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SUBJECT II
DOUBLING FARMER'S INCOME FROM DEMAND PERSPECTIVE

**Strategies for Doubling of Income of Smallholder Farmers
from Demand Perspective**

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ABSTRACT

Based on the secondary sources of data, the study attempts to examine the scope of doubling the income from demand perspective and to recommend different strategies for improving the income of smallholder farmers. The number of holdings, area of smallholder farmers had increased from 81.8 per cent to 85 per cent, 36.6 per cent to 43.4 per cent of total holdings and area respectively from 2000-01 to 2010-11 and during the same period the average holding of smallholder farmers decreased from 0.63 to 0.605 ha. Due to uneconomic holdings a large percentage of smallholder farmers are below the poverty line. It is the national priority to enhance their income so that they can escape from poverty. The dream of our Prime Minister is to double the farmers' income from the base year 2015-16 to 2022-23. The annual growth rate of urban population in India was 2.324 per cent in 2017. The disposable per capita income of urban population will rise to Rs. 239000 (at real price of 2008) upto 2030, i.e., at 6.4 per cent of growth rate. With the rise in per capita income of urban households the demand for consumption of fruits and vegetables, other agricultural products, milk (liquid), eggs, fish, chicken (meat) etc. will rise. There is also evidence that per capita annual consumption of vegetables, milk (liquid), eggs and chicken had risen from the year 1993-94 to 2011-12 due to increase in urban population and income. Thus smallholder farmers can enhance their income by diversifying high value crops like vegetables and allied products.

Keywords: Farm income, Uneconomic holdings, Smallholder farmers, Price glut.

JEL.: O15, Q11, Q13, Q15

I

INTRODUCTION

The percentage of smallholder farmers in comparison to other categories of farmers is significantly higher. The concept of smallholder farmers in this paper is based on clubbing the marginal (upto 1 hectare) and small (above 1 hectare and upto 2 hectares) farmers. The number of holdings, area of smallholder farmers had increased from 81.8 per cent to 85 per cent, 38.8 per cent to 44.6 per cent of the total holdings and area respectively from 2000-01 to 2010-11 and during the same period the average holding of smallholder farmers decreased from 0.631 ha to 0.605 ha (Government of India, 2017a, b)

Considering the annual growth rate of rural population (0.52855 per cent by World Bank) and existing trend of increase in the number of smallholder farmers and their area there is possibility of further increase upto 2022-23 and the average size of holding of smallholder farmers is likely to decrease. These holdings of smallholder

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farmers are unviable and uneconomic in scale. A large percentage of smallholder farmers are below the poverty line. Hence it is a national priority to enhance their income so that they can escape from the poverty. The dream of our Prime Minister is to double the farmers' income from the base year 2015-16 to 2022-23. If the income is to be doubled within seven years i.e. upto 2023, it will require annual growth rate of 10.4 per cent (Chand, 2017). From the 2002-2003 and 2012-2013 data the growth rate of real income of farmers was 5.24 per cent on the basis of gross domestic product (GDP) deflator. On the basis of consumer price index of agricultural labourers the annual growth rate of farmers' income has decreased to 3.5 per cent (Gulati and Saini, 2016). The doubling of income of farmers with this growth rate will take 20 years. In order to double the growth rate of farmers within seven years gigantic effort is needed by covering agriculture, allied, off-farm and non-farm activities especially for smallholder farmers.

The study attempts to explore the possibility of doubling of income of smallholder farmers with the following objectives (i) To examine the scope of doubling of income of smallholder farmers in relation to demand perspective and (ii) To recommend different strategies for improving the income of smallholder farmers.

II

SOURCES OF DATA

The study is based on secondary data collected from different rounds of NSSO reports, *Agricultural Statistics at a Glance Agricultural Census Reports* (various issues), seminar reports, published papers etc.

Status of Income

The main sources of income of farmers are from farming, livestock, non-farm business and wages/salary. The annual income (2012-13) from all the said sources of farmers having <0.01, 0.01-0.40, 0.41-1.00, 1.01-2.00 ha of land are Rs. 54147, Rs. 50193, Rs. 63791, Rs. 90036 respectively (Table 1). It shows that the 17.16 per cent of smallholder farmers have average annual nominal income of Rs. 90036 and the rest of the smallholder farmers have annual income substantially below Rs. 90036. As the smallholder farmers have the annual income below rupees one lakh they are almost below poverty line. So the necessary efforts are required to enhance or double their real income upto the timeline.

From the Hindustan Times analysis (Table 2) four categories of farmers (<0.01, 0.01-0.40, 0.41-1.00, 1.01-2.00 ha) under the smallholder category were able to enhance their nominal annual income approximately more than 1.5 times from 2012-13 to 2018-19, i.e., within six years. Considering the present trend the nominal income of smallholder farmers may increase slightly more than 1.5 times within seven years, i.e., 2015-16 to 2022-23. For doubling the real income of smallholder farmers upto 2022-23 special efforts are therefore needed.

TABLE 1. INCOME OF FARM HOUSEHOLDS ACROSS DIFFERENT LANDHOLDING CLASSES 2012-13
(Rs.)

Size class of land possessed (ha)	Proportion of total farm households (per cent)	Farming	Livestock	Non-farm business	Wages/salary	Total annual income
(1)	(2)	(3)	(4)	(5)	(6)	(7)
<0.01	2.64	356 (1)	14557 (26)	5366 (10)	34825 (63)	54147
0.01 – 0.40	31.86	8232 (16)	7685 (15)	5505 (11)	28629 (57)	50193
0.41 – 1.00	34.92	25726 (40)	8467 (13)	5546 (9)	24135 (38)	63791
1.01 – 2.00	17.16	50501 (56)	11090 (12)	7113 (8)	20735 (23)	90036
2.01 – 4.00	9.31	88297 (68)	15155 (12)	6643 (5)	19882 (15)	132335
4.01 – 10.00	3.72	182916 (77)	19112 (8)	10338 (4)	24377(10)	234938
10.00+	0.39	428224 (86)	33157 (7)	21244 (4)	15730 (3)	452299
All	100	36960 (47)	10046 (13)	6212 (8)	24847 (32)	78065

Source: NSSO.

Note: Figures in parentheses indicate the percentage share of income to total income of the respective size class of land possessed.

TABLE 2. AVERAGE ANNUAL INCOME BY LAND SIZE

Size class of land possessed (ha)	Average nominal income in 2012-13	Estimated average income in 2018-19
(1)	(2)	(3)
<0.01	54147	87972
0.01 – 0.40	50193	80088
0.41 – 1.00	63791	101208
1.01 – 2.00	90036	141732
2.01 – 4.00	132335	206964
4.01 – 10.00	234938	378756
10.00+	452299	798288
All sizes	78065	122868

Source: Hindustan Times analysis using NSSO and RBI data.

Impact of Urbanisation

The annual growth rate of urban population in India was 2.324 per cent in 2017 (World Bank, 2017). The population of India will reach 1.47 billion in 2030 out of which urban population will be 40 per cent, i.e., 590 million. The five states like Tamil Nadu, Gujarat, Maharashtra, Karnataka and Punjab will have more than 50 per cent of their population living in cities. The 68 cities in India each will have more than 1 million population, 13 cities more than 4 million people and 6 megacities more than 10 million residents. The disposable per capita income of urban population will rise to Rs.239000 (at real price of 2008) upto 2030, i.e., at 6.4 per cent of the growth rate (Prabhudesai, 2010).

With the rise in per capita income of urban households their taste, preference, dietary habits and nutrition consciousness undergoes a change. Generally the demand arises from the urban households for more consumption of fruits and vegetables, other agricultural products, milk (liquid) and milk products, eggs, fish, goat meat, chicken, etc. There is also evidence of increase in the per capita annual consumption of vegetables, milk (liquid), eggs and chicken. Per capita annual consumption of vegetables, milk (liquid), eggs, and chicken of urban households had increased from

35.41 kgs to 52.61 kgs, 59.50 litres to 65.97 litres, 18.01 Nos. to 38.69 Nos., 0.37 kg to 2.91 kgs, respectively, from the year 1993-94 to 2011-12 (Table 3).

TABLE 3. PER CAPITA ANNUAL CONSUMPTION OF DIFFERENT COMMODITIES IN URBAN AREAS

Year (1)	Commodities			
	Vegetables* (kg) (2)	Milk : liquid (litre) (3)	Eggs (No.) (4)	Chicken (kg) (5)
1993-94	35.41	59.50	18.01	0.37
1999-00	42.46	62.05	25.06	0.73
2004-05	38.57	62.17	20.93	1.03
2009-10	50.11	65.19	32.53	2.19
2011-12	52.61	65.97	38.69	2.91

Source: National Sample Survey Office (50, 55, 61, 66 and 68th Rounds).

*Includes potato, onion, brinjal, cauliflower, cabbage and tomato.

III

GROWING DEMAND FOR VEGETABLES AND ALLIED PRODUCTS

Due to rise in urbanisation and income demand for vegetables and allied products are growing. Smallholder farmers can enhance their income by diversifying towards high value crops like vegetables and allied products in addition to basic crops. The high value vegetable crops are potato, onion, brinjal, cauliflower, cabbage, tomato, lady's finger (Okra), green peas, other leafy vegetables, cucumber, bottle gourd, pumpkin, beans, capsicum, garlic, etc. These high value crops are labour intensive. The smallholders generally have the surplus family labour and this surplus labour can be effectively used for the production of vegetables. As the vegetables are short duration crops the smallholder can earn income within a short period. In almost all the hotels and restaurants in Tier I, II and mega cities of the country the South Indian dishes are available. There is a lot of demand for potato, tomato, brinjal, bottle gourd, pumpkin, onion, garlic etc. for south Indian dishes. The smallholders just outside the orbit of the cities can enhance their income by growing these crops. Smallholder farmers situated away from the cities can also earn benefit through suitable aggregators by growing these crops. The vegetables like brinjal, tomato, okra, bottle gourd, pumpkin etc. are grown in all the three seasons of the year. So the smallholders should take advantage of enhancing their income throughout the year by adopting multiple cropping. While vegetables like cauliflower, cabbages, etc., are grown in specific climate conditions throughout the year. So the smallholder farmers of the specific geographical region can grow these crops throughout the year in order to fulfill the uninterrupted demand from the urban population during the off-season for profitable price.

Mushrooms are also in great demand in hotels and restaurants of the cities. Hence it is an opportunity of the smallholder farmers of nearby cities to enhance their income by growing them. The flowers of different varieties are also in demand by the city-dwellers during auspicious occasions, festivals, marriage ceremonies etc.. The

smallholder farmers can supply the flowers to the cities and nearby districts. They can avail the scope for exporting the flowers to the other countries by improving the quality.

Smallholder farmers cannot afford to grow fruits as they have limited land and growing these fruits require long gestation period. Growing fruit is also capital intensive. Water melon and Honeydew melon are very short-duration crops and grown in summer season. The sub-marginal and marginal farmers under smallholder category can grow these fruits which are in great demand by urban population during summer season.

The demand for milk (liquid) consumption is increasing with the rise in urban population. The smallholder farmers can supply milk to the urban centres by rearing milch animals. This is an additional avenue to raise their income level. Under the new provision of KCC scheme farmers can avail loan for purchase and incurring rearing expenditure of milch animals.

The per capita consumption of eggs and chicken (meat) is increasing by the urban population. The smallholder farmers can maintain back-yard poultry and, supply eggs and chicken to the urban areas. This will be helpful in augmenting their level of income. Goat-meat is not in much demand in the cities. The goat meat is the red meat and it is not very much favourable to human health. The smallholder farmers cannot go for fish production as they have limited land and cannot spare additional land for fish-pond. Sea-fishing is commercial in nature and capital intensive.

There is near possibility of doubling of smallholder farmers' real income upto the timeline by adopting diversified income generating activities. But serious effort is needed in this direction. The smallholder farmers face several bottlenecks in their production activities. Multi-pronged strategies are required to overcome these bottlenecks. Few important suggestions are given below for doubling the smallholder farmers' income.

(i) *Cost of Production and Productivity*

For doubling the farmers' income one aspect is to double the productivity of crops, i.e., vegetable crops and allied crops. But this is not an easy task to double the productivity of crops within six to seven years. In order to enhance the net income of farmers it is imperative to reduce the cost of production. Input costs like fertilisers (both chemical fertilisers and farm yard manures), irrigation, labour (both family and hired), seeds should be minimised. Standard sowing or planting practices should be followed. Each smallholder farmer should be provided with Soil Health Cards. The recommended doses of fertilisers should be applied on the basis of deficiency of nutrients mentioned in the Soil Health Card. Quality hybrid seeds should be used for the production. Farm extension or farm advisory services should be provided to the smallholder farmers for this purpose through public initiative.

(ii) *Production of Milk*

Production of milk can help in doubling of smallholders' income. Rearing of milch animals is labour intensive. The number of milch animals can be maintained on the basis of management of fodder and surplus family labour. Quality breed of milch animals remaining wet every year should be maintained.

(iii) *Production of Eggs and Chicken*

Poultry farming can be adopted as back-yard poultry. The number of birds to be maintained depend upon the management of poultry feed and available surplus family labour. Quality breed of egg-laying birds and broiler for chicken-meat purposes should be maintained. Awareness relating to different aspects of poultry farming should be provided through public initiative.

(iv) *Marketing*

The smallholder farmers cannot bargain for their produce due to inadequate quantity of marketable surplus. The same is the case for liquid milk, eggs and chicken (birds). The aggregators like Farmer Producer Organisations (FPOs), Farmer Producer Companies, SHGs, NGOs can play the role of intermediaries and provide remunerative prices to the producer smallholders. These intermediaries can tie up with Hindustan Unilever, Big Bazaar and other retail chains for providing better price to the producers. The vegetables, fruits, milk (liquid), eggs etc. are perishable products. There is the need for amendment in APMC Act so that the marketing of perishable agricultural products should be outside the purview of APMC Act. Some states have already allowed for the direct marketing of agricultural produce to the ultimate consumers.

(v) *Price Volatility*

The glut in prices of agricultural produce occurs just after the harvest or due to over production. This is observed in case of potato, tomato, onion, garlic etc. In such a situation the prevailing market price is below the MSP price. In order to prevent the distress sale NAFED, procurement agencies and approved cold chains having the facilities of recognised receipt can play an effective role. The exports of over produced commodities can also be explored in order to rescue the producer farmers.

(vi) *Development of Infrastructure*

In the remote areas there is the need for development of approachable roads. The cold chains should also be established on the basis of private ownership or PPP model covering the clusters of villages. The rate of storage should also be approved

by the government. All the cold chains are required to provide the recognised warehouse receipts, so that the producer farmers can borrow from the banks on the basis of submission of receipts. Government should ensure the uninterrupted power supply to the cold chains. Information infrastructure development relating to market prices, climate conditions in the crop seasons, varieties to be grown in relation to climate conditions etc. for dissemination is necessary for the producer farmers.

(vii) *Supply of Quality Seeds*

The number of private agencies is more than the government agencies for the sale of seeds. It should be ensured by the government that the good quality of high-yielding varieties of seeds at affordable prices is available in the market.

(viii) *Irrigation Development*

Out of total number of smallholder farmers 40.76 per cent of farmers have wholly irrigation facilities and out of the total area 37.25 per cent is wholly irrigated. The 41.45 per cent of farmers from the total are in rain fed (wholly unirrigated) areas. Their land area constitutes 41.21 per cent of total area (Table 4). Therefore it is impossible to double their income by diversifying the income generating agricultural activities with respect to demand perspective. The state governments should implement the irrigation projects to cover the rainfed area under assured source of irrigation. The Government of Telangana has already started the Multipurpose Lift Irrigation Project to reduce the rainfed area in the state. The other state governments should initiate the project in this direction. Thus micro irrigation (sprinkler and drip irrigation) projects should be introduced for the benefit of smallholder farmers to the best possible extent. The micro irrigation project is capital intensive. The project can be installed on the basis of group initiative. The government should provide substantial subsidies for the micro irrigation equipments. The emphasis should be given for the development of watershed in rainfed areas.

TABLE 4. AREA AND NUMBER OF HOLDINGS UNDER WHOLLY IRRIGATED AND UNIRRIGATED

Size group /percentage (1)	Wholly irrigated		Wholly unirrigated	
	Number of holdings (‘000) (2)	Area (‘000 ha) (3)	Number of holdings (‘000) (4)	Area (‘000 ha) (5)
Marginal	39294	14824	37065	13796
Small	8644	11678	11686	15529
All Smallholders	47938	26502	48751	29325
Per cent of Total	40.76	37.25	41.45	41.21

Source: Department of Agriculture, Cooperation and Farmers Welfare (Agriculture Census 2010-11).

(ix) *Access to Credit*

Only 31.96 per cent of smallholder farmers of total number (smallholders) have access to institutional credit and 30.90 per cent of the smallholder farmers availed

production credit. Per farmer and per hectare production credit availed are Rs.26190 and Rs.43300 respectively (Table 5). This is a precarious situation. All the smallholder farmers should be motivated to avail production (KCC) credit so that their borrowing for agricultural production from non-institutional sources can be arrested. By availing credit from institutional sources their production efficiency will be improved for the demand-driven crops. The necessary effort is required in this direction. The recent land leasing Act should be introduced in all the states without any delay. The introduction of the Act will largely benefit the tenant farmers, share croppers and oral lessees to avail KCC from commercial banks.

TABLE 5. INSTITUTIONAL AND PRODUCTION (S.T.) CREDIT AVAILED BY SMALLHOLDER FARMERS

Size group	Total no. of operational holdings ('000 units)	Estimated no. of operational holdings that availed institutional credit ('000 units)	Estimated no. of operational holdings that availed production (S.T.) credit ('000 units)	Total amount of production (S.T.) credit availed (Rs. lakhs)	Per farmer production (S.T.) credit availed (Rs.)	Per hectare production (S.T.) credit availed (Rs.)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Marginal	92688	26508	25741	5808944	-	-
Small	24746	11021	10543	3696888	-	-
All smallholders	117434	37529 (31.96)	36284 (30.90)	9505832	26190	43300

Source: Department of Agriculture, Cooperation and Farmers Welfare (Input Survey 2011-12).

Note: Figures in parentheses indicate percentage to total.

(x) Insurance

Pradhan Mantri Fasal Bima Yojana should be liberalised as it should cover more notified crops including vegetable crops. The premium rate should also be low for the smallholder farmers. The settlement of claims would also be within the reasonable time period. All the smallholder farmers having milch animals should be under the cover of cattle insurance.

IV

CONCLUSION

The Indian agricultural economy is smallholder economy. The smallholder farmers comprising 85 per cent of the total number of farmers derive income in the range of Rs.54000 to Rs.90000 annually from all sources. They are living in poverty. If their production efficiency is increased they can substantially contribute to agricultural GDP. The annual growth rate of urban population in country is recorded at 2.32 per cent. The per capita income of urban population will rise 6.4 per cent upto 2030. Due to rise in per capita income their demand for consumption of high value crops and other allied products like vegetables, milk, eggs, chicken (meat) will also

rise due to change in their tastes and dietary habits. In order to avail the opportunity of rising demand the smallholder farmers can diversify their agriculture in favour of high value crops and other demand driven products like milk, eggs, chicken (meat), etc. All of the above measures provide the smallholder an opportunity to double their income. However, different strategies need to be implemented to achieve the desired goal.

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