



Title	Does Agricultural Extension Matter for Economic Development in South Asian Countries?
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学 位 論 文 名	Does Agricultural Extension Matter for Economic Development in South Asian Countries? (農業改良普及事業は南アジア諸国の経済開発に貢献できるか?)
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論 文 内 容 の 要 旨

In South Asia, most of the countries heavily rely on agriculture in their production and exportation. Agricultural extension plays a key role in their economy to enhance agricultural productivity and living standard. This dissertation quantitatively examines the impact of agricultural extension in terms of various measures of productive and consumptive performance of farmers in selected South Asian countries.

Chapter 2 investigates the effect of participating in agricultural extension programs on farm-level agricultural productivity in India using data from the India's National Sample Survey 59th Round. Technical efficiency as a measure of total factor productivity is estimated at the farm level by a stochastic frontier approach in the first stage, and the effect of participation is estimated by the control function approach in the second stage. Participation in any type of extension programs is found to improve technical efficiency. Technical efficiency is approximately five times higher for the farmers participating in private agricultural extension programs than for those participating in government agricultural extension programs. Among the types of agricultural extension programs that are neither governmental nor private, the Krishi Vigyan Kendra programs demonstrate a greater effect on technical efficiency than those by primary cooperative societies and credit agencies.

Chapter 3 assesses the effect of participation in NGO-led agricultural extension programs on agricultural productivity in Bangladesh using data from the study "Long-term Impact of Antipoverty Interventions in

Bangladesh, 2006-07." Technical efficiency is estimated at the farm level by a stochastic frontier approach in the first stage, and the effect of participation is estimated in the second stage in terms of participation, duration of participation, participation index, and NGO type (local, national or international) using OLS, the instrumental variable and the control function approaches. Participation in the NGO programs is found to improve technical efficiency. It is also found that the intensity of participation measured in terms of frequency of participation is important for productivity improvement, whereas the duration of participation is not. Furthermore, participants in international NGO programs are found to enjoy higher productivity than those participating in national NGO programs on average.

Chapter 4 investigates the effect of participation in government and private agricultural extension programs on consumption patterns of farm households in India using data from India's National Sample Survey 59th Round. The effect of agricultural extension programs is estimated by using the control function approach. Seven types of consumption items are considered for the estimation, and all are found as normal goods with approximately unit elasticity. Thus income growth apparently results in a proportional increase in the demand of the consumption items. It is also found that the government agricultural extension program participants spend more on durables in terms of investment in technological capacity and education which are thought to increase their income in the long run. They also spend more on agricultural investment and less on the consumables. The participants of private agricultural extension programs are also found to spend more on investment in enhancing agricultural production. The consumption pattern of the participants is more desirable for long-run income growth as they tend to spend more on items forming human and physical capital compared to the non-participants in the case of both government and private agricultural extension programs.

In summary, agricultural extension programs can be said to raise farm-level productivity and to make consumption patterns more future-looking through inducing technological progress and human capital accumulation. Thus, agricultural extension is expected to contribute to economic growth in South Asia. Given these findings, the government should provide an environment that ensures flexible terms and conditions for the private agricultural extension services, and strengthen the government agricultural extension services that meet farmers' demand.

論 文 審 査 の 結 果 の 要 旨

Agricultural extension plays a key role in the economy of South Asian countries to enhance agricultural productivity and living standard. This dissertation quantitatively examines the impact of agricultural extension in terms of productive and consumptive performance of farmers using household survey data of selected South Asian countries. This dissertation contains three empirical chapters.

Chapter 2 investigates participation effects of agricultural extension programs on farm-level agricultural productivity in India. Participation in any type of extension programs is found to improve technical efficiency and that is approximately five times higher for private agricultural extension programs compared to government agricultural extension programs. Among the other types, the Krishi Vigyan Kendra agricultural extension programs demonstrate a greater effect on technical efficiency than those by primary cooperative societies and credit agencies.

Chapter 3 assesses the effect of participation in NGO-led agricultural extension programs on agricultural productivity in Bangladesh. Participation in the NGO programs is found to improve technical efficiency and the frequency of participation is important for productivity improvement, whereas the duration of participation is not. Furthermore, participants in international NGO programs are found to enjoy higher productivity than those participating in national NGO programs on average.

Chapter 4 investigates the effect of participation in agricultural extension programs on consumption patterns of farm households in India. It is found that the government agricultural extension program participants spend more on durables in terms of investment in technological capacity and education which are thought to increase their income in the long run. It is also found that participants of both government and private agricultural extension programs spend more on human and physical capital forming items.

The dissertation thus provides policy prescription that the local or national government should manage to achieve the unexploited potential of the effect of agricultural extension by allowing greater flexibility for private agricultural extension services to enter and operate as well as strengthening the governmental extension services to meet the needs of farmers. It then stresses that agricultural extension will play an important role in long-run economic development by facilitating adoption of efficient technology and encouraging investment for farm production in South Asia.

This dissertation has a significant contribution in an aspect that it estimates the effect of agricultural extension programs systematically in terms of both productive and consumptive performance of farm household by rigorous econometric approaches. Particularly the latter part has not been addressed in previous studies. Therefore, the dissertation committee agreed that this dissertation deserves the doctoral degree in international public policy.