

Gujarat's Agricultural Growth Model: How Sustainable it is?

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Abstract

Agricultural sector in Gujarat grew at a rate of 11 per cent during 2003 and 2007, which was by far the highest among all the states in the country. To a large extent, the 'growth miracle' has been driven by bt-cotton revolution that has spread to large parts of the state. Whereas commercialization of agriculture is not a new feature in Gujarat the recent spurt in bt-cotton has come at a time when agriculture had increasingly become non-viable and that rapid growth in infrastructure based growth had started pulling out large number of farmers- especially from better-off categories, to look out for alternative occupation. It is therefore imperative to know what has actually happened in terms of percolation mechanisms and whether there are any adverse implications on equity, food security and resource sustainability as well as environment within micro context of villages and households, especially in the short run. The study primarily aims at unraveling the experiences of the 'fast tract' growth in agriculture with a case study of Gujarat, which has attained a phenomenally high rate of growth for a sustained period of about seven years during the last decade. The study has addressed the above objective by undertaking the household level analysis. Total 360 samples were covered in the state. The results suggest that the growth in Gujarat has lead to higher inter-state and inter-group (land holding wise) inequality. The growth in farm production is confined to relatively better off households with respect to ownership of land and water.

Keywords: Sustainability, Agriculture, Income Disparity.

1. Introduction

Gujarat has emerged as one of the four major states having attained higher labour productivity in agriculture (along with Punjab, Haryana and Kerala) in the past few years. During 2003 and 2007 agriculture in the state grew at a phenomenally high rate of 11 per cent, which was by far the highest among all the states in the country (Gulati, *et.al*; 2009; Dixit, 2009; Kumar, 2010; Arya and Mehta, 2011). A recent study by Dholakia (2010) indicates that the recent spurt in agricultural growth signifies a structural break that was set in since the beginning of the century, hence preceded the high growth rate in overall economy in the state. There could be variations in the interpretation of agriculture sector leading or following higher rate of growth especially in industry and infrastructure in the post-1997 period as suggested by Morris (2007), the fact remains that agriculture in Gujarat has taken-off to a high growth trajectory, which undoubtedly may have exerted significant impacts on rural economy in general and poverty reduction in particular.

It is therefore necessary to know what has actually happened in terms of percolation mechanisms and whether there are any adverse implications on equity, food security and resource sustainability within micro context of villages and households, especially in the short run.

2. Objectives

The study primarily aims at unraveling of the experiences of the 'fast tract' growth in agriculture in Gujarat. The specific objectives includes i) How broad-based is agriculture growth in terms of coverage of area/regions and households? ii) To what extent the growth has led to horizontal and vertical diversification? and, what are the implications for small and marginal farmers? iii) How sustainable is the resource use especially, land-use and ground water resources? iv) What are the major drivers and/or constraints faced by farmers from different segments of village communities?

3. Methodology

Three districts has been selected with respect to irrigation and poverty status in order to undertake the primary survey, those are namely 1) Sabarkantha (dependence upon ground water with relatively better rainfall); b) Rajkot (dependence on ground water under dry land conditions); and c) Panchamahar (tribal dominated area with high incidence of poverty). One block capturing the core feature of each of selected districts was identified and six villages from each block and total 18 villages in three districts were covered. Total 20 sample from each village was surveyed and selected randomly from four category of land holding size i.e. marginal (below 1 acre), small (1 to 5 acre) medium (5 to 10 acre) and large (10 acre and above). Detailed information was collected from a total of 360 sample households.

4. Income Disparity: Region and Category Wise

Income from agriculture was reported as the main source of livelihood among the majority of sample households. Out of the total sample, 79 percent in Sabarkantha, 74 percent in Rajkot and 59 percent in Panchmahal earn their main income by practicing farming. In Panchmahal (where average land holding was 3.7 acre compared to above 5 acre in other two districts), apart from agriculture, 27 percent of households earn their main income working as casual labours. The annual agricultural income per-acre was highest in Rajkor (37,036) and lowest in Panchmahal (16,894). It represents the existence of wide disparity among the districts with respect to their income earned from agriculture. The per-capita agricultural income in Panchmahal was one fourth of income in Rajkot and one third in Sabarkantha.

The category wise analysis shows that the marginal landholders earn their livelihood mainly by working as casual labour while all other category largely depends on agriculture. The per-capita income (total from all sources) among the marginal and the landless households was only 16,056 and 18,597 respectively compared to 81,710 and 50,356 among the large and medium land holders. This indicates the wide disparity of income earned among each category. The non-farm income among the small landholders was also quite low compared to other categories.

5. Shift of Focus Towards Bt-cotton

The cropping pattern in the three districts has changed and there increase in area under cotton and wheat mainly due to the increase in area irrigated through tube-well and bore-well (Sabarkantha) and well (Rajkot). Out of the total sample, 53 percent started cultivating Bt-cotton especially after 2003. Around 81 percent of farmers cultivate bt-cotton in Sabarkantha and 62 percent in Rajkot. Only 14 percent in Panchmahal cultivate bt-cotton and started particularly after 2005 due to the better rainfall and increase in area under well irrigation. There was diversification of area under groundnut (in Rajkot), maize (in Sabarkantha) and tur (in Panchmahal) towards bt-cotton. More profit (52 percent) and better production (40 percent) are the major factors that motivated the farmers to cultivate bt-cotton. Among those who cultivate bt-cotton, 94 percent believe that it has no adverse impact on either soil or water. Over the period the use of fertilizer and pesticide use for bt-cotton has increased considerably. Around 78 percent reported to have increased the use of fertilizer and 62 percent reported of increased in use of pesticide.

The cultivation of bt-cotton is largely correlated with availability of irrigation. Less than fifty percent of total cultivated area under marginal and small landholders was irrigated whereas more than 70 percent of area among the large and medium land holders was under irrigation. More than 75 percent of large and medium land holders cultivate bt-cotton and only 14 percent of marginal landholders cultivate bt-cotton.

6. Change in Net Return

Out of the total sample household, 24 percent reported there was no improvement in net income from agriculture during the last seven years. The actual gain from agriculture was lowest among the cultivators in Panchmahal followed by Rajkot. The real income for the resource rich and irrigated cultivators has increased but there was not much change in the agricultural income among the tribal and backward farmers. The major reason for increase in overall agricultural income was mainly due to increase in use of seed-fertilizer technology (41 percent), better irrigation (20 percent) and sowing new crops like bt-cotton (better market price for those crops) (17 percent). The category wise analysis shows only 48 and 51 percentage of marginal and small landholders reported that there was increase in net return from agriculture over last seven years.

With the increase in the net income the large and medium landholders invest mainly on irrigation, asset creation and education whereas the major investment among the poor category was on livestock and other agricultural related activity.

7. Constraint in Production

The major problem that has been faced by the farmers includes fertilizer, irrigation and production price. Apart from all this lack of availability of labour was one of the prominent one. The major threat for agriculture, according to the cultivators includes 1) increase in cost of irrigation (67 percent), 2) increase in seed cost (90 percent) 3) increase in labour cost (80 percent). There was massive increase in area irrigated through bore-well and tube-well, mainly in Sabarkhantha (Among the households, out of the total irrigated area, bore-well and well constitute 81.3 percent) and Rajkot (76 percentage of irrigated area covered through bore-well and tube-well); it definitely leads to decline in the water table.

Out of the total sample studied, 40 percent do not plan to continue cultivation in future. Among them 30 percent of the medium and large farmers do not plan to continue farming in future. More than 45 percent of large and medium cultivators feel that farming will not be viable anymore in future. Increase in use of fertilizer (49.4), increase in input cost (13.4), market risk (12.5) and decline in the ground water level (10.2) are the major reason that was reported for agriculture not being viable and profitable anymore among the farmers in future.

8. Conclusion

The study shows that the growth in farm production is confined to relatively better off households with respect to ownership of land and water. The growth in farm production leads to increased use of water per unit of land hence depletion of ground water in Gujarat. Increasing cost and market related risks leads to rich households eventually leave farming in Gujarat. Investment gets channelized to alternative occupations and/or education in the case of Gujarat

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