

Acknowledgements

I would like to thank my advisor and co-advisor, Asst. Prof. Dr. Chamnein Choonpradub and Dr. Phattrawan Tongkumchum for their useful guidance and supportive. Also thanks to Prof. Don McNeil, Asst. Prof. Dr. Yupadee Chaisuksant and Dr. Kanitta Bundhamcharoen for their great comments, Asst. Prof. Dr. Apiradee Lim, Dr. Sarawuth Chesoh, Patarapan Odton for their helpful advice on my thesis, Greig Rundle and David Broadfoot for editing my English.

I would like to thank to Bureau of Health Policy and Strategy Ministry of Public Health for providing useful data, graduate school for funding.

Finally, I would like to thank my parents, siblings and friends for their encouragements.

Suriya Kosuthum