ECONOMIC ANALYSIS OF COMMUNITY HEALTH WORKERS' PERFORMANCE FOR MALARIA CONTROL AT VILLAGE LEVEL IN BENIN: A METHODOLOGICAL APPROACH



FELICIEN HOTEKPO HOUNYE

A Thesis submitted in Partial Fulfillment of Requirements

for the Degree of Master of Science

Department of Economics

Graduate School

Chulalongkorn University

1996

ISBN 974-633-988-5

Thesis title: ECO

ECONOMIC ANALYSIS OF COMMUNITY HEALTH WORKERS'

PERFORMANCE FOR MALARIA CONTROL AT VILLAGE LEVEL

IN BENIN: A METHODOLOGICAL APPROACH.

By:

FELICIEN HOTEKPO HOUNYE

Department:

ECONOMICS

Thesis Advisor:

Asst. Prof. Dr. ISRA SARNTISART

Thesis Co-advisor:

Assoc. Prof. MANISRI PUNTULARP

Accepted by the Graduate School, Chulalongkorn University in Partial Fulfillment of the Requirements for a Degree of Master of Science in Health Economics.

Sant Throngswan

...... Dean of Graduate School

(Assoc. Prof. Dr. Santi Thoongsuwan)

Thesis Committee:

Wattana S. Tany - Chairman

(Assoc. Prof. Dr. Wattana S. Janjaroen)

Thesis Advisor

(Asst. Prof. Dr. Isra Sarntisart)

Manisi Pentulap. Thesis Co-Advisor

(Assoc. Prof. Manisri Puntularp)

Nehrgra Kunthingember

(Asst. Prof. Netnapa Khumthong)

ต้นฉบับ หน้าขาดหาย

ACKNOWLEDGMENTS

First of all, I tender my humble thanksgiving to God, the Father Almighty, who in His infinite mercy and grace, has made all things possible at the right moment He has chosen for me. Honneur, Louange et Gloire à Dieu, maintenant et pour les siècles des siècles. Amen!

I am immensely indebted to my advisor, Asst. Prof. Dr. Isra Sarntisart, and my co-advisor, Assoc. Prof. Manisri Puntularp. Both eked out time from their very busy schedule to give me all possible advice and assistance. I thank also Assoc. Prof. Dr. Wattana S. Janjaroen, chairperson, and Asst. Prof. Netnapa Khumthong, member of my thesis examination committee for their valuable comments.

To Asst. Prof. Dr. Kaemthong Indaratna, Director of the Centre for Health Economics, for her moral support during the whole course, especially at the beginning when I was worrying about language matters, I only say two words: *Merci infiniment*. Please, keep on taking care of the MSc students with my first Thai friends Khun Paew and Khun Chotima. I hope I can come back in your beautiful country.

When I joined the centre last year, I had a brain wave. The overall Ajarns of CHE sharpened and gave it a clear focus. Thank you ever so much for the precious knowledge I got from all of you.

I will never forget the 1995/1996 MSc in Health Economics students of the Faculty of Economics, Chulalongkorn University, Bangkok. Thanks for your friendship, and good luck to all of us! I am also grateful to my father in Bangkok, Ajarn Tawin Sidhipongse, Director of the Student Christian Centre of Bangkok, to all the staff, and to Rev. Janet Guyer. Thank you for your hospitality.

I am forever indebted to my wife Pauline and my daughter Marie-Paule for their love, understanding, encouragement and prayers. I thank also my family, my family-in-law; and all my colleagues and friends in Bénin who sent valuable information to me, and made my family feel my absence less.

I would like to single out for very special thanks my boss Professor Eusèbe Magloire Alihonou, Director, Centre Régional pour le Développement et la Santé/Soins de Santé Primaires (CREDESA/SSP).

Last but not least, I am grateful to the UNDP/WORLD BANK/WHO Special Programme for Research and Training in Tropical Diseases (TDR), who supported me in funding for this programme.

Félicien H. HOUNYE May 1996

Table of Contents

Page
Abstract ii
Acknowledgementsiii
Table of Contents iv
List of Figures vi
List of Tablesvii
Chapter 1 Introduction 1
1.1 Rationale 1 1.2 Background 5 1.3 Research Questions 7 1.4 Research Objectives 8
Chapter 2 Review of Related Literature10
2.1 Concept of the Community Health Worker
Chapter 3 Research Framework 20
3.1 Conceptual Framework of the Study
Chapter 4 Modelling the CHWs' Performance Analysis 29
4.1 Research Design
4.6 Unit of Analysis
Chapter 5 Modelling Cost and Outcomes Analysis of CHWs' Performance45
5.1 Introduction

				v			
	5.4 5.5 5.6 5.7	Uni Pop	comes Analysis	67 67			
Chap	ter	6 Eva	aluation of the Approach	73			
	6.1 6.2 6.3	Cos Per	t and Outcomes Analysis of CHWs in Malaria Control formance, Cost and Outcomes Analysis of the CHWs in	73 75			
		Mal	aria Control	86			
Chap	ter	7 Dis	scussion, Suggestions and Summary	88			
	7.1 7.2			88 90			
Refe	erenc	es .		92			
Appe	endic	es .		96			
	Appe	endix	1: Tables of Social and Economic Indicators	96			
		1.1 1.2 1.3	Changes in GDP of Bénin from 1991 to 1993 The Six Leading Causes of Morbidity and Mortality	96 96 97			
		1.4	Distribution of the Five Leading Causes of Morbidity an Mortality in Health Facilities in the Six				
		1.5	Changes in the Number of CHWs in Experimental Communes	98 98			
	Appe	endix	2: Questionnaires	99			
		2.1	· · · · · · · · · · · · · · · · · · ·	99			
		2.2	•	01			
		2.3	Repeated Monthly Cross-sectional Survey on Malaria Specific Morbidity and Mortality and the Treatment Seeking Behaviour	.03			
Appendix 3: Others							
		3.1	Annualization Factors for Determining Annual Cost of Facilities and Equipment for Different Periods of Depreciation and Interest Rates	.06			
		3.2	Hypothetical Data for Testing the Models 1	.07			

Curriculum Vitae109

LIST OF FIGURES

. .		Page
Figure:		
1.1	Map of the Republic of Benin	5
1.2	Principles and Components of Primary Health Care	6
2.1	Forms of Economic Evaluation	17
3.1	Conceptual Framework of the Economic Analysis of CHWs Performance in Malaria Control at Village Level in Bénin.	. 23
3.2	Components of Costs, Benefits and Effectiveness Analysis of Malaria Control by CHWs at Village Level	. 24
3.3	Framework of the Analysis of the Study	. 26
3.4	Decision Chart for Presumptive Diagnosis and Treatment of Malaria by CHWs at Village Level	

LIST OF TABLES

[ab]	le:		Page
	1.1	Health System and Referral Structure in Bénin	9
	4.1	Measurement of the Quantitative Variables	34
	4.2	Measurement of the Qualitative Variables	35
	4.3	Dummy Variables for Measurement of the Qualitative Variables	37
	4.4	ANOVA Table for Multiple Regression	40
	5.1	Information for Costing Investment Cost	51
	5.2	Information for Costing Operating Cost	52
	5.3	Sample Size for Each Experimental Commune	68
	5.4	Costs Data Collection	69
	5.5	Benefits Data Collection	71
	5.6	Effectiveness Data Collection	72