The Dynamic Adjustment of Structure and Demand for Labour in Thai Agriculture

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A Thesis Submitted for the Degree of Doctor of Philosophy

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August 1997

Declaration

I certify that the substance of this thesis has not already been submitted for any degree and is not currently being submitted for any other degree.

I certify that, to the best of my knowledge, any help received in preparing this thesis, and all sources used, have been acknowledged.

Abstract

The main purpose of this study is to develop an appropriate analytical model for understanding the relationships between agricultural inputs and outputs and the nature of dynamic adjustment of labour demand in Thai agriculture. It involved investigating the structural characteristics of demand for labour, output supply and other input demands, and the nature of the impact of technical change on labour demand, other input demands and output supply.

Most past studies have estimated a labour demand equation system associated with output supply and other input demands. No study has yet been undertaken which accounts for the dynamic nature of farm production and, in particular, the quasi-fixed nature of labour input in Thai agriculture. In this study, an intertemporal generalised Leontief value function in an adjustment cost framework was used to derive an analytical model of a labour demand system incorporating output supply and other input demands of Thai agriculture. In addition, a generalised Leontief profit function in the static approach was also proposed to provide an alternative method to estimate the labour demand system for Thai agriculture.

Pooled aggregate annual data were used for the study, comprising annual time-series data for the period 1971-90 and for the four regions of Thailand. Due to the need to construct any required aggregate variables and the use of regional data, the Caves, Christensen and Diewert multilateral index, a theoretically consistent method to use in multilateral comparisons, was used in this study.

The results obtained indicate that there were slow adjustments of capital, operator labour and unpaid family labour, dependent adjustment between these quasi-fixed inputs, low responsiveness of output supply and input demands and substitutability between hired labour and fertiliser and between hired labour and capital in Thai

agriculture. Moreover, the results show that there was significant technical change in output supply and input demands and differences in the rates of technical change because of the reduced availability of new land in Thai agriculture. In addition, it was found that technical change was capital and fertiliser saving and unpaid family labour using.

This study concluded that the dynamic model was superior to the static model in that it provided more valuable information on the speed and independence of adjustment of quasi-fixed labour inputs, short-run and long-run price elasticities and short-run and long-run biases in technical change in Thai agriculture. Moreover, the differences in the estimates obtained from the two approaches suggest that misleading information may be obtained when one attempts to model a dynamic process with a static tool.

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Acknowledgments

The preparation of this thesis has been made possible through the contributions of a number of people. I am particularly indebted to my supervisors, Dr Euan Fleming and Dr Tim Coelli, for their generosity, encouragement and inspiration throughout the entire period of this study.

I am most grateful to Professors Bill Griffiths, Roley Piggott, Associate Professors George Battese, Kevin Parton, Assistant Professor Wayne Howard, Drs Alicia Rambaldi, Ayut Nissapa, Duangkamon Chotikapanich and Chris O'Donnell for their assistance, comments and encouragement.

Special thanks are due to Assistant Professor Rangsan Nochai, Dr Voravudhi Chirasombutti and Mr Sonny Koesubdrajana for their general assistance and moral support, and Ms Oosanee Chaiyanont for her assistance during the data collection period.

My thanks also goes to King Mongkut's Institute of Technology Ladkrabang for providing study leave, and to the Australian Agency for International Development for awarding me a distinguished scholarship, namely the Equity and Merit Scholarship Scheme (EMSS), which has enabled me to pursue my further study.

Finally, I am very grateful to my parents and my wife Roongtipa for their support and encouragement.