. In terms of costs academic evidence suggest that there is reduction in lending to small farmers up to four years after the bailout. There are 2 effects of credit redistribution (a) credit contraction for small and marginal farmers and (b) credit expansion for large farmers. It is estimated that bail out would cost the state INR 23,300 cores.

At micro level in AP the extent of loss due to reduced lending is INR 815 per year for marginal farmers and INR 2483 per year for small farmers. Reduced lending also impacts the crop production

and it is estimated that small and marginal farmers will lose INR 803 crores annually. The total cost per year in reduced farm profit for these classes of farmers is INR 800 crore.

Benefits

Benefits of farm loan waiver constitute immediate benefit to small and marginal farmers (less than 2 ha) need not pay the outstanding loan the value of which is INR 23,300 crore equivalent to the cost of the loan waiver. The benefit to large farmers is the total formal credit increase multiplied by the interest rate differential (informal – formal credit), 13.53%. This amounts to INR 733 crore per year.



Managing cold supply chain logistics

The Problem

Fruits, vegetables and milk command higher market price compared to staple crops (rice, wheat etc.) but they are perishable hence need proper storage facilities else there is huge wastage of these products. However, majority of small farmers do not risk grow these crops, partly because of improper post-harvest management. Around 18% of the country's food and vegetables get wasted annually because of lack of proper storage (ICAR-CIPHET, 2015). For milk, data shows the amount of loss can be as high 40% and two-third of this loss happen during storage (ASSOCHAM, 2017). This intervention's time horizon is 10 years.

The Solution

The intervention seeks expanding end-to-end cold-storage infrastructure in the state of Andhra Pradesh.

Costs

National Centre for Cold Chain Development (NCCD) has estimated the cold storage and warehouse related infrastructure requirements for India, including AP. It is estimated that in 2017 the total storage requirement for storing milk, fruits and vegetables stands at 744,650 MT. About 90% of the storage requirement already exists within the state, but the remaining infrastructure needs are almost non-existent. This will require a one-off investment of INR 2686 crore, plus additional investments over the following 9 years averaging approximately 20% of this value per year to meet expected growth in the horticulture and dairy sectors. The average annual workforce costs are INR 146 crore over the 10 years. Lastly, operations and maintenance cost of 10% of invested capital which averages INR 518 crore per year.

Benefits

Benefits include reduced wastage of these products estimated between 5% to 30%. For milk the amount of loss can be as high 40% and two-third of this loss

happen during storage. In 2017, for AP, the total benefit from putting cold chain logistics in place was INR 997,854 lakh. The annual benefit increases by 6-7% per year in line with the expected rate of growth in the horticulture and dairy sectors. This intervention might also lead to a shift in cultivation from low value subsistence crops to high-return crops by small and marginal farmers. Studies suggest a 3-7% less likelihood of a farmer being poor if they grow high value crops.

Local Food Processing

The Problem

In India, farmers tend to sell major part of the produce without any value addition. Small value additions by processing at the local level can enhance farmers income. Andhra Pradesh is having nearly 2 million hectares with different types of fruit crops. AP ranks first in India in the production of Mango, Papaya, Lemon, Chili, Turmeric, and Tomato. The state ranks first in terms of egg production and has a strong presence in terms of meat and milk products.

The Solution

This intervention is about having local food processing units (adding value to raw produce) in AP which has bountiful production when it comes to agriculture and livestock. Processed fruits and vegetable items are in high demand in export market. The analysis of this intervention is based on case studies of two neighboring states of Andhra Pradesh (Karnataka and Tamil Nadu).

Costs

The study on rice processing units in Karnataka highlights one quintal (100 kg) of paddy yields in value terms INR 1849 worth of rice when processed using conventional unit, and INR 2104 worth of rice when processed in modern unit. Similarly, if one quintal of rice were to be converted into poha (flattened rice), it yields in value term INR 1381.75 when processed using conventional method, and INR 1476.75 when processed using modern technique.

Benefits

Benefit cost ratio for paddy using conventional process works out to be 1.28, whereas if processed in modern units the benefit to cost ratio turns out to be 1.38. For poha (flattened rice), the benefit cost ratio for conventional unit is 1.27 whereas for modern unit is 1.31.

The study on turmeric production in Tamil Nadu highlights the benefit cost ratio for turmeric powder processing plant is 4.3. The internal Rate of Return was found to be greater than 60%, indicating financial viability.