Chapter – 8

Main Findings and Concluding Observation

We have come to the end of our long and torturous journey. It is now time to look back and take a stock of what we gained in our endeavour. Our problems are variegated and complex. They often entangle themselves into un-accessible knots. In no summary, can be micro structure of this knots becomes apparent enough to be transparent to a simple mind. We thus attempt to shade lights on the basic panorama of our exercise.

Apparently our problems are two fold. On the one, we see the pace and rhythm of a dynamic change in agriculture. For this we first consider the simple growth measures in relation to Indian agriculture. The fence is crossed here to encompass newer methods of growth calculation as developed by Kakwani (1991 and 1997). The same exercise is repeated when input changes are related to output changes delving into the boiling pot of what economist call TFPG. Again the district level agricultural data of major states is concerned. This is one side of the moon. The other side is the normative features of growth. Taking a Coue from A. Sen’s interesting book ‘Inequality of what’ we argue growth of what in agriculture is related to the welfare of people whose livelihood depends on it. Unless the relationship between growth and welfare is positive, this spurt of high growth becomes demise in moon walking even the concept of TFPG is not immune to this phenomenon. A paper by Rao and Coelli (1999) clears this issue. We employed the welfare induce simple growth and TFPG measures. However, these are all
technicalities. The direct link between TFGP and welfare inequality movement should be assessed. We take this task also. This chapter merely puts them together to provide an overall summery of all these findings.

Chapter -1 is an introductory chapter. In this chapter we motivate our study. The rational of a positive and normative link up is clarified here. Our objectives are also spelt out. Finally a plan of the study is given.

No study can begin in vacuum. The background of a study is very important. This is our task in chapter-2. This chapter gives a details study of the existing literature on agricultural growth as well as agricultural productivity. The weaknesses of earlier studied are spelt out here. This will help us to focus our study more appropriately.

However data base is essential for any empirical study. This is done in chapter-3. Here we first consider some basic features of agrarian economy in India. For our purpose we require data on input and output used at the district level. Unfortunately such data can not be easily accessible. For the ordinary growth we could cover 57 districts for three states of India – West Bengal in the east, Andhra Pradesh in the south and Maharashtra from the central. For the remaining states long run data is not forth coming. The efficiency part is solved by the Bhalla and Singh (2011) data that provide information only at discrete time point. For what we do now on the data with all its limitation will ring around our toe.

In chapter -4, we have discussed the imperatives of growth rates. Traditionally, there are two types of growth rates-long-run trend growth rates also designated as Least squares Growth rates (LSGR) and period-to-period instantaneous growth rates. Kakwani (1991 and 1997) in his paper tried to find out a link between the two. In the process, he areable to derive a weight structure linking LSGR and Instantaneous Growth Rate. However this particular weight structure is rather arbitrary. Kakwani (1991 and 1997) devised alternative structure of weight structure deriving different types of growth parameters. These alternative growth rates gave varying emphasis to the differing time points thereby giving a clue to the improvement, stagnancy or enhancement of growth over time. Thus they could be profitably used as alternative measures of convergence or divergence. The chapter uses them (following the suggestion of Sengupta, Bhattacharya and Chattopadhyay 2004). The picture is a mixed one. Some areas show an acceleration, others deceleration or stagnancy. As for convergence there are both catching up and
falling down. However, the entire analysis here is positive. However agrarian growth is not a descriptive entity. Lives of million is linked with it. Hence it should have a welfare dimension. This is our task in the next chapter.

In chapter-5 we captured the normative aspect of growth delving deeply into the relationship between long run and short run growth. Kakwani (1991 and 1997) was able to sort out a weighting structure appropriate for a social welfare function. The structure was adopted by us in the context of Indian agriculture. This would help us to unravel the welfare complexity behind the agrarian dynamics. Some of the conclusions emerging from the study are summarized below.

The empirical results show that a large number of districts from all the three states under study fell victim to the new economic policy in the post liberalisation era. The results based on different types of growth rates allow us to reject the hypothesis that the rate of growth of agriculture for the districts under study increased over time. This has not been possible mainly because of the diminishing rate of growth of the cropped area. The study also indicates that contrary to the popular belief of the neo-classicle growth school, there is no perceptible convergence in the growth of productivity or output of agricultural products across the different districts.

Some changes in the growth of agricultural production during the pre and post liberalization periods are also observed. However, these changes have not been helpful to bring about a change in the long term perspective. The relative stagnancy of wheat cultivation indicates a lack of proper dissipation of modern technological know-how across regions. Some kind of regional disparities are also observed in the growth of output of various crops between the so-called developed and laggard districts of the three states under study. The short period analysis also suggest that although the relative growth performance of the district deteriorated censurably in the post liberalisation period, some of them still managed to improve their relative welfare levels better in that period.

On the basis of forgoing discussion we may conclude that the growth of agriculture during the last 40 years has been highly unequal. The less developed districts suffered a greater decline in their agricultural performance than the few advance districts. The new agricultural technology as well as liberalization policies, have not been in any case more
In chapter-6, Data Envelopment Analysis is applied to measure the structural efficiency of firms for four agro climatic zones in India. There are wide variations in cultivating practice and in the yield rate of production of these zones. The results suggest that North Western region is the dominating zone in respect of farm efficiency under CRS as well as VRS technology. The average efficiency score for this region is greater than all other region under CRS and VRS technology. It is also observed that the average efficiency score is higher under VRS technology than CRS technology. On the contrary, the Central region is less efficient region then all other regions. The position of eastern region and southern region are also good during the last fifty years of Indian agricultural. The relative performance of the agricultural sector was gauged using DEA. Mathematical programming methods were used to measure Malmquist indexes of total factor productivity. It was found that, during that period, the total factor productivity experienced a positive evolution in the sampled countries. A decomposition of these measures suggests that, most of the good performance of factors productivity is attributable to technical efficiency change rather than to technical change. This suggests that, in the achievement of high levels of agricultural production, the principal difficulty appears in raising technology, that is, a shift in the production frontier.

Chapter -7 deals with Total Factor Productivity Growth (TFPG). TFPG is obviously an advance method on the simple growth measures linking input changes with output changes. However, even TFPG has not been generally associated with well indication. This was first achieved by Rao and Coelli (1999). We used their three models for assessing welfare related TFPG measures. The relation between simple TFPG and welfare is the play of an inequality measure – gini-coefficient of agricultural output in our case. Under all the model North –Western region becomes the best performer with a low gini coefficient and high productivity. The southern region is the follower of North-Western zone though contrast between various models is not very sharp. The almost same case is the Eastern zone. For the central zone however a massive inequality lowers welfare oriented TFPG.
Next we relate TFPG directly with some measures of social welfare. Our analysis is strongly correlated with the standard measures of welfare particularly rural poverty. It appears that a rise of TFPG lowers poverty to a considerable extent. Most of the parameters of social improvement are also correlated with TFPG. In all growth and efficiency is not anomic to welfare.