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論文題目 Factors Affecting Agricultural Productivity in Nepal: Macro and Micro Perspectives  
(ネパールにおける農業生産性の規定要因：マクロとミクロの視点)

Due to an ever increasing population growth, use of food crops for bio-fuel and scarcity of land and water resources, the pressure on increasing agricultural productivity is getting more and more intense. Recently, many developing countries have faced food shortage in domestic market that has disturbed the socio-economic harmony in these countries. These facts provide an important ground to carry out research on the agricultural productivity in developing country. In this context, this study is focused on assessing the factors affecting agricultural productivity in developing countries with special reference to Nepal. The whole study can be divided into three parts. The first part deals about the issues related to partial and total factor productivity. The analysis was done to assess the sources of land productivity as well as the trend in total factor productivity in developing countries including Nepal. The second part of the study is focused on analyzing the factors affecting input intensification, technical change and efficiency. The study was based on the grass-root level survey in Nepal. The last part deals about the responsiveness of Nepalese agriculture to policy variables like price, technology and agricultural export. The study was based on the aggregate national data.

The first chapter deals about the sources of agricultural growth in

South and Southeast Asian countries. The result showed that the contribution of land expansion to the production growth was almost zero in South Asia while it was around 24% in Southeast Asia. This indicates that the productivity growth is the main source of agricultural growth. There was a wide difference in land productivity between Nepal and other South and Southeast Asian countries. The difference in modern input use was the main reason for difference in land productivity. The result showed that the modern inputs like chemical fertilizer and tractor explained around 74 percent of growth in land productivity in Southeast Asia while it explained 61 percent in South Asia. This indicates a gradual transformation of agriculture in these regions from its dependency on conventional inputs to modern inputs to augment the land productivity. However, the case of Nepal is not encouraging as the level of modern input use is comparatively the lowest among all.

Agricultural growth based on input intensification has an upper limit. It is not possible to promote the input based growth after reaching a certain level. To expedite the rate of productivity growth, the input intensification should be accompanied with the technological advancement. In this regard, the second chapter is focused on measuring the trend of total factor productivity of Nepal compare to other low and lower middle income countries. Some of the past studies have embarked on this issue considering a group of developed and developing countries but Nepal was not included in such study and most of the data series was before 1980. This study considered the post-green revolution period (1980 to 2000) and 31 low and lower middle income countries from Asia and Sub-Saharan Africa. The focus was given on comparing the case of Nepal with that of other low and lower middle income countries. Past studies have concluded that the total factor productivity is negative in developing and least developed country. Contrary to the past studies, this study found a positive factor productivity growth in both low and lower middle income countries. Nepal also showed a positive factor productivity growth. Positive factor productivity might be due to a shift in macro policy from a closed to a liberal economy in most of the developing countries after 1980. Findings showed an evidence of factor productivity convergence between Nepal and other countries. This supports the fact that the open economic policy in many developing countries help to converge factor productivity in the long run. When all countries are

regrouped into three geographic regions, namely, South Asia, Southeast Asia and Sub-Saharan Africa, the total factor productivity was positive only in case of South and Southeast Asia while Sub-Saharan Africa indicated a negative growth in factor productivity. This explains the reason for the stagnant agricultural growth in many Sub-Saharan African countries. When the factor productivity was deconvoluted into technical change and technical efficiency change, the contribution of technical change was found higher compare to the contribution of technical efficiency change. However, in case of Nepal, the contribution of efficiency change was higher.

The fourth chapter is focused on the factors affecting technical efficiency of rice farms in Nepal. A micro level survey, considering 120 rice growers, was carried out to collect the necessary data. The result showed that the productivity of rice in the surveyed areas could be increased by 30 percent by increasing the technical efficiency in a given technological state. In the second stage of the analysis, assessment was done to explore the factors affecting technical efficiency. The result showed that the level of commercialization of rice had a positive impact on technical efficiency. Other household characteristics like age of household head, share of agriculture income in total household income also showed a positive impact on technical efficiency while sharecropping had negative impact on technical efficiency.

In chapter five, an assessment was done to study the factors affecting input and output market orientations and its impact on productivity. The result showed that the factors like land size, family size and market distance had significant effect on the integration of farm to the output market. Land size had positive effects while market distance and family size had negative effect on the output market orientation. Input market orientation was found to be affected by the level of output, output market orientation, contact to service providers, and share of agriculture income. Productivity was found to be affected by both input and output market orientations.

After analyzing the source of agricultural productivity and factors affecting it, the sixth and seventh chapters are focused on analyzing the response of production to different policy variables like price, technology and export. Chapter six is about the response of agricultural production to price and technological variables while chapter seventh deals about the agricultural export policy and its effect on productivity. The result showed that the response of production to price and technology varied across crops.

Commercial crop like vegetable was found more responsive to price and technological variables compare to other cereals and industrial crops. This suggests that the government policy on price and technology may be more effective in the areas having commercial farms. The analysis of aggregate production response to terms of trade and technological variables showed that the aggregate production was responsive to technological variable but not to the terms of trade in the long run. Thus, the government price policy should not be general but should be targeted to specific commercial crops.

In chapter seven, analysis is carried out to see the effect of agricultural export and its diversification on agricultural productivity. The OLS result showed that the effect of export volume and product concentration was insignificant while the effect of geographic concentration was positive. The assessment of short-run dynamics using vector auto regression (VAR) method showed that both geographic concentration and product concentration had a positive impact on agricultural productivity. The positive impact of export concentration could be due to a small volume of exportable surplus and excessive dominance of big Indian market.