

CHAPTER 5

SUMMARY AND RECOMMENDATIONS



5.1 Summary

It is evident from many sources that the performance of the Thai economy over the previous two decades ranked high among developing countries. In the economy's rapid growth in the years prior to the financial crisis, the agricultural sector played a crucial albeit diminishing role. Thailand will continue to develop with the goal of becoming a newly industrialized country, and agriculture will remain a significant factor in maintaining and stabilizing economic growth. Equally important, it also serves as the input base for agribusiness, food processing and other related industries. The potential for the agricultural sector to continue to play a key role in this should not be overlooked. In particular, to reverse the described trends of rising inter-sectoral income inequality and concentration of poverty in rural areas, an increase in agricultural labor productivity and the maintenance of what is left of Thailand's comparative production advantages are essential. Thailand will continue to encounter structural change in world demand for its major traditional agricultural products, due to various developments ranging from technology to changing tastes. Consequently, diversification of agricultural products, improved production technology, research, and marketing strategy will be emphasized and implemented by both the government and the private sector in order to achieve the country's development goals.

Economics research has shown that effective learning is a significant driving force for the engine of rapid economic growth, and learning that leads to the appropriate exploitation of an economy's comparative advantage makes that growth sustainable. Therefore, it is important to study the effects of learning on productivity in the agricultural sector. International trade is one source of learning that is not currently well understood, but deserves additional investigation.

In this research, the results support the theory that trade has a generally positive influence on productivity growth in the agricultural sector of Thailand. The standard inputs of capital, labor and land are confirmed to be major contributors to

productivity growth. In addition, trade liberalization, exports and the import of capital goods for use in the agricultural sector all have a positive effect on TFP growth. This is important in that it may guide resources to further improve agricultural productivity. In concluding this report, it is useful to consider what this indicates/supports, if anything, regarding the socioeconomic factors that are likely to be sources of a permanent comparative advantages for Thailand, in all sectors, including agriculture. It is probably beyond the scope of this report to consider the development strategies consistent with full utilization of such advantages over the longer term, but such considerations should be made.

In considering what could be done to improve on this study, there is a definite need for further research into the effect of R&D and considering the effect of a "technology gap" between trade partners. Evaluating the effect of agricultural sector R&D is important, because this is a major source of learning and productivity improvement for any sector. Unfortunately this data is not readily available in Thailand. It is unfortunate for two reasons. First and most obviously is that without it a thorough investigation of TFP cannot be completed. Secondly, and more subtly, its absence might indicate that it has a low priority from the viewpoint of the government. (If it was considered valuable, would it not be measured along with other factors?)

Including a measure of the technology gap between Thailand's agricultural sector and a major developed country trading partner (the US or EU) would be useful. This value should change over time, presumably decreasing if there is technology spillover, and is of interest because it is expected to have an effect on the rate of productivity growth of the less developed partner. This phenomenon is also known as the "catch-up effect" and is covered by many researchers such as Young (1991) and Gera, et al. (1998b).

A final consideration in future studies might be to investigate the importance of public versus private capital investment. Researchers sometimes split the role of capital stock on productivity into that of the private and public sectors. Lynde and Richmond (1993), for example, examined the impact of the stock of public capital on

output levels and productivity growth rates in the United States. They found that much of the recent decline in productivity could be explained by a fall in public capital-labor ratio. In the case of Thailand, however, Tinakorn and Sussangkarn (1994) did not find a significant influence of public capital on TFP, while both the growth rate of the private capital and the growth of total capital was statistically significant. What effects may this have on the continuing productivity growth of the agricultural sector?

The results of these economic studies hold value in that they can guide resources and policy decisions being made in both the public and private arenas. This is especially important considering that Thailand's agricultural sector is not only nationally important, but important to the world economy, due to its historically significant role as a major producer and exporter of inexpensive food, particularly rice. If a situation were to arise in which Thailand faced difficulties in maintaining its low cost supply of agricultural products to the world market, there could be new global concerns about worldwide food security. Poapongsakorn, et al. (1998), state that an increase in Thailand's agricultural labor productivity and the maintenance of what is left of the country's comparative production advantages are imperative to mitigate global concerns about securing worldwide food supplies.

5.2 Recommendations

By all indications, for the immediate foreseeable future, the Thai agricultural sector is expected to continue producing an exportable surplus, despite generally low or falling crop prices. Herein lies some of the problem, for it implies that without an increase in productivity, farmers' incomes cannot be expected to rise. Policies designed to shore up their incomes require a net outlay from the government, which can be difficult from both fiscal and popular viewpoints to maintain over long periods. Only putting more effort into research on new technology will generate increases in productivity and thereby sustainable levels of growth in the agricultural sector.

Consider the importance, therefore, of the government's agricultural policy agenda and support of technical innovation. In earlier days rapid growth in the

agricultural sector was made possible by the land surplus and investments in capital (particularly irrigation and roads). But these approaches are inappropriate for facing up to the challenges that now confront the Thai agricultural sector. Development theory identifies technological and institutional innovations as the keys to sustaining comparative advantage (Christensen, 1992). The program for future growth in the agricultural sector involves the participation of both private firms and the government in technological research and dissemination. As noted by Christensen (1992) and others, technological innovation needs to be accompanied by institutional innovations. This includes both economic and political institutions, including property rights, product distribution networks, the mode of technological innovation (such as public research and patenting), the bureaucracy, and the system of law enforcement. Continuing agricultural development will be a process whereby institutions undergo substantial innovation and change.

Research by Siamwalla (1996) and others identified key constraints in addition to technology that Thailand's agricultural sector will face going into the future. Two key resources that will increasingly be seen as constraints on productivity are the agricultural labor supply and water.

As labor becomes increasingly scarce and unavailable to farmers, they will have to economize much more than they have in the past. There are two ways they can do so: by moving to relatively less labor-intensive crops, and by using less labor-intensive techniques, such as mechanization or the use of broadcasting rather than transplanting in rice production. The technology needed to save labor, particularly in the area of mechanization, is expected to continue to be provided largely by the private sector, as it has been in the past. Importing of technologically advanced goods will continue to be necessary until a substantial level of national development can be maintained. The value of these goods is supported in this thesis' findings that imported capital goods improve TFP growth in the agricultural sector. Public sector research is needed mainly to support the development of new plant varieties that are compatible with and able to withstand machine operations.

The problem of water shortages is far more complex. Again, technology, including imported capital, can play a role in improving this problem. While this research is not primarily concerned with natural resource management and other studies do not appear to agree on the long-term outcome of natural resource endowments on the agricultural sector, it does seem safe to predict that current ways of managing water, which are based on the assumption of unlimited supplies and free access, are no longer be viable.

In addition to supporting research and development and focusing on rationalizing natural resource management, there is also a role for public policy in the form of a rural social policy. The priority for R&D should be the development of technology that will allow Thai farmers to reduce their costs to compete effectively in the world market without lowering their standard of living. The only proven way that this can be achieved is through public sector research, and this has been the proven path in all countries with advanced agriculture, even in the United States.

However, there is also the problem of agriculture in that different regions and different sets of farmers are able to cope with ongoing changes and adapt to these changes with different capacities. Therefore a social policy is also necessary so that the outputs of R&D can be made to have a bigger impact on productivity.

Finally, even though the agricultural sector's share of total exports has been declining since the 1980s, Thailand is still a major exporter of many commodities. Continuing to improve the agricultural sector's ability to export is also a key driver of continued productivity growth as shown in this research. Thailand is the largest exporter of rice, cassava products and natural rubber in the world, and also ranks high for exports of maize and sugar. This shows the quality of the country's agricultural resources, which still have potential further development.

For the traditional agricultural commodities, trade liberalization and growing membership in the WTO will further Thailand's opportunities to export these products to areas that were once highly protected markets. Support for continuing to

maintain a liberal stance on international trade is supported in this and many other research projects.

However, for some time now it has been predicted that it is unlikely that Thailand can continue to rely on these traditional export commodities to generate high growth of agricultural incomes in the long-term. Countries less developed than Thailand are likely to enter these markets more and more in the future for the same reasons that Thailand has been successful in the past. While Thailand may have some quality advantages at the beginning, the competitors are likely to catch at an increasingly fast rate. The problem is that most of these agricultural commodities are fairly "generic" in their nature. Where they are produced does not affect the quality that much, if the right techniques are used. However, as supported by this research, increasing protectionism is not a viable option. Thailand needs to work within the framework of an open economy to enhance its ability to export valued agricultural products.

One clear exception to the case of declining commodity products has been that of Thai fragrant or jasmine rice, which does not have the same characteristic fragrance when grown elsewhere. This suggests that to continue driving agricultural productivity in the future, Thailand should focus on selective agricultural products, where the quality produced in Thailand is the best or among the best available in the world, especially when the high quality is derived from factors specific to the country. The Thai government should also support the development of sales and marketing programs to target sales to markets with high purchasing power. Thai tropical fruit falls naturally into this category of fairly location specific agricultural products. The quality of tropical fruit in Thailand is among the very best in the world, and varieties of pineapple, mango and durian are becoming more and more recognized internationally. While realization of this goal will bring in new income to Thai farmers, it is also essential that these new goals and production processes be in balance with conservation of natural resources and the environment. Also, further upgrading the quality and efficiency of the processed food industry to will provide further value-added to the agricultural sector.

The need to support agricultural research and development locally may be even more important than previously thought in light of some new studies. Keller (2002) finds that while technological knowledge has become considerably more global over time, technology is to a substantial degree local, not global, as the benefits from spillovers decline with distance. This would indicate that Thailand's agricultural sector will benefit most from increasing domestic public and private investment in technology, not depending on foreign investment and foreign technology transfer.

Increasing exports, maintaining an open market, and allowing the free import of technologically advanced goods until similar products can be developed locally will all continue the positive trend in the agricultural sector's productivity growth. Success in achieving increased agricultural productivity will have a positive effect on both Thailand and the world's food security. Food security, which the FAO has defined as "the access of all people at all times to the food they need for an active and healthy life" is certainly something worth striving for.