Liberalizing Development: Effects of Telecommunication Liberalization in Thailand and the Philippines

by

Donyaprueth Krairit

B.S. (Computer Science), Thammasat University, 1993
M.S. (Telecommunications), University of Colorado – Boulder, 1994

Submitted to the Technology, Management and Policy Program
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY IN TECHNOLOGY, MANAGEMENT AND POLICY
AT THE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
JUNE 2001

Signature of Author: Donyaprueth Krairit
Technology, Management and Policy Program

Certified by:
David Clark
Senior Research Scientist
Director, Advanced Network Architecture Group, Laboratory of Computer Science
Thesis Supervisor

Certified by:
Kenneth Keniston
Andrew Mellon Professor of Human Development
Director, MIT India Program, Program in Science, Technology and Society

Certified by:
Lee McKnight
Associate Professor, Director of the Edward R. Murrow Center
Fletcher School of Law and Diplomacy, Tufts University

Certified by:
Frank Field, III
Senior Research Engineer
Director of the Materials Systems Laboratory
Associate Director for Education, Technology and Policy Program

Accepted by:
Daniel Hastings
Professor of Aeronautics and Astronautics
Professor of Engineering Systems
Director, Technology and Policy Program

Liberalizing Development: Effects of Telecommunication Liberalization in Thailand and the Philippines

by
Donyaprueth Krairit

Submitted to the Technology, Management and Policy Program
on May 4, 2001 in partial fulfillment of the requirements for the degree of
DOCTOR OF PHILOSOPHY IN TECHNOLOGY, MANAGEMENT AND POLICY

ABSTRACT

This thesis hypothesized that extensive telecommunications liberalization would not increase the penetration rate of the fixed telephone service better than other, less competition-oriented, policy alternatives. The hypothesis was validated in the case of Thailand and the Philippines. However, for the cellular mobile telephone and Internet services, extensive telecommunications liberalization could increase the penetration rates better than other, less competition-oriented, policy alternatives. Thus, the thesis demonstrates that past research has not paid sufficient attention to this issue and has assumed that the more extensive reform could lead to the faster and the better telecommunications development of all telecommunication services. The thesis suggested that less-developed countries (LDCs) should realize that they do not have to fully implement liberalization reforms, but should instead specifically tailor their telecommunications reform policies to their own pace and needs.

This study found that extensive liberalization reforms or extensive opening of the market does not necessarily increase penetration rates of services better than other less competition-oriented policy alternatives under the following conditions:

Assuming that the services have not yet reached their saturation levels based on the S-curve,

1. Users perceive the service as a necessity; and
2. the government perceives the service as a basic necessity; and
3. the government strictly commits and implements purposeful policies with the intention of increasing penetration rates of the services through the distribution of service provision authority.

Or,

4. If the liberalization is implemented after the saturation level of the service is reached.

The thesis results have the policy implication that liberalization can be a useful and effective alternative to lead to higher penetration rates, when and only if, the country and its people understand its goals, effects and implications and, more importantly, when the government provides the policy framework for universal service for the benefits of its people so that the liberalization can lead to self-sustainable development.

Thesis Supervisor: Dr. David D. Clark
Title: Senior Research Scientist;
Director, Advanced Network Architecture Group, Laboratory of Computer Science

To my parents, Dej-udom and Pannee Krairit, for their continuous love and support. I love you both very much and am grateful for everything you have done for me and our family. It has been my life-long intention to achieve this degree and dedicate it to you to show how much you are loved and appreciated.

To my sister and brother, Peach and Boy. You are true friends and supporters. I take pride in being your sister and I hope we continue to be each other's best friends in the future. I want you to remember that I could not have come this far without you. You are my source of inspiration and strength.

Acknowledgments

First and foremost, I would like to thank my thesis supervisor, Dr. David Clark. He is one of the greatest teachers I have ever met. More importantly, he has been a true supporter and a great mentor for me. He always listened and gave me excellent advice to guide me through the difficult doctoral process. It has been such a pleasure to work with him. He made MIT a more enjoyable and exciting place to work and study. He has had a great impact on my work. He sparked my curiosity to learn and brightened my days every time we have a discussion. My sincere appreciation goes out to him. He is truly my inspiration and role model.

Finishing this degree would have been impossible for me, had I not met and been guided by Prof. Lee McKnight. Before moving to Tufts University, Lee was my advisor and he did a great job in introducing and guiding me to conduct a research and work with other people at MIT. He has been a great supporter for me since I first applied to the doctoral program five years ago. His excellent knowledge in telecommunications policy has been an important starting point and input of my thesis. Even after his new appointment, he continued to support me and made the transition much easier than I expected. I am very grateful to him for his support and advice.

I would also like to express gratitude to Prof. Kenneth Keniston for his invaluable advice and encouragement. Prof. Keniston shared with me his knowledge and advice about developing countries. He has given me a real-world perspective on policy-making process in those countries. His support and interest in my thesis really encouraged me to keep working and finishing this thesis. His contribution on my thesis is significant. The substance of this thesis could not be this much interesting without his advice and I could not have asked for a better committee member.

My appreciation also goes out to many TMP/TPP faculty members. I would like to thank Prof. Richard de Neufville, former chairman of the TMP program, for believing in me and giving me an opportunity to be in this program. This thesis is also benefited from the detail comments from Dr. Frank Field, III. I am very grateful for his advice. I would also like to thank current chairman of the TMP program, Prof. Daniel Hastings, and other faculties whom I took courses with and have supported me throughout the period of my study. Another person who has given me significant moral support since the first time I came to MIT is Ms. Gail Hickey, TMP program administrator. She always listened and helped no matter how busy she was and I am very happy that she was in the program throughout the period of my study.

During my course of study at MIT, I have been fortunate to have a chance to work with an exceptional group of researchers at the RPCP and ITC. I have learned so much from them. I would like to thank Sharon Gillette, Shawn O'Donnell, Becky Shepardson, Elizabeth Yoon, and Merrick Berman in particular for their support on my research. I also appreciate the advice and guidance of my senior colleagues, Prof. Joseph Bailey and Tom Lee, who keeps encouraging me to finish this degree.

I would also like to thank all my colleagues at MIT, especially those in the TPP and TMP program. I cannot name all of them here. Their support and encouragement has been so important in getting me through many tough times. It is great to have good friends around who keep assuring you that you can finish whatever you want no matter how hard it is. I feel so lucky to have an opportunity to work and learn with them and will cherish the memories that I have with them all my life.

My special thanks also go out to all my family members, especially to my grandparents who have been waiting for the day I finish this degree, and also to all my friends both in Thailand and the U.S. Being away from home is difficult, but your caring thoughts, letters, and emails always brightened my days. I wish all of you knew how much your support and friendship means to me.

I could not have finished this degree and be this much healthy without the help of Dr. Anthony Van Niel, Dr. Tova Wein and Dr. Sandra Brown. They have kept me healthy throughout the difficult process of this study. My special thanks go out to them.

Lastly, I would like to thank my country, Thailand, for being my pride throughout my work.

Table of Contents

Chapter I: Introduction 10
1.1 Introduction 10
1.2 History of Telecommunication Liberalization 15
1.3 The Goal of this Study 17
1.4 Scope of the Case Study 18
1.5 Structure of the Thesis 20

Chapter II: Literature Review 22
2.1 Literature Review 22
2.2 Departure from Past Research 33

Chapter III: Analytical Framework and Hypothesis 36
3.1 Definitions of Terms 36
3.1.1 Definition of "Liberalization" 36
3.1.2. WTO Agreement on Telecommunication Services 36
3.1.3 Definitions of Services and Statistical Figures 39
3.2 Hypothesis 41
3.3 Conceptual Framework and Justification 41
3.4 Data Collection Procedures 46
3.4.1 Documentary Research 46
3.4.2 Interviews 47
3.4.3 Statistical Data 47
3.5 Conclusion 48

Chapter IV: Background of Case Studies: Telecommunications in Thailand and the Philippines 50
4.1 Thailand 50
4.1.1 Government Policies 50
4.1.2 Legal Entities 52
4.1.3 Laws and Regulations 56
4.1.4 Investment Situation 59
4.2 The Philippines 62
4.2.1 Government Policies 62
4.2.2 Legal Entities 64
4.2.3 Laws and Regulations 66
4.2.4 Investment Environment 68
4.3 Conclusion 69

Chapter V: Analytical Results 71
5.1 Hypothesis 71
5.2 Documentary Analysis 72
5.2.1 Policy and Regulations 72
5.2.1.1 Evolution and Effects of Regulations/Policies in the Telecommunications Industry 73
5.2.1.2 Statistical Summary on Penetration Rate Based on Major Policy Changes 81
5.2.2 Political-Economic Perspective 85
5.2.2.1 Evolution and Effects of Political-Economic Factors in the Telecommunications Industry 85
5.2.2.2 Statistical Summary on Penetration Rates Based on Major Political-Economic Changes 97
5.2.3 Industry Competition and Competition Regulations 100
5.2.3.1 Evolution and Effects of Industry Competition and Competition Regulations in the Telecommunications Industry 100
5.3 Interview Data Analysis 107
5.3.1 Interviewees' Comments on Fixed Telephone Service 107
5.3.2 Interviewees' Comments on Cellular Mobile Telephone Service 109
5.3.3 Interviewees' Comments on Internet Service 110
5.3.4 Interviewees' Comments on Liberalization and its Effects 111
5.4 Survey Data Analysis 112
5.4.1 Sample Sizes 113
5.4.2 Hypothesis Testing for Survey Data 114
5.4.2.1 Test for Data in Each Location 114
5.4.2.2 Test for Data across Locations 114
5.4.3 Statistical Analysis Results 114
5.4.3.1 Fixed Telephone Service 115
5.4.3.2 Cellular Mobile Telephone Service 117
5.4.3.3 Internet Service 119
5.4.3.4 Effects of Liberalization 120
5.5 Analysis Results 121
5.5.1 Extensive liberalization efforts does not increase fixed telephone service penetration rate better than other less competition-oriented policy alternatives 121
5.5.2 Extensive liberalization efforts could increase cellular mobile telephone service penetration rate better than other less competition-oriented policy alternatives 123
5.5.3 Extensive liberalization efforts could increase Internet service penetration rate better than other less competition-oriented policy alternatives 126
5.6 Conclusion 128

Chapter VI: Conclusion: Policy Implications and Future Research 136
6.1 Policy Implications 136
6.1.1 Central planning policies may be outdated. 136
6.1.2 Fixed telephone is not the only technology providing local access. 137
6.1.3 The penetration rates of telephone lines may not be good indices for development 138
6.1.4 Need for policies to prevent the widening digital divide, with the main focus on education and human resource development 139
6.2 Preliminary Examination for Future Research 141
6.2.1 Countries Selected for Preliminary Examination for Future Research 142
6.2.2 Results of the Preliminary Examination for Future Research 143
6.2.3 Conclusions of the Preliminary Examination for Future Research 147
6.3 Conclusion 147

Bibliography 149

List of Tables

Table 1.1: Different Types of Telecommunications Reforms 12
Table 4.1: Characteristics of Telecommunications Agreements and Concessions in Thailand 61
Table 5.1: Effects of Policies on Fixed Telephone Service 74
Table 5.2: Effects of Policies on Cellular Mobile Telephone Service 78
Table 5.3: Effects of Policies on Internet Service 80
Table 5.4: Effects of Political-Economic Factors on Fixed Telephone Services 88
Table 5.5: Effects of Political-Economic Factors on Cellular Mobile Telephone Services 93
Table 5.6: Effects of Political-Economic Factors on Internet Services 96
Table 5.7: Competition Regulations on Fixed Telephone Service 101
Table 5.8: Competition Regulations on Cellular Mobile Telephone Service 104
Table 5.9: Competition Regulations on Internet Service 106
Table 5.10: Sample Sizes in the Survey 114
Table 5.11: Equipment used by Samples 115

List of Figures

Figure 1.1: Relationship between Teledensity and GDP per Capita 11
Figure 1.2: Main Telephone Lines per 100 Inhabitants in Thailand and the Philippines 13
Figure 3.1: Framework of the Research and Study 43
Figure 4.1: Organization Chart of the Ministry of Transport and Communications 54
Figure 5.1: GDP per Capita (US$) of Thailand and the Philippines (1988-1999) 82
Figure 5.2: Changes in Penetration Rate (per 100 inhabitants) of Fixed Phone Lines According to Major Policy Changes 83
Figure 5.3: Changes in Penetration Rate (per 100 inhabitants) of Cellular Mobile Telephone Lines according to Major Policy Changes 84
Figure 5.4: Changes in Penetration Rate of Fixed Telephone Lines Based on Political and Economic Factors 97
Figure 5.5: Changes in Penetration Rate of Cellular Mobile Telephone Service Based on Political and Economic Factors 98
Figure 5.6: Changes in Penetration Rate of Internet Service Based on Political and Economic Factors 99
Figure 5.7: S-curve of Fixed Telephone Service 131
Figure 5.8: S-curve of Cellular Mobile Telephone Service 132
Figure 5.9: S-curve of Internet Service 132

CHAPTER I

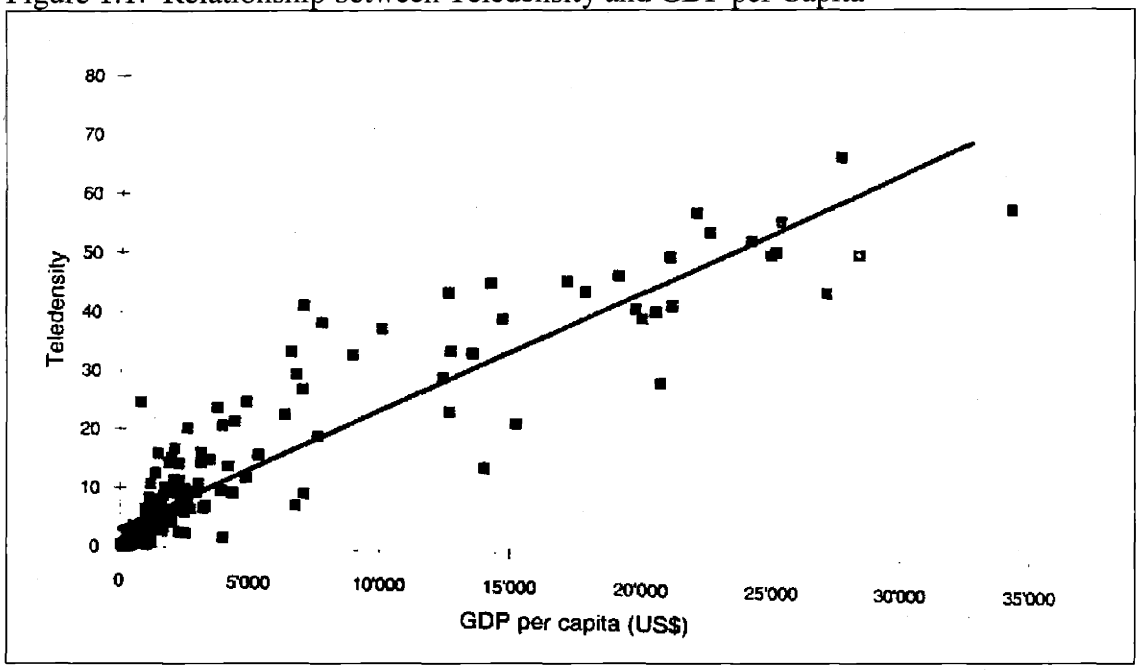
Introduction

1.1 Introduction

Since the beginning of telecommunications reform efforts in the 1980s, numerous research has shown that telecommunications can contribute to economic development and could distribute social and benefits more equitably throughout a nation (International Telecommunication Union, 1988; World Bank, 1994). In order to measure the development of telecommunications services in a country, the penetration rate of the fixed telephone service is typically used as the metric for the distribution of telecommunication services to users and is also used to compare telecommunications development between countries.

By comparing penetration rates of the fixed telephone service in several countries, it has also been shown in research by the International Telecommunication Union (ITU) that the penetration rate of fixed telephone service is correlated with the level of GDP per capita (used as a metric of economic development) of many countries. Figure 1.1, from the ITU research (ITU, 1994), shows the graph between teledensity (a number of fixed telephone lines per 100 inhabitants) and GDP per capita of 164 countries. Based on the graph, the teledensity is highly correlated with the GDP per capita of the countries. So, it was suggested by the ITU that telecommunications investment, with the goals of increasing teledensity, could bring social and economic rewards to the countries, especially for the developing ones.

Figure 1.1: Relationship between Teledensity and GDP per Capita[1]



Moreover, it has been shown subsequently in several studies by international institutions (ITU, 1997; World Bank, 1994) that the penetration rates of fixed telephone service have increased in countries that have implemented telecommunication reform process, though the magnitude of the increases varies.

Telecommunication reforms can take on different forms and processes and these processes can be implemented together or alone based on each country's policy decision. Table 1.1 shows different types of telecommunications reform processes.

---

[1] International Telecommunication Union, World Telecommunications Development Report 1994 (Geneva: ITU, 1994), 3.

Table 1.1: Different Types of Telecommunications Reforms

Reform Process	Definition
Corporatization	"Transformation of state-owned enterprises or business asset into public corporation organized under company law."[2]
Privatization	"Transfer of commercially oriented state-owned enterprises, activities, and productive assets of the government to the total, majority or minority private ownership or to private control."[3]
Liberalization	"Lowering of entry barriers to all or part of a market, allowing third parties to compete with established, generally monopoly, providers of goods and services."[4]

This thesis focuses mainly on the liberalization reform process among developing countries since this type of reform is most likely to have the long-term effects on the future industry structure. Based on the aforementioned research, which suggested that penetration rates increased in countries that implemented reforms, particularly with liberalization, it is tempting for one to conclude that the increase in penetration rates of telephone lines should vary according to the degree of the liberalization policies implemented. That is, the more the country opens up to competition and the more extensive the liberalization is, the greater the increase in telephone-line penetration (and therefore the higher the level of infrastructure and service development should have occurred).

However, there are neither research work nor statistics to support such an argument, especially for developing countries. Taking for example, the cases of Thailand and the Philippines, Thailand's telephone lines have been growing faster than the Philippines' despite the fact that the Philippines have been pursuing a liberal, competition-oriented policy since the early 1990s. Why has the Philippines, despite its extensive liberalization efforts, been less successful

---

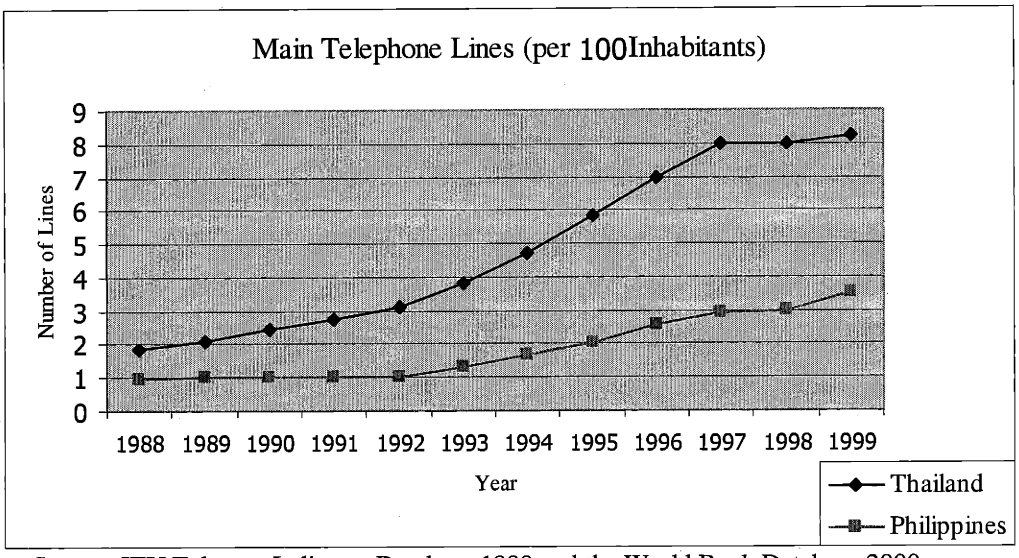
[2] Bjorn Wellenius and Peter A. Stern, eds., Implementing Reforms in the Telecommunications Sector: Lessons from Experience (Washington, DC: The World Bank, 1994), 690.
[3] Ben Petrazzini, The Political Economy of Telecommunications Reform in Developing Countries (London: Praeger Press, 1995), 16.
[4] Ibid.

in increasing its telephone penetration rate than Thailand, which has less competition-oriented policies?

The need to investigate this issue is obvious. Liberalization efforts will significantly affect how services are distributed to users and how future industry is structured. More importantly, with the introduction and rapid convergence of new technologies, we can assess whether the same question can apply to the penetration of new telecommunications services, such as Internet services.

Figure 1.2 shows the numbers of main telephone lines per 100 inhabitants in Thailand and the Philippines, the two major case studies of this thesis.

Figure 1.2: Main Telephone Lines per 100 Inhabitants in Thailand and the Philippines



Source: ITU Telecom Indicator Database 1999 and the World Bank Database 2000

Based on Figure 1.2, both countries have almost the same number of telephone lines per 100 inhabitants before their liberalization reform efforts in 1993 in the Philippines and in 1994 in Thailand. The Philippines embarked on telecommunications reform, which included the

liberalization of the industry in 1993[5] and has completed the major tasks of the reform process to attract more private investment. For instance, the Philippines privatized the state-owned telecommunications enterprise (SOTE) and has opened up its domestic telecommunications market. Thailand, on the other hand, failed to privatize its SOTE and has just recently started to let private companies invest in telecommunications infrastructure with the government through the concession agreements in 1995.[6] In addition, the Thai government will gain final ownership of the telecommunications infrastructure once the construction of the infrastructure is completed. So, when compared, it is quite clear that Thailand has a much less competition-oriented policy regime in telecommunications than the Philippines.

This dissertation investigates the liberalization efforts of less-developed countries (LDCs), with the main focus on Thailand and the Philippines, and their effects on the penetration rate of telephone lines and Internet access. More specifically, I will explore the following questions. Why has extensive liberalization in the Philippines been less successful in increasing the telephone penetration rate than the less competition-oriented policies in Thailand? Secondly, will the same relationship between the degree of liberalization efforts and the penetration rate hold for the cellular mobile telephone and Internet services in LDCs? By answering these questions, I hope to offer useful policy recommendations to developing countries regarding their liberalization efforts.

The results of this thesis show that extensive telecommunications liberalization does not increase the penetration rate of the fixed telephone service better than other, less competition-

---

[5] Johnson Chua, The Impact of Liberalization: Communicating with APEC Communities: Telecommunications Industry in the Philippines (Australia: The Australian APEC Study Center at Monash University in Melbourne, 1998), 4.

[6] Donyaprueth Krairit, "The Viability of Telecommunications Regulatory Changes in Thailand" (M.S. Thesis, University of Colorado – Boulder, 1994), 20.

oriented, policy alternatives. However, for the cellular mobile telephone and Internet services, extensive telecommunications liberalization could increase the penetration rates better than other, less competition-oriented, policy alternatives. Thus, the thesis demonstrates that past research has not paid sufficient attention to this issue and has assumed that the more extensive the reform could lead to the faster and the better telecommunications development of all telecommunication services. The thesis suggests that less-developed countries (LDCs) should realize that they do not have to fully implement liberalization reforms, but should instead specifically tailor their telecommunications reform policies to their own pace and needs.

1.2 History of Telecommunications Liberalization

Governments in many developing countries, including Thailand and the Philippines, have long provided and monopolized telecommunication services due to the fact that they have been perceived as a "public good" by the governments, which are traditional providers and suppliers of public services.

Economic theories have traditionally suggested that telecommunications services should be grouped with other "public" goods such as electricity. These services require a large amount of fixed investment costs, which are indivisible, and its marginal cost is zero, making it difficult, if not impossible, to charge for the use of goods based on its marginal cost as has been traditionally done for other goods and services. As a result of these factors, economic theory suggests that any profit-oriented private suppliers will not provide a public good because it is economically unfeasible for them.[7] Therefore, the governments usually take on a role of telecommunications suppliers in order to ensure that these telecommunications public goods are available to everyone at a reasonable price.

Despite government intervention in the provision of telecommunications services, throughout the 1970s and early 1980s, economic growth and large corporate users' need to communicate at higher and faster rates created a market for new and customized telecommunications services such as high-quality voice and data communications.[8] More-developed countries (MDCs), including the U.K. and the U.S.,[9] forced by the rapidly increasing demand for new telecommunication services and an inefficient government bureaucracy, pioneered in the privatization (in the U.K.) and liberalization (in the U.S.) of their domestic telecommunication markets. The privatization and liberalization efforts inevitably called for changes in regulatory and policy reforms. The results of these early efforts were successful to a certain level in that new services were created and expanded, which subsequently reinforced the growth within the telecommunications sector in MDCs themselves.

The key to this impressive growth is the fact that, in contrast to industry-specific innovations, changes in the telecommunications sector have helped increase economic activities and growth across an unusually wide range of industries. The rapid growth of telecommunications services and infrastructure in MDCs, coupled with rapid economic development in many LDCs,[10] has led to increasing global economic activities in which telecommunications services have acted as an underlying nervous system.

MDCs telecommunications companies' move to go international has pushed LDCs to place more resources in telecommunications development. However, even though the poor performance of SOTEs' in providing services in LDCs needed to be addressed, it was not the

---

[7] Roger McCain, "Essential Principles of Economics: A Hypermedia Textbook," Journal of Economic Education 31 (January 2000): 6.
[8] Ben Petrazzini, The Political Economy of Telecommunications Reform in Developing Countries (London: Praeger Press, 1995), 20.
[9] Other Countries include South Korea (1981) , Japan (1985), New Zealand (1987), and Australia (1989).

main cause of telecommunications sector reform in LDCs in the 1980s. In fact, as a study carried out by the International Telecommunication Union (ITU) shows, telecommunications reform in most LDCs is part of large-scale economic adjustment reforms driven by fiscal crises and economic decline.[11]

Since the beginning of the 1990s, with advice from MDCs and international lending institutions, many LDCs have embarked on efforts to reform their telecommunications sector, in order to increase economic growth and related telecommunications activities. LDCs' efforts have included the opening of telecommunication industries to more competition through liberalization and efforts to attract private and foreign capital through the privatization of dominant government service providers or both. However, due to different constraints, both in economic and technological resources, some LDCs have succeeded more than others in their attempts to reform and develop their telecommunications sector.

The differences in the motivation to and the degree of reform between MDCs and LDCs are quite obvious. While in the MDCs the pressure to reform the telecommunications sector has come from large corporate users, the reform process in LDCs have resulted from pressures outside the sector, more specifically deteriorating economic factors. Literature on the telecommunication reforms will be examined in more detail in the next chapter.

1.3 The Goal of this Study

The objective of this dissertation is to determine whether extensive liberalization can increase penetration rates of telephone and Internet services better than other less competition-oriented policy alternatives and how the penetration rates of these services relate to the

---

[10] Ben Petrazzini, The Political Economy of Telecommunications Reform in Developing Countries (London: Praeger Press, 1995), 13.

liberalization efforts. This study will examine the cases of liberalization of telecommunication industries in Thailand and the Philippines as representative LDCs. Through a thorough analysis of these two cases, this study hopes to provide policy implications for liberalization efforts in developing countries.

1.4 Scope of the Case Study

This dissertation focuses on the experience of LDCs in liberalizing or opening up their telecommunication markets to competition, either fully or partly. The fact that LDCs in the 1980s and 1990s implemented a wide range of policy and regulatory changes aimed to open their telecommunications markets and increase telecommunications services and that some LDCs have been more successful in expanding their telecommunications services than others calls for an investigation into what factors actually underlie success levels in different countries.

Even though there are as many distinct paths to reform as there are countries, trends in telecommunications reform can be grouped into two categories: privatization of state-owned telecommunications enterprises (SOTE), which is the transfer of ownership of SOTEs from the government to the private sector, and the liberalization, which is the opening up of the telecommunications markets in individual countries. These two processes are related and are often seen as one intertwined path to successful reform.

Despite the interdependence of these two processes, factors affecting liberalization and privatization efforts vary. While factors affecting privatization include state autonomy and other political and social factors such as political stability, it appears that economic and investment factors, such as the economic growth and investment conditions, are responsible for the success

---

[11] Ernst Becher, Restructuring of Telecommunications in Developing Countries: An Empirical Investigation with ITU's Roles in Perspective (Geneva: International Telecommunication Union, 1991), 5.

of the liberalization. [12] In fact, it is even argued that the privatization of SOTEs is not a necessary condition for increasing telecommunications services. There are many instances where public telecommunications enterprises operate as efficiently as private ones, such as the case of Singapore Telecom. Also, in many industries and countries, both MDCs and LDCs, private-owned enterprises often operate as a monopoly.

In addition, if one takes market-oriented competition as a final goal, it is clear that liberalization efforts can have longer-lasting effects on the market and industry structure than privatization efforts. While privatization, in the broadest sense, transfers the ownership of an organization from the public to private sector, it is liberalization efforts that lower the barriers of entry and tend to promote the long-term goal of open competition. Therefore, liberalization efforts require more extensive changes in the regulatory and policy framework than do privatization efforts.

As a result, for the analytical purpose of this dissertation, privatization and liberalization efforts will be separated in the analysis as much as possible and only the liberalization of the market will be covered in this study due to its longer-lasting effects on the future industry structure.

This study will cover fixed telephone, cellular mobile telephone, and Internet services. Fixed-telephone penetration is covered because it has been traditionally used to measure the degree of development in many comparative and statistical studies. The reasons why it is a good measurement are the fact that fixed telephone service has been considered a basic and necessary service to both business and residential users and that governments have been the only traditional provider of the service due to the high economy of scale and investment required.

---

[12] Ben Petrazzini, The Political Economy of Telecommunications Reform in Developing Countries (London:

In addition to fixed telephone services, I will also cover the cellular mobile telephone and Internet services because they are also major mechanisms for introducing competition. Due to the convergence of technology and the increasing importance of the Internet, this dissertation will also cover the Internet penetration in the Philippines and Thailand. The Internet provides an open and accessible environment for new Internet service providers and innovations. As a result, analysts and scholars have recently used the number of Internet users to measure the growth of the Internet at the national level. The comparative analyses will be provided on the current status of regulations and the Internet penetration rate for both countries.

The two major case studies covered in this dissertation, Thailand and the Philippines, are excellent for comparison because they are both considered developing countries with low-to-medium income levels per capita. They both initiated telecommunications reform in the early 1990s and telephone penetration rates (per 100 inhabitants) at the beginning of the reform in both countries were about the same. Both experienced a period of high economic growth during the early 1990s and were both later affected by the Asian financial crisis in 1997. Both are democratic countries and have had histories of political instability and dictatorship.

1.5 Structure of the Thesis

This thesis is organized in the following structure.

Chapter 1 is the introduction, and explains the goals and scope of the study, the statement of problems, and the structure of the thesis. Chapter 2 presents the literature review related to this thesis. Chapter 3 presents definitions of terms used in this thesis, the hypothesis, methodologies used and research plans, including the research techniques that will be used to validate the findings of the thesis. Chapter 4 presents the current regulatory and policy

---

Praeger Press, 1995), 8.

frameworks of the two countries. Laws and governmental policies concerning telecommunications in both countries are presented. In addition, legal entities involved in telecommunications of both countries will be shown.

Chapter 5 analyzes the findings and results of the study. The chapter is divided into four sections. The first three sections show the analysis results and the last presents the conclusion of the hypothesis proposed.

Chapter 6 presents the conclusions from the two case studies and policy implications of the findings that can be used for other developing countries, as well as suggestions for further research.

CHAPTER II

Literature Review

This chapter presents the literature review in the field of telecommunications reform with a focus on the effects of liberalization reform efforts on telecommunication service penetration rates.

2.1 Literature Review

Research in telecommunications reform and liberalization can be traced back to the 1980s, when the movement toward structural reform of the telecommunications sector began. Most of the early research focused on the U.S. and OECD countries as they were among the first to have pioneered the reform process. The research in this period offers recommendations for policy and regulatory alternatives promoting more open competition.

More research was carried out in the early 1990s in response to rapid changes in the global telecommunications market including the rapid increase in user demands. These researches provided supporting evidence that open competition policies are the best way to improve and expand telecommunications services and thus, showed that telecommunications reforms and liberalization is needed. The World Bank held a research seminar called "Implementing Reform in the Telecommunications Sector" in 1991 to examine recent reforms in the telecommunications sector. This event brought together over 100 research participants involved in telecommunications reform in some 40 countries.[13] The message from the seminar was clear - that it is necessary to attract private investment and new entrants to the telecommunications business in order to keep up with rapid demand growth. There are,

---

[13] Bjorn Wellenius and Peter A. Stern, eds., Implementing Reforms in the Telecommunications Sector: Lessons from Experience (Washington, DC: The World Bank, 1994), 4.

however, no standard blueprints for telecommunications reform. Sector designs and implementation strategies must be crafted to fit the specific economic, political, and institutional features of each country.

In addition to the World Bank's research, research during the past decade has shown that competition and market-oriented reforms can increase technology diffusion, domestic and international investment and the telecommunications penetration rate in most countries that carried out the reforms (Saunders, Warford and Wellenius, 1994; World Bank, 1995; Levy and Spiller, 1996). As a result of these numerous publications and empirical research, by the mid 1990s, it was widely recognized that telecommunications reforms and liberalization generally lead to service expansion and improvement.

Besides the work that shows the benefits of the competition and the necessity of the reforms, several scholars in the 1990s also predicted the impact of telecommunications reform and liberalization based on economic and political economy theories. These scholars can be categorized into four groups.

The first group of scholars argued about the benefits and disadvantages of the reforms and liberalization, which brought about the domination of the Multinational Corporations (MNCs) (Schiller, 1986; Regli, 1996). Some scholars in this group argued that the liberalization would lead to the dominance of MNCs, which could harm the national security, while others argued that the technology transfer from MNCs is necessary for telecommunications development. Unfortunately, the works in this group did not provide practical guidelines for the assessments of the impacts of telecommunications reforms and are not within the scope of this thesis.

The second group argued about the best means to reform the telecommunications industry and achieve success, which is measured by different objectives and units according to different authors. Some rely on the different sub-processes of reforms, i.e., privatization, liberalization, de- or re-regulations, as a proven effective or ineffective way for a country to succeed in their reform efforts. For example, Wolf and Sussman (1995) focused on the privatization of state-owned telecommunications entities and argued that a country could not benefit or succeed from the privatization of its telecommunications industry because of the possible abuses of the monopoly.

Other work, usually in the form of case studies, has shown the actual experiences of countries that have implemented various means of reforms. These studies are very useful because they are based on realistic experience and not just predictions or ideologies (Snow, 1986; Noam 1992, 1994, 1997, 1998, 1999; Jussawalla, 1993; Hudson, 1997; OECD, 1999). Most of these works generally concluded that competition and liberalization of the industry is the most effective means to achieving telecommunications reform success by showing that there exists the relationship between the introduction of competition and service expansion.

However, other scholars who also have studied the best process to reform and liberalization do not agree that liberalization is the most effective means to implement telecommunications reforms. These scholars have shown that some telecommunications monopolies delivered excellent performances on network development and increased penetration rates substantially (Mody, Bauer, and Straubhaar, 1995). In addition, they revealed that there is not any one method or paradigm that is superior to all other methods in developing telecommunications infrastructure, in examining individual case studies (Sa, 1994;

Schoonmaker, 1995; Verhoest, 1995; Zhubieta, 1996), or comparative case studies (Straubhaar et al., 1995).

The third group of scholars is concerned with the network development and service distribution aspect of telecommunications services. This includes the works about universal service and network growth. Usually, the works in this group are quantitative and involve mathematics and econometric modeling. This research usually uses network growth or a measurement of distribution as their measurement. One of the most common independent variables used is the country's teledensity rate, which is the number of telephone lines per 100 inhabitants in that country.[14] Researchers in this group look for factors or variables that could affect their independent variables using many decades of statistical data of many countries to find the causal relationship or assess the impacts of the policies.

One of the most cited of these works is authored by the International Telecommunication Union (ITU) in 1988 and asserts that telecommunications can increase the efficiency of economic, commercial, and administrative activities, and distribute the social and economic benefits of the process of development more equitably throughout a community and a nation.[15] Other works follow the same direction although with an objective on measuring the universal service, rather than measuring network growth (Duch, 1991; Albery, 1995; Jayakar, 1999).

The fourth group of scholars, and the most relevant group to this thesis, focuses on the institutionalism aspect of telecommunications reform. Works in this group are both qualitative and quantitative and show that institutional arrangements and influences do influence the success of telecommunications reforms. Again, there are two sub-groups of scholars in this category; one explicitly critiques government intervention and the involvement of political action in the

[14] For more information on the definition of "teledensity," see Chapter III.
[15] International Telecommunication Union, Telecommunications and the National Economy (Geneva: ITU, 1988), Foreward.

process of telecommunications reform while the other argues that state intervention does not bring about only negative consequences in the reforms of any industry.

In fact, some of the research in this institutionalism group are in contrast to the second group, who are economists that support free competition and open markets. There have been continuous lines of research that recognize that economic concepts cannot fully explain the markets and that economic concepts of markets are not realistic because they are assumed to be frictionless and efficient (North and Thomas, 1973; North, 1990; Acheson, 1994). North (1990) states that "institutional frameworks are the critical key to the relative success of economics" and "allocation (in neoclassical economics) was assumed to occur in a frictionless world, one in which institutions did not exist or did not matter."[16]

These works are not without strong critics. It is argued by several scholars (Samarajiva 1990) that North limited his analysis of institutions to a positivist-type of discussion of institutional factors and that he placed inordinate importance on institutional factors and that the emphasis biased his conclusion. These critics showed that there is a bias favoring state intervention introduced in North's work by a tendency of a country to allow for state intervention and that one should correct for these biases before considering the effects of institutional factors. For example, it has been shown in research that LDCs tend to lean toward a centralizing type of integration and lean on their centralized institutions (Samarajiva and Shields, 1990). In addition, it was argued that the World Bank and the International Monetary Fund (IMF) influences have biased telecommunications development toward a centralized model (Sussman, 1991).

This thesis is relevant to the last three groups of scholars. While this thesis does not aim to determine the best methods or order of methods to achieve successful telecommunications

---

[16] Douglass C. North, Institutions, Institutional Change and Economic Performance (Cambridge: Cambridge University Press, 1990), 131.

reforms as does the research in the second group, it proceeds with an implicit assumption that the findings of some of the scholars in the second group are true, that a full-scale and extensive liberalization has not yet been proven to be the most effective method to implement the reforms. As a result, this thesis is focused on liberalization reforms to determine if extensive liberalization produces a more effective reform, measured by the increase in penetration rates per 100 inhabitants, than other less competition-oriented policy alternatives. If extensive, full-scale liberalization is the most effective method to implement the reforms and expand telecommunications services, then the results of the analysis should show that extensive liberalization efforts could increase penetration rates in the development of the three services, namely, fixed and mobile telephone, and Internet services, better than other less competition-oriented policy alternatives.

This current research is also based on work by the third group of researchers. Since this work is a multi-method research (Neuman, 1993), it involves both qualitative and quantitative measurement and analysis. Like most of the works in the third group, this work uses the penetration rate (per 100 inhabitants) as measurement of success of liberalization and other policy alternatives. The use of formal statistical measurements enhances the statistical significance and strong quantitative analysis of the framework.

Finally, this work is definitely relevant to the fourth group of research because it takes into account the influences of institutional factors. However, in order to minimize the bias of the positivist-type of analysis, the two case studies used in this thesis were carefully selected so that they represented both ends of the spectrum. While the Thailand case represented full state intervention in the telecommunication arena, the Philippines represented less government intervention and a more liberal competition environment.

While this work incorporates different strengths of prior research studies, it attempts to do something new by focusing on the effects of liberalization as compared to other less competition-oriented policy alternatives. While some researchers went to the extreme of trying to determine the best method or best sequence of implementation for telecommunications reforms and held an implicit assumption for each step of the reform process that liberalization or privatization will be (or need to be) implemented in a full-scale, there is very little research done on the null hypothesis comparing the effects of liberalization and other less competition-oriented policy alternatives. Since countries are limited in their telecommunications reform choices and the extents of reforms possible due to various factors both political and economic (Levy and Spiller, 1996), the effects of different policy alternatives should be understood. This research is focused on the effects of liberalization and other less competition-oriented policy alternatives.

In addition to the stated research position, this thesis presents the analysis results similar to the way Levy and Spiller did in their book, "Regulations, Institutions, and Commitments" (1996). Levy and Spiller argued that the goals of regulatory reform - to improve service and achieve lower prices - may not always be met due to the interaction of a country's political and social institutions with regulatory processes and economic conditions. Their book presents the results of a comparative assessment of the impact of core political and social institutions on regulatory structures and performance in the telecommunications industry in several LDCs and MDCs. Instead of determining specific solutions to implement the reforms, they argued that the reforms could be successful under a wide range of regulatory procedures so long as there are complementary mechanisms in place to restrain arbitrary administrative actions.[17] This thesis follows the same line of reasoning in presenting its analysis results in that, instead of

[17] Brian Levy and Pablo T. Spiller, eds., Regulations, Institutions and Commitment: Comparative Studies of Telecommunications (Cambridge: Cambridge University Press, 1996), 1.

generalizing and determining whether extensive liberalization reforms are better in increasing penetration rates than other less competition-oriented policy alternatives, it specifies conditions under which liberalization can or cannot increase penetration rates, no matter what regulatory choices a country makes and how extensive they implement such choices since each country has their own regulatory constraints and no particular method can be a panacea to all.

As presented earlier, it remains unclear in the telecommunications reform literature as to whether extensive liberalization could increase the level of liberalization success (in this dissertation, measured by an increase in both fixed and mobile telephone and Internet service penetration rates). This thesis assumes that the increase in penetration rates can vary with economic factors such as the GDP per capita, and not to the liberalization efforts (and therefore the degree of competition allowed) alone. It also considers that the increase in penetration rates may actually vary with liberalization efforts and that liberalization can increase the penetration rates of the services. Other factors should also be considered, such as general technology diffusion and national political factors, such as political stability.

To this end, two threads of literature on telecommunications regulatory reform seem to contradict each other. One thread of the literature suggests that the changes in the telephone penetration rate, without other economic and political effects, vary according to the type of reform process implemented to introduce competition and the liberalization policies. The other thread of literature suggests the opposite.

In his 1999 work, Jayakar employed an econometric model that accounts for economic development and diffusion of telecommunications technologies and isolates the effects of regulatory choices on the penetration rate. He has shown, through the use of an econometric model, that without other economic and diffusion effects, the growth in telephone penetration

rates is dependent on both the type of reform process implemented (such as privatization, incorporation, and demonopolization), and the combination of such processes implemented. More importantly, he found that the introduction of competition was strongly correlated with an increase in the penetration rate in LDCs. This implies that extensive liberalization reform, which allows for open competition than traditional monopoly, should increase penetration and growth rates better than other less competition-oriented policy alternatives.

On the other hand, another thread of research offers a more conservative view. In its 1997 Asia-Pacific Telecom Indicator, the International Telecommunication Union (ITU) stated that a common factor throughout the Asia-Pacific region is the strength of demand for telecommunication services. The authors also stated that, "because the level of demand is so strong, it tends to mask the influence of different types of policy."[18] This cautious view implies that many factors could affect the increase in penetration rate other than the extent of liberalization alone.

In 1995, Ben Petrazzini argued in his book, "The Political Economy of Telecommunications Reform in Developing Countries," that political factors such as state autonomy and power concentration plays a crucial role in the state's failure to carry out privatization of SOTEs. On the other hand, he found that economic variables offer a more accurate explanation of the failure to carry out liberalization reform efforts. He also stated that "it is important to keep in mind that, due to the variety of economic, social, and political changes that LDCs suffered in the 1980s, one should be careful to attribute causality solely to the privatization or liberalization of markets."

---

[18] International Telecommunication Union, 1997 Asia-Pacific Telecom Indicators (Geneva: International Telecommunication Union, 1997), 44.

In 1999, J.P. Singh looked at different levels of regulatory reforms. He argued in his book, "Leapfrogging Development: The Political Economy of Telecommunication Restructuring," that telecommunication can lead to significant development in service enhancement in only a few types of states. These cases are usually not LDCs because they require that states be suppliers of telecommunications services that served among various user groups who either acceded to the state's wishes or pressured it to meet their demands for services for specific purposes (a rare condition). As a result, he argued that MDCs are likely to be more successful than LDCs in increasing the penetration rate by liberalizing the telecommunications market.

In addition to the aforementioned literature, which is directly related to telecommunications reforms and its effects, there is other literature that is the basis of this thesis as well. This include literature in the field of political economy of development, which concerns the effects of political and economic factors on the country in general. These works could be considered as a pioneer to current research, which is more specifically tailored to a particular industry. The literature is about the government and politics of developing countries (Kahin, 1970; Amsden 1985; Ardnt and Hill 1999). These studies provide a framework and understanding of political and regulatory environment in developing countries, especially for Thailand and the Philippines that are used in this study. However, this kind of study is very broad and is not focused on telecommunications services and development.

As a result of the broad scope of the general political economy study, another group of researchers has narrowed down their research scope to the relationship between telecommunications and socio-economic development. One of the most distinguished works in this field is from Ithiel de Sola Pool, who wrote numerous books about how telecommunications

technologies could change the economic, politics, and social environments in countries (Pool 1983, 1990). There are also works about how telecommunications technological change could affect the international development and regulations from the World Bank, OECD and other research institutes (Crandall and Flamm, 1989; Saunders, 1994; Jussawalla, 1993; OECD, 1995).

Since this thesis also covers mobile cellular and Internet services, it is worth noting that there are quite a number of literatures on cellular and Internet and development. For the cellular service, there is research about how different mobile cellular pricing regimes could create advantages for some countries. The study is conducted within and limited to the OECD countries (Paltridge, 1996). There is also research on how developing countries could use mobile cellular to accelerate the development of their telecommunications infrastructure (Gruber, 1999; Minges 1999).

As for the Internet service, since 1994, there have been several books about the National Information Infrastructure (NII), which was the initiative that started to stress the importance of the Internet. This group of researchers focuses on the government policy and telecommunications technologies, especially those involving with the Internet. One of the pioneering works in this group is the book, "The Unpredictable Certainty," by the U.S. National Research Council (NRC, 1996). The book presents overall technology trends and policy recommendations, which turned out to be influential in shaping the U.S. telecommunications policy. Other books include the books from academic institutions, such as "Coordinating the Internet" (Kahin 1997), "Public Access to the Internet" (Kahin and Keller, 1995), and "National Information Infrastructure Initiatives (Kahin and Wilson, 1997).

Finally, another group of research which relates to telecommunications development and has been received strong attention recently is the research on the availability and effects of

telecommunications services in the rural areas, the so-called "digital divide." This group of researchers are concerned about how to distribute the telecommunications services to those who are under privileged (Hudson, 1984; Jussawalla and Wedeweyer, 1986; Sachs, 2000). However, this topic is largely beyond the scope of this thesis, which focuses on empirical measures of telecommunications and Internet penetration.

2.2 Departure from Past Research

This dissertation is not arguing about whether or not liberalization leads to greater penetration rates since it is clear from the literature review that liberalization and competition, either fully or in part, has led to higher penetration rates in LDCs. It also does not attempt to determine which types of regulatory and policy choices or implementation orders are better than others. Rather, it focuses on discovering whether liberalization can increase the penetration rates (considered successful) of the services better than the less competition-oriented policy alternatives, and the conditions under which the liberalization will and will not have significant effects on increasing service penetration rates.

This dissertation diverges from past research in that it will investigate the success levels of telecommunication liberalization reform as measured by the increase in telephone and Internet penetration rates using the multi-method research approach, which include both qualitative and quantitative research and analysis. Case studies will be used and the traditional documentary and interview analysis will be done. However, in addition to traditional case studies, this research will also carry out a survey and quantitative analysis of telecommunications demands in order to provide a solid framework and analysis results.

While past research has confirmed that liberalization and market-oriented competition can lead to greater penetration rates, it was not until Jahankar's work in 1999, which showed

that, regardless of economic and policy effects, extensive liberalization and privatization could lead to greater telephone penetration rates better than other methods that are less competition-oriented. This work falls within that realm. While Jahankar used an econometric model to account for technology and economic effects, other non-quantifiable factors such as political pressures and practical problems involved in providing new services had an effect that was unaccounted for. These factors can be of importance since the states almost always intervenes in the provision of telecommunications services in LDCs. These political effects cannot always be captured through statistical work. Moreover, Jahankar's research used the last 20 years of statistical data, which might have biased the results against LDCs since most LDCs, including Thailand and the Philippines, just recently begun their telecommunications reform efforts.

This work is different than Levy and Spiller's as they focused on regulatory reform as a whole process and used institutional economics to explain the importance of the regulatory factors and, as a result, focused on the supply side of the telecommunications services. This work focuses only on the liberalization process and attempts to explain both the supply and demand sides of the services. Research will be conducted in several separate steps involving information from both the supply and demand side of the industry.

This work is also different from Singh's work because I focus solely on the success levels of LDC liberalization efforts, which is more specific than his focus. While Singh has produced a valuable work by highlighting the importance of the demand side of telecommunications services, his work lacks the rigorous statistical or quantitative analysis to support his conclusions. This is where this work hopes to strengthen the body of research on telecommunications liberalization efforts. The survey conducted in this research will increase

the statistical evidence on the telecommunication service demands and will be able to more accurately predict the future trends of user demands.

This work is different from Petrazzini's work as well. While Petrazzini looked at the reasons why some countries failed to carry out liberalization reform and broadly identified the economy as the only factor that impacts the success of liberalization reform, he did not compare the degree of success in service expansion between countries that carried out extensive liberalization reforms and those that did not carry out the reforms. This work will attempt to do just that, and it will examine the problem on a micro-level, including political factors and internal pressures within and between the government and private corporations that can affect the success of liberalization.

In addition, this work will be among the first to consider the penetration rates of the Internet in developing countries. Many researchers (for example, Figuerra, 1999; OECD, 1999) have looked at the pattern of Internet access penetration in developed countries, such as the OECD, but none have attempted to find the relationship between Internet service penetration and the extent of telecommunication liberalization in developing countries.

In summary, this work attempts to shed new light on the effects of liberalization efforts and it attempts to determine the conditions that can affect the success levels of liberalization efforts in LDCs in terms of the expansion of three major telecommunications services, fixed and mobile telephone and Internet services.

CHAPTER III

Analytical Framework and Hypothesis

This chapter presents the analytical framework of the thesis. It begins with the basic definitions of the concepts used in the thesis. Then, the methodologies and analytical frameworks are presented. After that, the justification of methodologies and framework will follow. It concludes with the data collection process.

3.1 Definitions of Terms

3.1.1 Definition of "Liberalization"

In this thesis, the term "liberalization" refers to the commitment and actions taken by the government to open their telecommunications markets to new providers and competition. In other words, liberalization refers to the lowering of entry barriers to all or part of a market, allowing third parties to compete with established, generally monopolistic, providers of goods and services.[19] Thus, the more extensive the liberalization, the closer the market's conditions are to that of the free-entry market.

3.1.2. WTO Agreement on Telecommunication Services

This thesis bases its main concepts of liberalization in telecommunications services, both basic and value-added, on the framework established by the World Trade Organization's (WTO) Agreement on Telecommunications Services.

To compare the case studies, this thesis assumes that the Philippines has carried out more extensive liberalization reform than Thailand because it has followed and implemented

---

[19] Ben Petrazzini, The Political Economy of Telecommunications Reform in Developing Countries: Privatization and Liberalization in Comparative Perspective (London: Praeger Publisher, 1995), 15.

regulations and policies according to the WTO Agreement framework on ways to open the market more than Thailand.

The Agreement on Basic Telecommunication services was reached in February 1997 when 69 countries committed to liberalize and open their telecommunication markets to the world markets. The number of countries committed to liberalizing their telecommunications markets is likely to rise as additional LDC governments complete the process of accession to the WTO in the coming months. All industrialized countries have made commitments to open their markets on basic telecommunications and on most value-added telecommunications services. Fifty-two emerging economies have made commitments to open their markets to basic telecommunications and many of these have also made commitments to opening their markets to value-added services such as data communications.[20]

The importance of the WTO negotiations should not be underestimated because no other agreement have yet created more telecommunications opportunities and opened more markets more quickly. The most significant implications of this are the WTO's requirement to permit telecommunications operators based in all WTO member countries to build network infrastructure and compete in the national market on a most-favored nation (MFN) basis. This means that entry can no longer be restricted to those countries that provide reciprocal access or are parties to bilateral agreements.[21] As a result, the global telecommunications market environment will likely become more competitive.

The pattern of commitments to opening telecommunications markets by MDC economies with respect to market-access for the modes of supply have differed somewhat from LDCs. Based on the WTO statistics, MDCs were two to three times more likely than LDCs to commit to

---

[20] The World Trade Organization, Agreement on Telecommunications Services (1996), 12.
[21] WTO Agreement on Basic Telecommunications Services (London: Analysys Consulting, 1998), 4.

unlimited market access for cross-border supply of basic telecom services; between 36 to 43 percent of them did so. Moreover, they were about twice as likely to make unrestricted commitments on the supply of basic telecom services via the other two modes of supply, at between 64 to 70 percent for consumption abroad and 14 percent for commercial presence. Finally, all MDCs committed either fully or partially on all basic services, there being no cases of "unbound" entries listed for any of the services or modes of supply. [22]

By becoming party to the WTO agreement, countries commit to a set of regulatory principles (the Reference Paper). In addition, countries make specific commitments to open up their telecommunications service markets. Market opening measures include free access to public telecommunications transport networks of incumbent suppliers under non-discriminatory terms and at cost-oriented rates. These non-discriminatory terms assume a competitive provider has the technical ability to interconnect to the public network using standardized, open interfaces.

In sum, the three basic elements of the WTO agreement are:[23]

(1) Market access: This provides foreign companies access to local, long-distance, and international telecommunications service. This requires incumbent carriers to unbundle their network services and give alternative carriers the right to connect their carriers to the incumbent's network (alternative carriers pay interconnection rates that reflect costs). Consequently, this allows for more open competition.

(2) Investment: This refers to the right of foreign companies to establish or hold a stake in domestic telecom companies.

---

[22] The World Trade Organization, Agreement on Telecommunications Services (1996), 12.
[23] Ibid.

(3) Competitive regulatory policies: These include curbs on cross-subsidization and rights to interconnect at fair prices, and it mandates transparency of government regulations in technical standards and licensing.

The WTO agreement consists of Schedules of Specific Commitments and Lists of Exemptions. These documents specify nations' commitments to market access, national treatment, and MFN for specific services. Thus, each nation has agreed to different levels of liberalization. In this thesis, the nation that agreed to a greater level of liberalization according to the WTO Agreement framework is the Philippines, which allows free competition in its telecommunications markets, while Thailand agreed to and has implemented it only at a limited level because the government is still monopolizing the industry.

3.1.3 Definitions of Services and Statistical Figures

- Definition of "Basic Telecommunications" [24]

At the outset of the WTO negotiations on telecommunications services, participants agreed to set aside national differences in how basic telecommunications might be defined domestically and to negotiate on all telecommunications services, both public and private, that involve end-to-end transmission of customer supplied information (e.g., the relay of voice or data from sender to receiver).

They also agreed that basic telecommunications services provided over network infrastructure as well as those provided through resale (over private leased circuits) would fall within the scope of commitments. As a result, market access commitments cover not only cross-border supply of telecommunications but also services provided through the establishment of foreign firms, or commercial presence, including the ability to own and operate independent telecom network infrastructure. Examples of the services under negotiation were voice

telephony, data transmission, telex, telegraph, facsimile, private leased circuit services (i.e., the sale or lease of transmission capacity), fixed and mobile satellite systems and services, cellular telephony, mobile data services, paging, and personal communications systems.

- Definition of "Value-added services"

Value-added services are telecommunications for which suppliers "add value" to the customer's information by enhancing its form or content or by providing for its storage and retrieval. These include on-line data processing, on-line data storage, e-mail, and voice mail.

More commonly liberalized than basic services, value-added services were already included in the commitments of 50 governments as a result of the 1994 Uruguay Round Table of Multilateral Trade Negotiations and the accession of new WTO Members after that Round ended in 1994.

- Definition of "Main telephone lines in operation"[25]

A telephone line is defined as one connecting the subscriber's terminal equipment to the public switched network and which has a dedicated port in the telephone exchange equipment. This term is synonymous with the term "main station" or "Direct Exchange Line" (DEL), which is commonly used in telecommunication documents. It is generally comparable with the terms "access line" or "subscriber."

- Definition of "Main telephone lines per 100 inhabitants"

This figure is calculated by dividing the number of main telephone lines in operation by the total population and multiplying that number by 100.

- Definition of "Internet subscribers"

---

[24] The World Trade Organization, Agreement on Telecommunications Services (1996), 12.
[25] International Telecommunication Union, 1997 Asia-Pacific Telecom Indicators (Geneva: International Telecommunication Union, 1997), Appendix A.

This refers to the number of subscribers in the economy that have a direct link to the worldwide Internet network.

3.2 Hypothesis

Based on the scope, facts, theory and definitions presented in previous chapters and sections, this dissertation proposes the following hypothesis:

The implementation of extensive liberalization regulations and policies does not increase level of success of liberalization reform efforts (as measured by an increase in the penetration rate of fixed telephone, mobile telephone, and Internet services) better than other less competition-oriented policy alternatives.

Based on this hypothesis, this dissertation will cover three types of services, fixed telephone, cellular mobile telephone and Internet services. The hypothesis will be validated separately for each type of service.

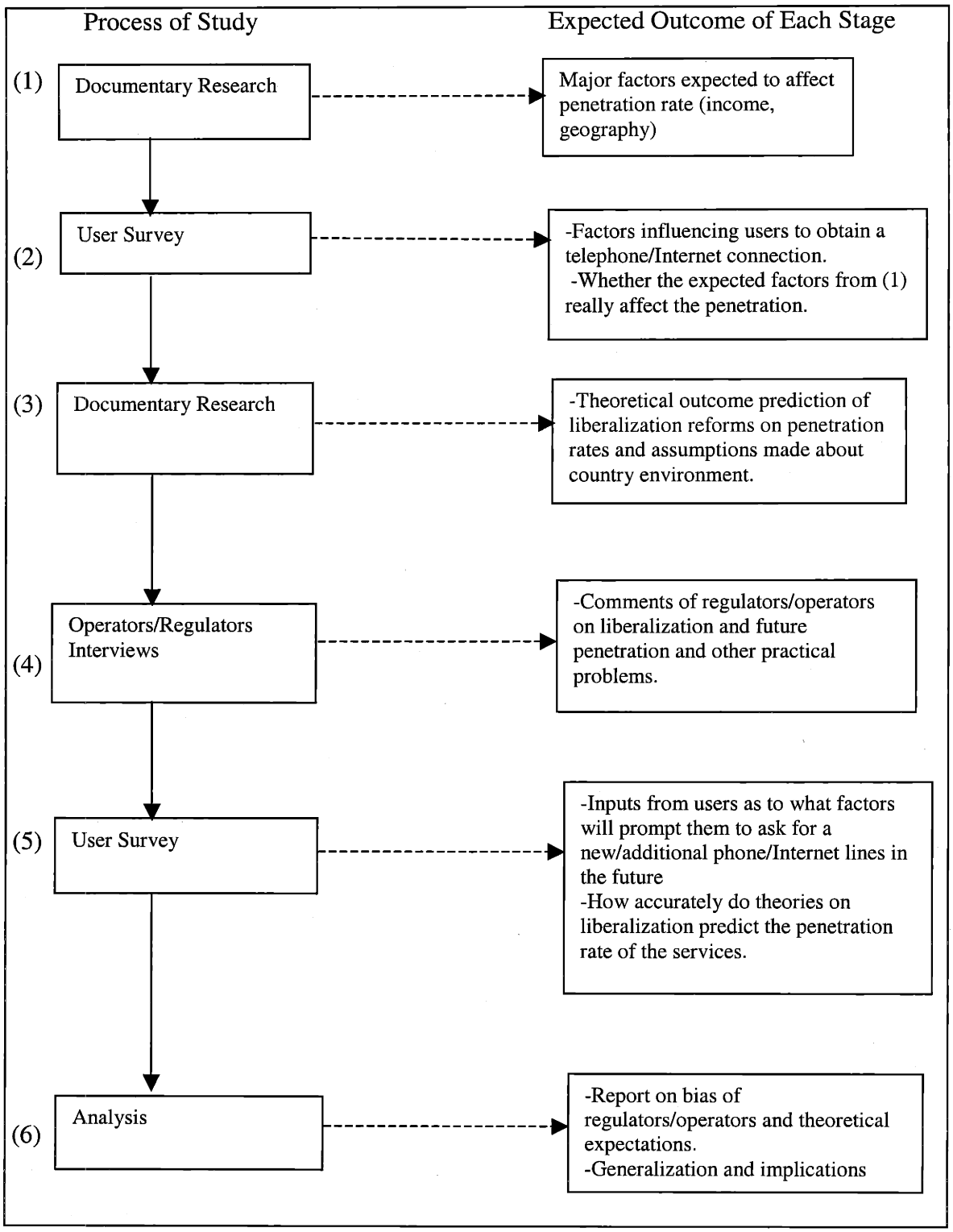
3.3 Conceptual Framework and Justification

This work is a comparative historic analysis that uses theory and historical data to reach a better understanding of liberalization processes in each country studied. The research looks for possible causal connections that might offer theoretical insights potentially generalizable to similar cases. The method of generalization used in this type of research is "analytic generalization," in which a previously proposed theory or statement is used as a template with which to compare the empirical results of the study. If the two cases are shown to support the hypothesis, replication may be claimed.

This work uses a two-tiered approach for analysis. The first tier of analysis will focus on individual cases. The second tier is a cross-case study in which variation across cases will be analyzed.

The thesis will begin with descriptive information and related statistics of each individual case. Then, a cross-case examination will be provided to investigate the hypothesis for Thailand and the Philippines. This cross-case examination will serve to establish possible interpretation of the variables that could affect the growth in penetration rate of telephone and Internet services. These findings will then be used to validate the hypothesis among different countries (external validity). Figure 3.1 shows the methodology framework.

Figure 3.1: Framework of the Research and Study



As can be seen from Figure 3.1, this research is based on various research avenues, steps and methodologies. Basically, three types of data sources are used in this thesis, documentary, interview, and survey. The documentary data, while offering excellent detail, facts and analysis on the liberalization process in Thailand and the Philippines, cannot be used to accurately predict the future trends. Therefore, the data from the documentary analysis are used to set up the theoretical framework and provide background on what factors affected the penetration rates of the three services in the past and how liberalization reform efforts have been developed in different countries from the past up to the present. It also provides the predictions of the effects of liberalization in the future for LDCs.

However, considering historical trends as a determinant for future predictions of the effects of the liberalization can be misleading. A good researcher should collect empirical data and analysis to verify that the theoretical predictions are correct. As a result, for this study, several interviews with policymakers, industrial players, and international organizations in telecommunications were set up to gather the comments from leaders in the industry about the future trends for the industry and the nations and to predict the impact of liberalization.

The interviews in this study are the so-called "focused" interviews.[26] The focused interview is an interview in which a respondent is interviewed for a short period of time—an hour or two, in this study. The interviews are open-ended and assume a conversational manner. The interviewer followed a certain set of questions derived from the case study outline. The data from the interviews was gathered to help this researcher make realistic predictions as to where liberalization will lead the countries in the future.

Nonetheless, the data from these two sources, documentary and interviews, share one characteristic that could weaken the analysis of this thesis: they both provide only estimations of

future telecommunications demands and industry structure. Even though it is true that the estimations from these two sources are based partly on hard data that is statistically analyzed, such estimates might be vulnerable to errors since they assume that future trends are based on past patterns. While trends generally follow patterns, they do not always follow predictable courses. These assumptions could lead to a bias in the data analysis and consequently the proof of the main hypothesis since there is no formal statistical work to base the analysis on when it comes to future trends. As a result, the survey of more than 400 users in Thailand was set up as the third and last data collection procedures. The researcher expects that the survey will provide a more statistically reliable and a more rigorous framework for the analysis. The results of the survey should provide a statistically reliable, and hopefully, a more precise prediction of the effects of the liberalization on future trends of the three services.

Another reason for using all three types of data for the analysis is that each type of data can provide a bias check for the another, an important part of any research plan. After all, the results of the research are unreliable if the data are biased. While documentary research might introduce so-called theoretical bias, that is, bias that comes from making predictions or recommendations based solely on the theories, interview and survey data can verify to a degree that the assumptions and the predictions based on theory are correct.

In addition to the theoretical bias, the interview itself can introduce the bias of interviewees, be it from their organizations or from the risks and benefits they could obtain or lose from the liberalization process. The survey is once again expected to help show the interviewees' implicit assumptions when they talk about consumers' demands. Furthermore, the survey can illuminate how their assumptions are based on their perceived advantages after the liberalization process is completed.

---

[26] Robert K. Yin, Case Study Research: Design and Methods, (London: Sage Publications, 1994), 84.

The survey itself is also vulnerable to errors. In order to ensure that the survey is understandable to users and that the survey will produce valid statistical results that can be used in the analysis, two pilot surveys were conducted. The distribution of the samples of the survey was also checked statistically to ensure that they were distributed with equal standard deviation across the age, income and education level parameters.

As a result, these three types of data collection will provide the bias checks between one another to ensure the integrity of the data. After the analysis is done, another round of interviews was also conducted to ensure the accuracy of the analysis and to pose additional questions that arose during the analysis.

3.4 Data Collection Procedures

This section describes how the data collection was collected for documentary research, interviews, and statistical data respectively.

3.4.1 Documentary Research

Information on the political and economic history of Thailand and the Philippines and their basic regulatory framework for telecommunications services was gathered and then processed and analyzed. A summary of the historical and documentary data for both countries was then used to prepare questions for the interview process. The data included statistical facts on all the three services, which were incorporated into the interview preparation.

Next, the researcher gathered data on telecommunications regulations in Thailand and the Philippines at MIT and at other research institutes on-line around the world. Historical information and statistical data was gathered for the preliminary investigation conducted before the interview process.

Documentary research was carried out both before and after the interview process. New data and publications on telecommunications deregulations and liberalization were constantly published and thus this researcher incorporated it throughout the analysis process.

3.4.2 Interviews

In July and August, 2000, this researcher interviewed 20 representatives from international telecommunications organizations, from both the public and private sectors, along with telecommunications end users in both countries. The results of the interviews were then examined, sorted and encoded in order to extract the relevant data and information from the conversations. The results from the first round of interviews were then incorporated into the analysis.

However, it is quite common for researchers to find that, after an analysis is underway, more detailed questions need to be asked. As a result, a second round of interview was conducted with six persons from the public and private sectors from Thailand due to time constraints. The reasons for choosing these six persons was to provide a check on the results from the consumer survey that was launched in Thailand between the first and the second round of interviews. And, these six persons were selected because they were most involved with the consumers by either providing the services or establishing future regulatory frameworks.

3.4.3 Statistical Data

Statistical data was collected through the survey distributed in Thailand. The survey was conducted in two locations, Bangkok and Ang-Thong. Bangkok, a capital of Thailand, has the highest telephone penetration rate in the country, while Ang-Thong, a province in the central region, has the lowest telephone penetration rate of 3 lines per 100 inhabitants.

The first interesting problem found from the survey is that no organization keeps records of the teledensity, number of lines per 100 inhabitants, in each province in Thailand. The second problem is that the data on number of lines in each province is considered confidential and one has to make several persistent requests in order to obtain this. Once the number of telephone lines in each province was obtained, one has to go to another government department to get population statistics in that province and do the math to get the teledensity of each province.

The lack of statistics and cooperation from and among government agencies, and the classification of the data as confidential, consumed quite a lot of time for the survey. As a result of the time and financial constraints, the researcher had to narrow the list of possible provinces and select a province in the central region of Thailand only because of its proximity to Bangkok.

The survey was conducted from September through November 2000. The total sample, more than 400 surveys, is presented in detail in the next chapter with the analysis. The numbers of samples were statistically tested to ensure even statistical distribution across the age, income and education level parameters. After the raw data were collected, they were processed using statistical software and put into descriptive summaries, presented in the next chapter.

3.5 Conclusion

This chapter has presented the definitions of terms used in this thesis, the hypothesis, methodologies and conceptual framework. It has shown that the hypothesis is based on the problems presented in Chapter I. In addition, it can be seen that the hypothesis and research plan are consistent with the goal of the thesis, which is to compare the effects of penetration rates of nations with different levels of telecommunication service liberalization policies.

This chapter has also demonstrated that the research plan was carefully designed to eliminate as much bias from the analysis as possible by including three sources of data, documentary, interview and survey, intertwined in order to provide the reliable analysis results.

CHAPTER IV

Background of Case Studies: Telecommunications in Thailand and the Philippines

This chapter presents the policy background related to telecommunications services of the two case study countries. The chapter is separated in two subsections, one on Thailand and the other on the Philippines. In each subsection, the government policies are first presented, followed by legal entities and laws and regulatory frameworks related to telecommunications. The country section will end with the investment situation and restrictions for providing telecommunications in the country to provide readers with background on the degree of liberalization in each country. This chapter concludes with comparisons of the two countries based on the degree of their liberalization efforts in telecommunications.

4.1 Thailand

4.1.1 Government Policies

This section presents a historical perspective on the Thai government policies regarding telecommunications services and their provision.

Thailand, commonly perceived as a developing nation or LDC, has continuously made great efforts to develop industry and business in order to raise its economic status and change its image to an industrialized country. To achieve such goals, the Thai government, realizing the importance of a national economic plan, asked for the advisory committee from the World Bank to help it develop its the first national economic and social development plan in 1959.[27]

As a result, the Thai National Economic and Social Development Board (NESDB) was established based on suggestions from the World Bank advisory committee. The NESDB is

primarily responsible for drawing up and monitoring the progress of five-year national economic and social development plans. These plans cover a broad range of issues such as economic and infrastructure development. The Board reports to the Council of Economic Ministers, chaired by the Thai Prime Minister. This process is designed to ensure that major development policies are considered at the highest level of the government.

In Thailand's first five national economic development plans, communications infrastructure, science and technological development were dealt with in a superficial and incidental manner. The significance of science and technology was recognized in the Sixth Plan (1987-1991), in which these issues were accorded their own chapter. However, the chapter mostly dealt with using technologies to improve the quality of manufacturing and had very little to do with the telecommunications network infrastructure and services.

In the Seventh Plan (1992-1996), the government finally started to pay attention to the role of communications due to the globalization of the world markets and the quickly evolving global information society. In this plan the government attempted to ameliorate the weakness in the national telecommunications infrastructure by developing and augmenting telecommunications-related policies. In addition, in this plan, the government initiated several important projects, which served to stimulate private investment in the telecommunications sector, including the concessions of the total of 3.5 million nationwide telephone lines with the aim to increase the penetration rate and reduce the waiting list for basic telephone service.

In the Eighth Plan (1997-2001), the main objectives were to transform Thailand into a trade and telecommunications center in the Indo-China region and to develop human resources in the Information Technology (IT) industry. The Eighth Plan showed that the government realized

---

[27] Industry and Energy Department, Technology and Industrial Policies in Thailand's Development Plans: A Historical Perspective (Bangkok, Thailand: Industry Development Division, 1990), 50.

the importance of telecommunications services because there are many specific clauses on telecommunications policies.

The Eighth Plan addresses the liberalization of the telecommunications and IT industries with a main objective of distributing the services and building infrastructure throughout the country. It also addresses the need to offer these services to users at an affordable price. These two principles appeared in this most recent Plan, even though they are the most important issues in telecommunications development to ensure equal distribution of the services. The Plan also specifies that major cities throughout Thailand should be connected to modern telecommunications networks, at least with telephone connections.

For the first time in the history of Thailand's national economic and development planning, the Eighth Plan is the first to call for the long-awaited amendment of telecommunications laws and the establishment of an independent commission to supervise and support the telecommunications industry. It is also the first one to call for the separation of regulators and operators in the telecommunications industry. The Eighth Plan is also an important force behind the approval of the first telecommunications Master Plan of Thailand in 2000.

4.1.2 Legal Entities

- Ministry of Transport and Communications (MOTC)

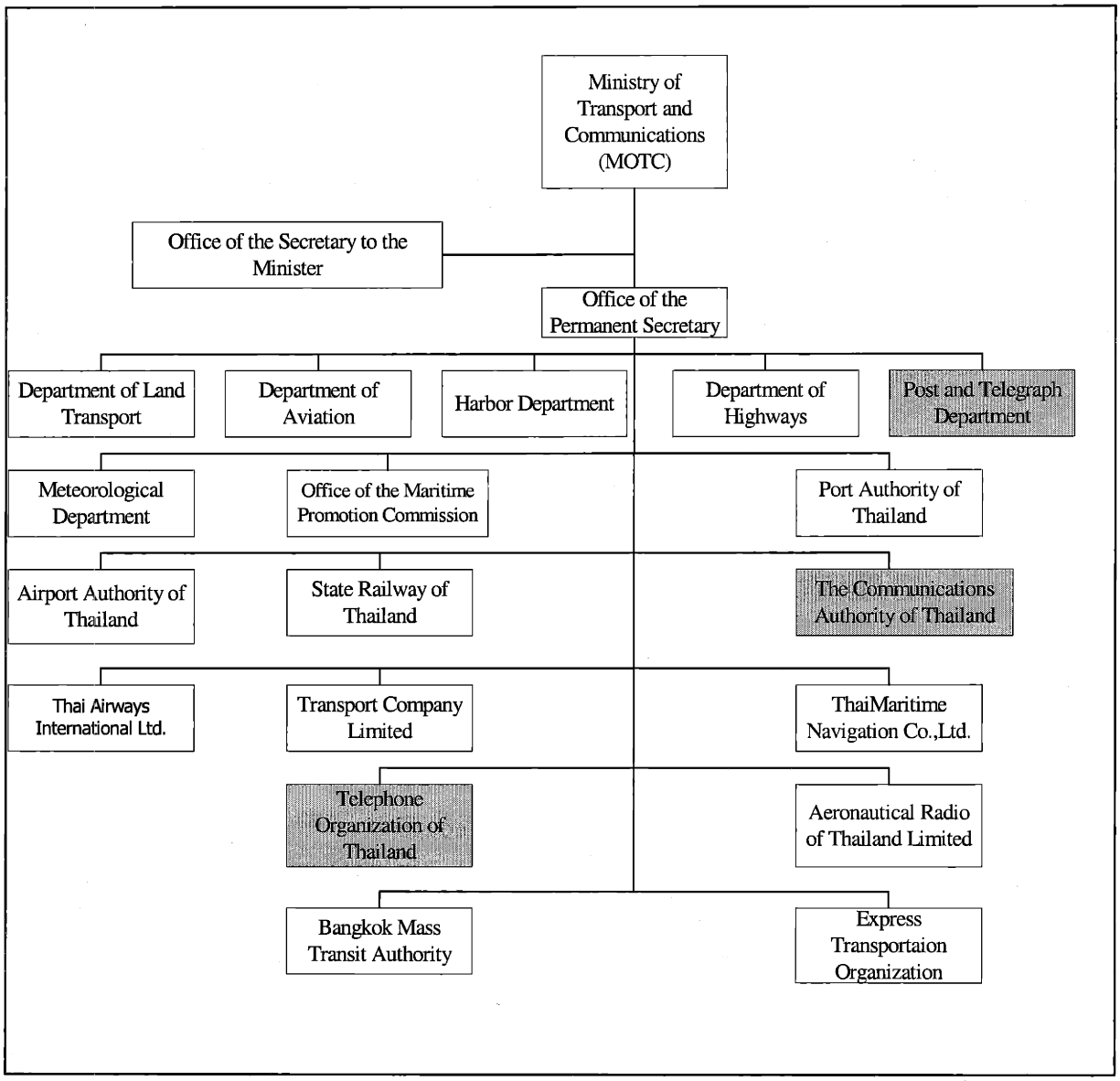
The Ministry of Transport and Communications is responsible for both transportation and communications policy planning. In the early days, MOTC was loosely organized and dealt with both issues. Since 1941, the MOTC has been restructured and has continuously augmented its responsibility through the establishment of new agencies. Currently, MOTC has control over 10 governmental departments and state agencies including two major telecommunications agencies,

the Telephone Organization of Thailand (TOT) and the Communications Authority of Thailand (CAT).[28] In addition to administrative duties, MOTC is responsible for the four following telecommunications laws, the Telegraph and Telephone Act, the Radio Communications Act, the Telephone Organization of Thailand Act, the Communications Authority of Thailand Act, to be described in the following sections.

These acts are exercised by the MOTC through its divisions and state enterprises subjugated to the MOTC. The following chart shows the organization structure of the MOTC and its relationship with other telecommunications agencies.

[28] Donyaprueth Krairit, "The Viability of Telecommunications Regulatory Changes in Thailand" (M.S. Thesis, University of Colorado – Boulder, 1994), 27.

Figure 4.1 Organization Chart of the Ministry of Transport and Communications[29]



[29] Ministry of Transport and Communications, 80 Years of the MOTC (Bangkok, Thailand, 1992), 1.

- The Post and Telegraph Department (PTD)

The Post and Telegraph Department is one of the oldest government organizations in Thailand. It has been the main administrator of postal and telecommunications services for more than 100 years. Many government telecommunications agencies including the Communications Authority of Thailand (CAT) and the Telephone Organization of Thailand (TOT), have been established by splitting up the communications divisions from the PTD.[30]

The PTD is under the control of the Ministry of Transport and Communications and operations are mainly at the administrative level of the postal services. The PTD is also directly responsible for radio frequency administration and allocation.

- The Telephone Organization of Thailand (TOT)

The TOT is a state-owned enterprise separated from the PTD by the 1954 Telephone Organization of Thailand Act to eliminate obstacles regarding financing for large telephone installation projects. Its main objective is to implement telephone operations for the benefit of the public and the state.

The major functions of the TOT are to provide telephone services. The agency is responsible for the provision and distribution of domestic telephone calls, including mobile and fixed wireless services used to make domestic communications.

- The Communications Authority of Thailand (CAT)

CAT is another state enterprise mainly involved in telecommunications. It was separated from the PTD by the 1976 Communications Authority of Thailand Act with the objective of

[30] Donyaprueth Krairit, "The Viability of Telecommunications Regulatory Changes in Thailand" (M.S. Thesis, University of Colorado – Boulder, 1994), 31.

implementing and improving postal and telecommunication operations for the benefit of the public and the state.

CAT is responsible for the provision of international communications services, including international phone calls, telegrams, telex, and cellular phone and private radio communications used to establish communications internationally.

4.1.3 Laws and Regulations

Although there are many more acts than those presented in this section, the acts presented here are of more importance and related to the telecommunications liberalization process.

- The 1934 Telegraph and Telephone Act

The Telegraph and Telephone Act is the most powerful governing act in telecommunications, particularly concerning wireline communications. This act gives authority and exclusive rights to the state to operate and own wireline telecommunications networks and provide wireline telecommunications services.[31] Accordingly, neither domestic nor foreign investors can run businesses offering public telecommunication services and thus compete with government agencies.

- The 1955 Radio Communications Act

The Radio Communications Act also governs telecommunications related to service provisioning, but with a concentration on wireless communications. This act authorizes the PTD to administer and allocate the frequency resource for any requesters as well as to control and monitor the usage of frequency that specific agencies receive. Based on the act, the PTD has control over all radio communication services and equipment including pagers, mobile telephones, and satellite dishes.

The Acts also prohibits private agencies from manufacturing, owning, and operating radio communications equipment. Private agencies who want to operate radio communications either for private usage or for public service therefore have to ask for permission and obtain licenses from the PTD.

- The 1954 Telephone Organization of Thailand Act

This act establishes and determines the functions and scope of operations of the TOT. It transfers the authority in telephone operations, formerly under the administration of the PTD, to the TOT. Yet, it is noteworthy that the state still monopolizes telephone services under this act.

Under this Act, the government holds approval rights to expand or set up telecommunications projects with investment value. Approval is in the form of budget support for the TOT during the fiscal year.

- The 1976 Communications Authority of Thailand Act

This act resembles the TOT act and thus has the same effects on the operations of the CAT but with concentration on postal and telecommunications operations. The similarity between these two acts has caused ambiguity and overlap in the operation and authority of both TOT and CAT.

- The 2000 Frequency Allocation and Broadcasting Control Act

This is the most recent act that passed the legislature last year. The Act attempts to update old and archaic telecommunications laws with up-to-date definitions of various broadcasting services. The Act also establishes two national committees related to telecommunications. The National Broadcasting and Television Committee supervises the frequency allocation for broadcasting and content programming. It also acts as a tariff regulator

[31] Previously, this authority is exercised by the PTD itself, but after the establishment of the CAT and TOT, the rights to provide telephone and communications services have been transferred solely to them as the only operators

for broadcasting businesses. The committee has not much to do with telecommunications services other than broadcasting.

The other committee to be established is the National Telecommunications Committee (NTC). When formed, it will supervise almost all telecommunications and communications services including telephone and Internet services. It is this committee who will set up the national telecommunications plans and define different types of telecommunications services. It will also act as a regulator by issuing licenses for operation and determining tariff structures of telecommunications services. It is also expected to handle network interconnection and other technical issues. In addition, the committee will aim to protect consumers and ensure fair competition. It is expected to also act as a consultant on telecommunications issues to the cabinet and Congressional representatives and the senators.

The NTC is expected to exercise its authority under this act through a separate act called the National Telecommunications Act, which is a draft under the legislative process. Since the NTC is assigned various tasks and responsibilities, the draft of the National Telecommunications Act had to be comprehensive and broadly defined, which led to many loopholes, and therefore has brought it under much scrutiny and has prevented it from receiving cabinet approval. The content of the Act and the extent of the NTC's authority is still being worked out by legislators and there is no specific date as to when this National Telecommunications Act will come into effect. The new National Telecommunications Act is supposed to replace the old Telegraph and Telephone Act and provide the country with a new, more liberal, regulatory framework for telecommunications services. Among the main issues in the act, the liberalization of the telecommunications industry is expected.

---

to retain the monopoly by the state.

4.1.4 Investment Environment

Up until the 1990s in Thailand, the government has monopolized telecommunications, but there has been some relaxation since 1993 of the government's hold because of the urgent need to develop a telecommunications infrastructure to respond to the rapidly increased demand and economic growth. Another reason for the change is that the government has realized the importance and the investment power of the private sector. As a result, one major policy initiated in the Seventh National Economic and Social Development Plan is to allow more private sector participation and investment from the private sector to create a more flexible and progressive services.

Nevertheless, since the state holds the right to build, own, and operate telecommunications networks and to provide telecommunications services, it is illegal for any private agencies compete with the state unless the current telecommunications laws are amended. Consequently, the private sector can only get into telecommunications business by establishing contracts with governmental agencies or government enterprises.

According to Section 72 and 73 of the Thai Civil and Commercial Code (CCC) and Section 7 of the CCC as amended in 1992, the Ministry and MCOT, a major government enterprise in the area of broadcasting, are juristic persons. TOT and CAT are also juristic persons under the Telephone Organization of Thailand Act and the Communications Authority of Thailand Act, respectively. The legal representatives of the Ministry, MCOT, TOT, and CAT have full authority to negotiate and establish contracts with private companies and partnerships. On the other hand, private companies established under the laws of Thailand are authorized by their corporate charters to complete any juristic act through their legal representatives.

Currently, private investors participate in the telecommunications industry by bidding for concessions or joint-ventures with state enterprises. In either case, private investors are not able to operate on their own and are legally bound by the agreements they make with the government.

The past and current agreements and concessions inaugurated by the Thai government telecommunications agencies have some common characteristics, and the results of a thorough analysis are summarized in the following Table 4.1.

Table 4.1: Characteristics of Telecommunications Agreements and Concessions in Thailand

Subjects	Characteristics
Exclusivity	Government entities reserve the right to grant similar concessions to any other interested person OR Government entities grant exclusive privileges to a private agency for a period of time during which that agency enjoys the privilege of not having competitors for the services granted in the concession. However, after the expiration of the concession period, government entities reserve the right to grant approval to others.
Ownership of Assets	Government entities shall have absolute authority to operate and possess all properties under agreements at the beginning of the agreements or upon the completion of installation. Private entities have no ownership in these properties but are the only occupants utilizing the properties during the term of the agreement. In addition, the owners shall be government entities regardless of the cause of termination of the agreement.
Renewal of Concessions	Renewal of the agreement depends on the decision of the government agencies and shall be requested upon the expiration of the effective government.
Government Rights and Termination	Private partners are not entitled to terminate the agreements unless they fail to conform to their obligations. The only entity empowered to do so is the governmental partner in that agreement.
Royalties or Revenue Sharing	Private entities have to pay royalties as a fixed percentage of annual revenue before deducting any expenses. The percentage might be fixed or vary throughout the concession period.
Tax Privileges	There is no special tax treatment or privilege granted to non-government parties in all concessions. The non-governmental parties are responsible for all taxes, expenses, and fees arising out of the agreement.

As can be seen from the table, the nature of the telecommunications concessions in Thailand is based on the build-transfer-operate (BTO) contracts. Private companies have no control or rights over concession agreements. As a result, the government maintains tight control over telecommunication services and infrastructure and private companies can only invest as the government allows.

4.2 The Philippines

4.2.1 Government Policies

The Philippines was, until 10 years ago, notorious for its poor telecommunications, similar to most other developing countries. Barely half a million lines serviced a population of 60 million people. Many non-metropolitan communities were not served at all.[32]

Today, the Philippines telecommunications industry is regarded as a strong performer. Analysts attribute this strong improvement to government efforts to increase telecommunication penetration rates.

Under the Marcos administration, four private companies held government-protected monopolies over all the key areas of telecommunications. The biggest was the Philippine Long Distance Telephone (PLDT) company, which had a monopoly over international and domestic calls. Two other companies had monopolies over domestic and international satellite services, while the fourth concentrated on international telex and data communications. Investment and service levels were low.

The first move to introduce competition was made by the new administration of Cory Aquino. New licenses were issued for operations of international gateways, cellular mobile services, and cable television.

The pace of liberalization increased under President Fidel Ramos in 1993, whose administration introduced a new law to create a better climate for industry growth and investment. New laws, including the Public Telecommunications Policy Act, and other

---

[32] Johnson Chua, The Impact of Liberalization: Communicating with APEC Communities: Telecommunications Industry in the Philippines (Australia: The Australian APEC Study Center at Monash University in Melbourne, 1998), 5.

regulations, including Executive Order 59 and 109 were issued.[33] In the telecommunications industry, the administration took several crucial initiatives. First, it drafted a new law to promote a better climate for growth and investments. Second, it granted licenses for international gateway facilities (IGF) and cellular mobile telephone systems (CMTS), and radio paging. Third, it opened the local exchange to competition.

In February 1993, the government adopted a strict and mandatory interconnection of telecommunications services and uniform standards to enhance competition and to achieve a universally accessible and fully integrated nationwide telecommunications network. Three months later, the government refined a policy to aggressively promote interconnection and the development of alternative and profitable local exchange carriers (LEC) was directed, in pursuit of universal access. The provision of LEC service in unserved or underserved areas in the country within three years became a mandatory condition for a firm seeking licenses and permits to operate more profitable international gateway facilities (IGF) and cellular mobile telephone systems (CMTS). The NTC divided the country into 11 service areas, and each grantee of an IGF or CMTS authority was assigned an exclusive service area with a fixed rollout period.

However, in 1999, the service scheme went up for review, due to the failure of four companies to meet their committed rollout programs and the low subscription rate of the additional telephone lines installed under the program. The NTC then issued additional licenses to other service providers who were able to meet their rollout goals. This movement basically dissolved the service area scheme. The government has yet to announce a new policy to ensure universal access and to address the under-subscription problem faced by companies that have met their rollout commitment.

---

[33] Ibid, 7.

4.2.2 Legal Entities

- The National Telecommunications Commission (NTC)

Telecommunications in the Philippines is subject to regulations and controls by the NTC, which is under the administrative supervision of the Department of Transportation and Communications (DOTC), which makes policy for the telecommunications industry. The NTC's supervisory, regulatory and control functions cover three broad areas, telecommunications, broadcast and the radio spectrum. The NTC exercises powers in the areas of licensing, rate fixing, frequency use and allocation, equipment type approval, and service standards.

The NTC is the sole body that controls, supervises, and adjudicates cases for all telecommunications services throughout the country. To effectively carry out its responsibility, it adopts and promulgates guidelines, rules, and regulations relative to the establishment operation and maintenance of various telecommunications facilities and services nationwide.

Although independent, in so far as its regulatory and quasi-judicial functions are concerned, the NTC remains under the administrative supervision of the DOTC. The NTC is a collegial body, and decides cases before the Commission by a vote of a Commissioner and two Deputy Commissioners. However, with respect to its quasi-judicial functions, NTC's decisions are appealable only to the Nation's Supreme Court.

The mission statement of the NTC includes the following:[34]

- To establish a pro-active regulatory environment conducive for the sustainable growth and development of the information infrastructure and services.
- To promote and sustain an environment that would foster a healthy relationship among stakeholders particularly between service providers and the consumers.

- The Department of Transport and Communications (DOTC)

According to the DOTC mandate, the Ministry of DOTC shall be the primary policy, planning, programming, coordinating, implementing, regulating and administrative entity of the Executive Branch of the government. The DOTC is in charge of the promotion, development and regulation of dependable and coordinated networks of transportation and communication systems, as well as in the fast, safe, efficient and reliable postal, transportation and communications services.

To accomplish its mandate, the DOTC has the following objectives, to: [35]

a) Promote the development of dependable and coordinated networks of transportation and communications systems;

b) Guide government and private investments in the development of the country's intermodal transportation and communications systems in a most practical, expeditious, and orderly fashion for maximum safety, service, and cost effectiveness;

c) Impose appropriate measures so that technical, economic and other conditions for the continuing economic viability of the transportation and communications entities are not jeopardized and do not encourage inefficiency and distortion of traffic patronage;

d) Develop an integrated plan for a nationwide transmission system in accordance with national and international telecommunications service requirements including, among others, radio and television broadcast relaying, leased channel services and data transmission;

e) Guide government and private investments in establishment, operation and maintenance of an international switching system for incoming and outgoing telecommunications services;

---

[34] Pablito A Perez and Jinky Rose L. Go, "Report on Philippine Telecommunications Industry" Unpublished Paper, (Pasig City, Philippines, 2000), 45.

[35] Pablito A Perez and Jinky Rose L. Go, "Report on Philippine Telecommunications Industry" Unpublished Paper, (Pasig City, Philippines, 2000), 43.

f) Encourage the development of a domestic telecommunications industry in coordination with the concerned entities, particularly in the manufacture of communications/electronics equipment and components to complement and support, as much as possible the equipment development, operation and maintenance of the nationwide telecommunications network.

4.2.3 Laws and Regulations

- The 1995 Telecommunications Policy Act (RA7925)

The 1995 Telecommunications Policy Act of the Philippines spells out the prevailing national policy on the telecommunications industry. Its broad policy framework provides that public telecommunications services shall be left to private enterprises, and reiterates the constitutional rule that every telephone company shall secure a franchise before commencing or conducting its business.

However, no telephone companies can engage in the telecommunications and broadcast business under the same franchise, either through the airwaves or by cable. Rate and tariff fixing were deregulated, with the removal of the 12% cap on rate of return.[36] Instead, a sliding standard of fair, just and reasonable returns is provided to encourage investments in the industry. In sectors where sufficient competition is attained, rate fixing was fully deregulated.

With this Act, the policy of network interconnection was emphasized, but instead of mandatory regulations, access charge or revenue sharing arrangements were left to the interconnecting telephone companies' contractual agreements, except in cases of unresolvable disagreement or prejudice to public interests, in which the NTC may intervene.

---

36 Ibid, 41.

To further protect local exchange operators, RA7925 prohibited the uncompensated bypass or overlapping of LEC operations, reserved the first option to provide pay telephone service or public calling stations to the LECs in their authorized areas of operation.

On the wireless front, spectrum allocation through open tenders or bidding was decreed. In addition, the need for service standards in the industry for consumer protection was recognized.

Value-added services (VAS), defined as enhanced services beyond those ordinarily provided for by local exchange operators, inter-exchange operators and overseas carriers, including Internet services, were deregulated through this Act. A VAS provider that does not set up its own network and relies solely on the transmission, switching and local distribution facilities of enfranchised telephone companies, need not secure a franchise, and in order to operate, need only register with the NTC.

- Executive Order 59 (EO59)

Issued in February 1993, EO59 requires compulsory interconnection of authorized public telecommunications carriers in order to create a universally accessible and fully integrated nationwide telecommunications network, thereby encouraging greater private sector investment in telecommunications.

- Executive Order 109 (EO109)[37]

Issued in July 1993, EO109 requires all Cellular Mobile Telephone Service (CMTS) operators to install at least 400,000 local telephone lines within three years and IGF operators to put up 300,000 lines within five years after their licenses are issued. EO109 served as the vehicle to implement the Service Area Scheme and the Basic Telephone Program, wherein the

[37] Pablito A Perez and Jinky Rose L. Go, Report on Philippine Telecommunications Industry, Unpublished Paper, (Pasig City, Philippines, 2000), 38.

country was divided into 11 service areas (combining profitable and unprofitable areas) and given out to eight telecommunications carriers.

4.2.4 Investment Situation

Overall, telecommunications policies and regulations developed throughout the Ramos years (1993-1996) helped create an environment conducive to growth and sustained investments because they allowed free competition and entry into the telecommunication markets. Competition entered all segments of the industry, providing incentives for firms to expand their networks, introduce new technologies and services and embark on new business ventures. As a result, telecommunications services and investments have improved significantly in the Philippines in the past decade.

The only constraint remaining for investors is the issue of ownership. By constitutional mandate, Philippine public utility companies, including telecommunications entities, require a franchise from the Philippine Congress to operate, which can be granted only to Philippine citizens or corporations at least 60% of whose capital is owned by Philippine citizens.[38] Management of telecommunications companies is likewise reserved for Philippine citizens. The lifting or relaxation of the foreign ownership ceiling on ownership of telecommunications entities will require a constitutional amendment. Private enterprises have recently introduced political initiatives to amend provisions of the existing constitution to discourage foreign investments, but these had to be withdrawn due to strong public opposition.

Strictly applying the foreign ownership limit on telecommunications company ownership, NTC continues to observe the rule that the sale, alienation, or transfer in violation of this restriction shall be "void and of no effect and shall be sufficient cause for ordering the

cancellation of the certificate." In fact, any sale or transfer of more than 40% of the capital stock of public utility companies, including telecommunications entities, requires prior NTC approval as a condition of validity.[39]

4.3 Conclusion

It can be seen clearly from the analysis in this chapter that the Philippine government has followed the liberalization guidelines of the WTO Agreement on Telecommunications Services outlined earlier and implemented their liberalization policies more extensively than Thailand by allowing new competitors to enter the market and promoting free competition. The Philippine government put in place the necessary regulations and legal entities to support the liberalization and open competition, with an explicit aim of enhancing telecommunications services.

However, the similarity between both countries lies in the fact that both governments have implemented the policies that emphasize the distribution of basic telephone service to all users at an affordable price and the idea of universal service.

As for the laws, Thailand still greatly lags behind the Philippines in terms of laws to govern the telecommunications industry. While the Philippines' most recent laws and regulations focus on the Internet and more modern means of communications, Thailand is early in its process of implementing a telecommunications Master Plan and establishing its National Telecommunications Commission. In addition, Thai laws are different than those of the Philippines in that they aim to control the operators rather than encourage or promote competition. This situation is true even with the draft of the new telecommunications laws. In contrast to Thailand, the Philippines allows for companies to compete unless they interfere with national interests.

---

[38] Pablito A Perez and Jinky Rose L. Go, Report on Philippine Telecommunications Industry, Unpublished Paper,

In conclusion, the two case study nations have similarities and differences. Even though they are situated in the same geographic region and have similar economic situations, their policies and regulations, including government perceptions about the telecommunication industry, are quite different. While the Philippine government supports and promotes competition, the Thai government is still trying to hold on to its monopoly power over the market. The differences in their policy directions will be presented and used in the analysis, presented in the next chapter, to compare the effects of different liberalization policies of both countries.

(Pasig City, Philippines, 2000), 31.
[39] Ibid, 40.

CHAPTER V

Analytical Results

This chapter presents the analysis of the two LDC case studies, Thailand and the Philippines. The results are divided into three analysis sections, from the documentary, interviews, and the survey. However, before the analysis results are presented, the hypothesis is restated to recap the framework and goals of the study. At the end of the chapter the analysis results are presented and a conclusion is drawn for each of the three services considered, fixed telephone service, cellular mobile telephone service, and Internet service.

5.1 Hypothesis

The implementation of extensive liberalization regulations and policies does not increase level of success of liberalization reform efforts (as measured by an increase in the penetration rate of fixed telephone, mobile telephone, and Internet services) better than other less competition-oriented policy alternatives.

Once again, it is noteworthy to point out that liberalization in this study refers only to the opening of the market to new entrants and providers. It should also be made clear at this point that the goal of the analysis is to determine mainly whether the extent of the liberalization efforts (the opening of the market) are a major factor contributing to a higher penetration rates of the three services. Also, since this thesis focuses on penetration rates, the main analysis in this chapter will focus on penetration rates and universal services with a secondary focus on competition issues that can affect the penetration and universality of the three services.

5.2 Documentary Analysis

This section presents results from the documentary analysis of telecommunications service industries in the two case studies. The results of the analysis are divided into three subsections: policy and regulations, political-economic, and industry competition.

Each subsection contains a summary of major events or policies in the telecommunications industry in each country. The summary of these events in each country is divided again based on their relevance to each of the three service types, namely, fixed telephone service, cellular mobile telephone service, and Internet service. Also, at the end of each subsection, the statistical summary on change in penetration rate based on major events and service types is presented so that readers can clearly understand the effects of such events on the penetration rates of each service.

5.2.1 Policy and Regulations

The fact that telecommunications service industries are quite sensitive to the policies and regulations governing them is clear. Telecommunications services have long been perceived and have operated under the perception of being "public" utilities. The fact that telecommunications services involved a large number of consumers with different needs and abilities to pay for the services, coupled with the economies of scale usually associated with the provision of services, calls for close government supervision in order to ensure consumers' accessibility to quality services at a fair price.

Therefore, an analysis of different policies and regulations governing the telecommunications industries in each country is necessary to understand the development of telecommunications services, and especially to compare the development of these services in two nations.

5.2.1.1 Evolution and Effects of Regulations and Policies in Telecommunications

When broadly looking at the governing policy and regulatory frameworks of the two countries, one can see quite clearly that the Philippines has been pursuing more liberal, opened-market, and competition-oriented policies than has Thailand. On a deeper level, the two countries also differ in their approaches in three main areas, to increase telephone penetration rates, to achieve universal service, and to allow more entrants into the market to increase competition, which in turn, can increase penetration rates.

- Fixed Telephone Service

To provide a clear comparison between policies related to fixed telephone service between the two countries, the following table is presented.

Table 5.1: Effects of Policies on Fixed Telephone Service

Services	Effects of Policies on	Thailand	The Philippines
Fixed telephone service	Penetration Rate	No specific policies; mostly indicated in the National Economic Development plan; the number of lines to be increased is determined by the Telephone Organization of Thailand (TOT). Implementation of the line expansion plan through concession granting was successful. Penetration in both metro and provincial areas increased. Distribution to rural areas increased.	EO109 mandates that each cellular and international gateway operator licensed must install 700,000 local exchange lines in 5 years. The policies were successful. Penetration rates increased sharply and targets were met. The spread of telephone services also improved, although not to the 10-to-1 ratio goal.
	Universal Service	No specific policies until the 2000. One concession was awarded for the installation of 1.5 million lines in rural areas. Telecommunications Master Plan promoted the increase in lines into the rural areas. But no specific goals set.	EO109 specifies the ratio of urban to rural lines of 10 to 1. But as of 1999, no licensed providers were able to achieve this goal. The Basic Telephone Program set goal of 87% of all urban and rural communities.
	New Entrants	No policies. Service providers can only operate in the form of concessions and BTO arrangements.	EO59 requires compulsory interconnection but puts the access charge issue in a contractual agreement basis. Licensing has been extensive even though there is a limited number of providers in a service area. The Service Area Scheme (SAS) was abandoned in 1999, leaving the license granting authority to the National Telecommunications Commission (NTC).

Table 5.1 shows quite clearly that the Philippines has had more experience liberalizing its telecommunications market than Thailand. It has had the necessary policy elements of the liberalization framework in place since 1993, which are interconnection and universal service regulations. These two regulations are most important from a policy-maker perspective because

they ensure fair competition and equal service distribution after the liberalization process is completed.

In 1993, Philippines' President Fidel Ramos issued the so-called Executive Order (EO109) to improve the local exchange service. The law obliged the country's five Cellular Mobile Telephone Service (CMTS) operators and nine International Gateway Facility (IGF) operators (except the Philippine Long Distance Telephone Company PLDT), to install 400,000 and 300,000 local exchange lines, respectively, by 1998. In response to the law, the National Telecommunications Commission (NTC) initiated the Service Areas Scheme (SAS), which divided the country into 11 service areas, each of which contained both profitable and unprofitable or underserved areas. The NTC then assigned these areas to different CMTS and IGF operators. These operators were required to install local exchange lines in their respective areas.[40] They had to complete their commitment or risk losing their licenses.

Most of the operators used fixed-line technologies in their local exchange lines installation. However, in 1996, the NTC authorized DigiTel and Major Telecom, Inc. to use the fixed wireless local loop (WLL) to accelerate local exchange line installation. Most operators use wireless technology to expedite installation of exchange lines. It is worth noting that this WLL technology, even though wireless, is not mobile, thus it will not be included in the cellular mobile penetration rate.

By the end of 1998, all of the nine companies holding the license, except for four, were able to complete their rollout commitment. The process doubled the penetration rate from 1.32 lines per 100 inhabitants at the time of the implementation of EO109 in 1993. However, none of the companies were able to meet the distribution ratio goal of 10 to 1, for urban to rural area

[40] Pablito A.Perez and Jinky Rose L. Go, "Report on Philippine Telecommunications Industry" Unpublished Paper, (Pasig City, Philippines, 2000), 24.

lines. Moreover, of all the lines that were installed, only 35% are subscribed, leaving 4.3 million lines idle.[41] The low subscription problem prompted the NTC to review the SAS.

Another piece of regulation that is as important as the EO109 is EO59. EO59 requires compulsory interconnection of all authorized public telecommunications carriers on a non-discriminatory basis. However, the law leaves the issues of access charges and revenue-sharing agreements to the interconnecting telephone companies' contractual arrangements, except in cases of unresolvable disagreements or prejudice to public interests, in which the NTC may intervene.

In contrast to the Philippines, Thailand's telecommunications industry still operates under the monopoly system and is controlled by obsolete telecommunications laws, many of which which are more than 50 years old. The supply of telephone lines is determined by the government-controlled Telephone Organization of Thailand (TOT), which uses its proprietary data on telephone penetration to predict demand for each region of the country.

However, the Thai government and industry leaders today are struggling to pass a new telecommunications law in the legislature to update ineffective, old ones. It will, if passed, eliminate the provision that the government is the sole provider of all telecommunications services. It aims to allow competition in telecommunications services and to provide frameworks to support liberalization and competition in the future.

Nevertheless, as promising as it may seem, the draft of a new law still lacks several provisions, such as, the interconnection and anti-competitive issues that will promote and guarantee universal service and consumer protection. Moreover, the law grants much control authority over licensing, regulation implementation, and law enforcement to the so-called

---

[41] Pablito A Perez and Jinky Rose L. Go, "Report on Philippine Telecommunications Industry" Unpublished Paper, (Pasig City, Philippines, 2000), 56.

National Telecommunication Committee (NTC). Additionally, even though the law covers interconnection issues, it designates the NTC to determine the access charges for interconnection, which, once again, places all the important issues and authority in the hands of one group of government officials with no checks and balances in place.

In summary, a detailed documentary analysis shows that the Philippines has actually a more competitive environment in fixed telephone service provision than Thailand. It also points out that not only does the Philippines pursue a more liberal approach in allowing new entry into the fixed-telephone service market, it also has a much stronger policy and regulatory framework to support its liberal approach to increase penetration rates than Thailand, despite the fact that Thailand plans to liberalize its market in 2003.

However, despite their differences in the approach to providing fixed telephone services, both countries support increasing the penetration rate and distribution of the service to rural and underserved areas. They both also use government intervention and specific regulations to assure both goals of increasing penetration rates and universal service. This implies that both governments realize the importance of improving and expanding their telecommunications infrastructure. At the same time, it also shows that both governments are continuing to play the crucial roles of supervising telecommunication competition and companies and planning policy for the fixed telephone services; they will likely do so in the future.

- Cellular Mobile Telephone Service

Unlike policies for fixed telephone services, policies for the cellular mobile telephone services face less government intervention and concerns over increasing penetration rates and widening the universality of the services in both countries.

The analysis, however, shows that the governments of the Philippines and Thailand are more concerned about the licensing or concession conditions than other issues, such as the penetration rate of the service.

The following table outlines government policies on cellular mobile telephone service of the two countries.

Table 5.2: Effects of Policies on Cellular Mobile Telephone Service

Services	Effects on	Thailand	The Philippines
Mobile Telephone Service	Penetration rates	No specific policies, but unintentional competition by TOT and CAT due to overlapping authority in concession granting. Penetration increased slowly and not good distribution.	No specific policies. Five operators, three waiting. Penetration increased more sharply than Thailand. Poor distribution.
	Universal Service	No specific policies	No specific policies. A nationwide cellular mobile telephone service (CMTS) operator is expected to cover at least 80% of the Philippines' coverage area on the third year of license.
	New Entrants	Partly allowed, because there are no specific policies but the ongoing concession granting will continue to keep the field of competitors open. Competition is among providers but based on concessions.	Partly allowed, but with limited numbers of providers in a service area. Competition is among providers, but the number of providers is limited based on licenses and service areas. As of September 2000, two out of three national operators got licenses.

In a more detailed analysis, it seems that the Thai and Philippines governments perceive cellular mobile telephone service as a luxury service and therefore allowed relaxed regulations regarding the universality of the service for the operators in the industry. Neither country has specific policies regarding penetration rates or universal service requirements. Thailand has put no limits on when nationwide providers should have their nationwide coverage up and running. The Philippines, however, expects for their nationwide cellular mobile service providers to cover

at least 80% of their coverage area in the third year of license but have no strict regulations or penalties on this issue.[42]

Regarding the policies on new entrants of the two countries, Thailand has been unintentionally more liberal in this service than the Philippines because of the overlapping authority in granting cellular mobile concessions between the two major Thai government agencies, TOT and CAT. As a result, when one agency grants a concession to a company, other companies go to the other agency to get the same concession. Since the two government agencies do not closely cooperate and since both have authority to grant cellular mobile telephone service concessions, the number of the operators in the cellular mobile industry is not limited by regulations, but rather, by the permission of both agencies. Therefore, new companies still have an opportunity to enter in this market.

In the Philippines, the number of players in the cellular mobile telephone market had been limited to five, the number determined by the NTC. However, as of September 2000, the number increased to seven through the issues of new licenses by the NTC which resulted in an addition of two major players from the fixed telephone service industry joining the competition.

Therefore, from a policy perspective, the two countries are quite effective in their policy implementation, especially on penetration rates, universal service and new entrants. What will differentiate the cellular mobile telephone service in these two countries lies in their competition policies, which will be discussed subsequently.

---

[42] Pablito A.Perez and Jinky Rose L. Go, "Report on Philippine Telecommunications Industry" Unpublished Paper, (Pasig City, Philippines, 2000), 19.

- Internet service

Policies for Internet service are almost at the other end of the spectrum from the fixed telephone service in terms of government intervention. Both countries allow for open-competition among the service providers, with some differences.

The following table summarizes their policies on Internet service.

Table 5.3: Effects of Policies on Internet Service

Services	Effects on	Thailand	The Philippines
Internet service	Penetration rates	No specific policies. Penetration continues to increase but for very limited user groups. Overall penetration rate is lower than in the Philippines.	No Internet policies. Penetration continues to increase sharply and more than in Thailand, but with very limited user groups.
	Universal service	No specific policies	No specific policies
	New entrants	No specific policies. CAT still monopolizes the international gateway. CAT is also the only license-granting body for ISPs and joint venture with CAT is required.	Open competition

Unlike fixed telephone service, both the Thai and Philippines governments have no specific policies aimed at increasing the penetration rates or ensuring universal service for Internet service to date. Although Thailand has just passed a draft of a law on electronic commerce, the law does not deal with the issues of universal service. The Philippines is following the same policy direction and until now, has no specific Internet policies.

The policies regarding the new entrants of the two countries are also moving in the same direction, that is, toward open entry and competition among providers. ISPs can operate as long as they can secure a license from the CAT (in Thailand) or from the NTC (in the Philippines). There is a difference at the International Gateway Facility (IGF) level, though. While the Philippines allows open competition in IGF service, Thailand does not. The only entity that controls the IGF is the CAT, which is also the only government agency that can grant licenses to

ISPs. The Thai ISPs have to use the CAT gateway facility to connect internationally. In return, the ISPs are expected to have CAT as their joint venture partners and pay the CAT usage fees determined in their licenses.

Therefore, even though it seems like Thailand is taking a liberal approach in the competition in the Internet service, a detailed analysis shows that the government agency continues to monopolize international gateway facility, the most important part of Internet service and that the Thai ISPs are still paying for this service under the monopoly pricing. This difference will be shown subsequently when the prices of the Internet service between the two countries are examined.

5.2.1.2 Statistical Summary on Penetration Rates Based on Major Policy Changes

If one looks at the penetration rate graph, there is not much to learn because the penetration rates of the services are cumulative. So, the graphs on changes in penetration rates can tell a better story because they include the changes in penetration rates from year to year.

Figure 5.1 shows the GDP per capita in both countries from 1988-1999.

Figure 5.1: GDP per Capita (US$) of Thailand and the Philippines (1988-1999)

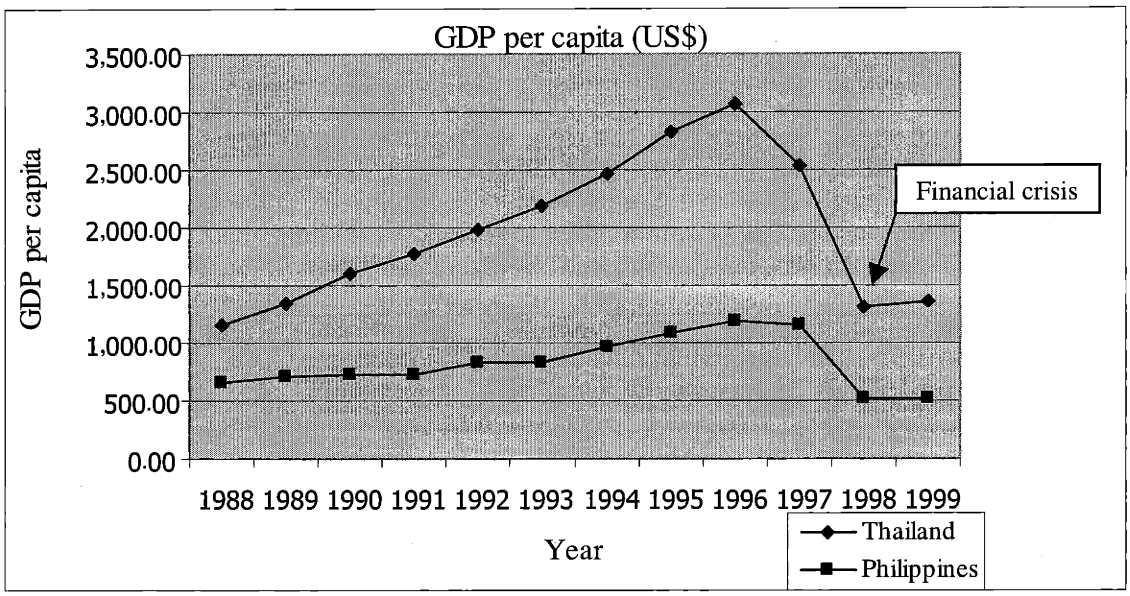


Figure 5.2: Changes in Penetration Rate (per 100 inhabitants) of Fixed Phone Lines according to Major Policy Changes

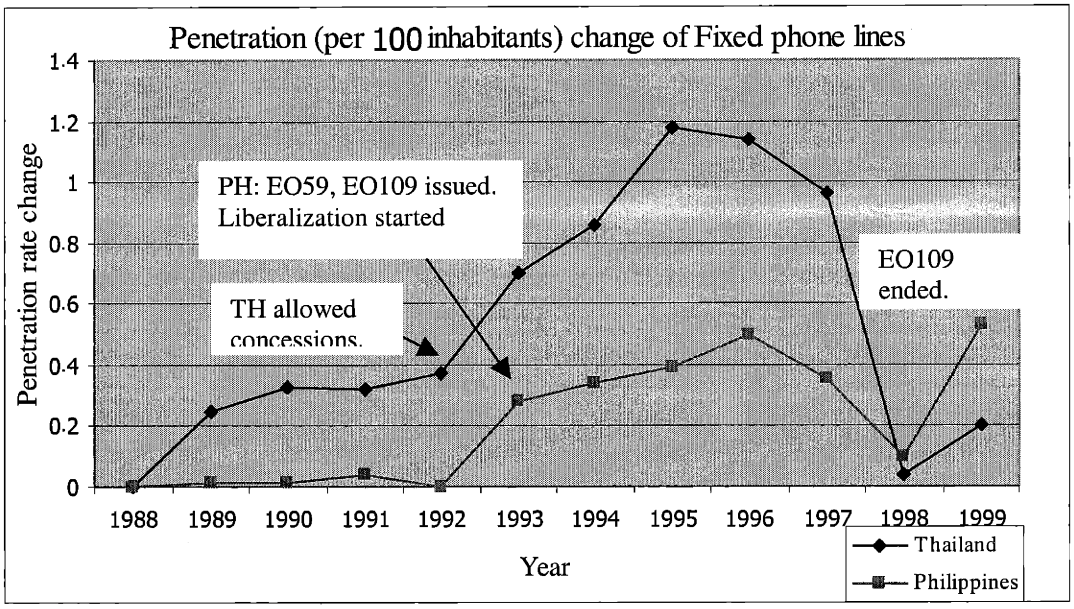


Figure 5.2 shows the changes in penetration rate according to major policies issued in Thailand and the Philippines. It can be seen from the figure that the penetration rate increased significantly when there were new policies issued.

Figure 5.3: Changes in Penetration Rate (per 100 inhabitants) of Cellular Mobile Telephone Lines according to Major Policy Changes

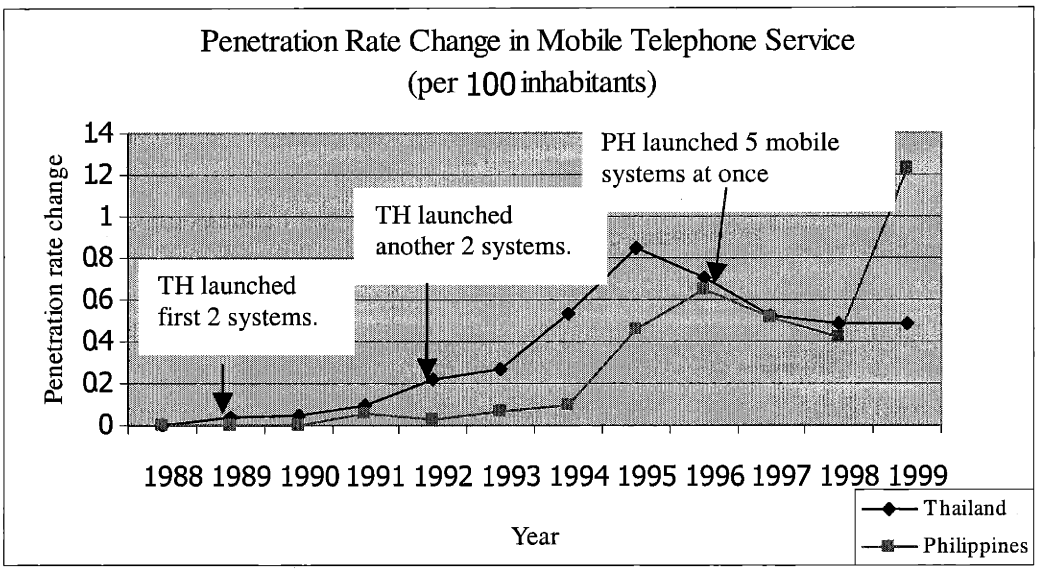


Figure 5.3 shows that the mobile penetration rates changed when major policies were issued in Thailand and the Philippines.

5.2.2 Political-Economic Perspective

Whenever the analysis at the national level is performed, it is necessary to consider the political and economic situations. This study is of no exception. This section analyzes the major political and economic events in both countries and identifies the effects of such events on key issues in this thesis, penetration rates and universality of services. It also attempts to relate the economic trends with trends in penetration rates to broadly identify the relationship between the economic situations and penetration rates in each country. At the end of the section, a summary of the political and economic factors that affect the penetration rates of each service are graphed based on their timelines.

5.2.2.1 Evolution and Effects of Political-Economic Factors on the Telecommunications Industry

Although situated in the same region, Thailand and the Philippines face different economic and political challenges. The differences can partly be accounted for by the countries' history and past political influences on its institutional systems. Historically, the Philippines was once a colony of Spain and thus inherited its institutional system and value from its colonizer. As a result, the Philippines has been governed by a President and republic system. On the other hand, Thailand, never a colony, inherited its royal monarchy system, with the prime minister and the cabinet in charge of administrative issues.

Due to the differences in their institutional systems, Thailand and the Philippines have different legislative processes. The governing bodies in the two countries are also structured differently. While the Philippines has a President as head of the administration, Thailand has a Prime Minister. While the President of the Philippines can issue an Executive Order to be implemented immediately, the Prime Minister of Thailand can only issue a Cabinet Order only

on issues related to national security. As a result, some of the issues that require immediate attention must go through a lengthy and painstaking legislative process.

Despite all of these major differences in their political structures, the two countries are similar in that their political systems are not very stable. Both countries have a history of military control. Both also have had several coups in their recent history. The Philippines was under the Marcos era for several decades (1965-1986) and after that experienced periodic political instability.[43] Thailand, although has no particular dictators, has experienced several political changes throughout its democracy history. Thailand's cabinet changes often, and as a result, the policies change often too.

On the economic side, Thailand and the Philippines both experienced a period of economic growth in the 1990s and huge economic setbacks following the 1997 Asian financial crisis. Both countries have low rates of technology adaptation and mostly play a role of technology importers. Although the GDP of Thailand is almost twice that of the Philippines, both countries are categorized in the same middle-low income countries. As the pressure to maintain economic growth continues to grow, both countries, like most other developing countries, are incorporating telecommunications infrastructure development and technologies as part of their economic development plans.

- Fixed telephone service

As presented in the previous section, the fixed telephone service in both Thailand and the Philippines is most affected by policies and regulations, when compared to cellular mobile telephone and Internet service. One might also speculate that fixed telephone service is affected by political and economic factors more than other services.

---

[43] Sida Sonsri, Economics and Political Developments in The Philippines (Bangkok, Thailand: Kop-Fai Publications, 1999), 80.

The following table shows the economic and political factors and effects on the fixed telephone service in both countries.

Table 5.4: Effects of Political-Economic Factors on Fixed Telephone Services

Factors	Factors	Effects on	Thailand	The Philippines
Economic	Economic growth	Penetration Rates	Change in penetration rate from 1988-1999 varied directly with the direction of GDP change in that year, except for 1996.	Change in penetration rate from 1988-1999 varied directly with the direction of GDP changes in that year, except for 1992.
		Universal Service	The 1.5-million-line rural telephone concession was fiercely bid and awarded during the economic growth period.	EO109, aimed at increasing penetration rates and distribution was initiated during this period, in 1993.
		Competition and new entrants	Fiercer bidding due to high capability to loan and invest in telecommunications infrastructure projects.	Liberalization process was completed during this period, in 1993. Several companies rushed into the basic telephone market.
	Economic downturn/ Financial Crisis	Penetration Rates	Change in penetration rate decreased when GDP decreased, except for 1996.	Penetration rates went down with the crisis, the first decrease in change in penetration rate since EO109.
		Universal Service	The company that got the concession for the 1.5-million-line rural areas went into a financial downturn.	As of March 1999, no licensed companies were able to fulfill the 10 to 1, urban to rural ratio.
		Competition and New Entrants	Many big companies faced financial problems and went into mergers and acquisition.	Several companies were unable to meet the goals set for a number of lines to be installed by their license. The NTC awarded more licenses to those who could.
Political	Instability	Penetration Rates	The one-year period where penetration rate did not go up, even though the GDP did, was during a recent coup and new election.	The one-year period where the penetration rate did not increase even though the GDP did was when there was a recent coup and new election.
		Universal Service		
		Competition		
	Political Support for Telecom-munications	Penetration Rates	The concessions for additional 3-million lines were passed by the cabinet and went through the bidding process with strong political support.	Change in penetration rate shot up when strong political support existed or new licenses were issued to cellular and gateway operators (EO109) and at the deadline for EO109.
		Universal Service	The 1.5-million-line rural telephone project was approved by the cabinet promptly.	The distribution ratio between urban and rural penetration improved with EO109.
		Competition and New Entrants	More private company participation was strongly backed up by the cabinet.	Liberalization is implemented and completed with backup from the president in 1993.

If one uses the GDP per capita as a measurement of economic growth in a country on a yearly basis, an analysis shows that the change in the penetration rate of fixed telephone lines in each year parallel the direction of the GDP per capita change in that year. That is, the in penetration rate increased when the GDP per capita increased. In addition, the change in penetration rate decreased if the GDP per capita decreased. This is true for both countries between 1988 and 1999, with the exception of 1996 in Thailand and 1992 in the Philippines. The statistics and graph presented in Section 5.2.2.2 also shows this relationship.

Economics also have indirect effects on the universality of the service. When examining the timeline of major policies regarding fixed telephone service, it is clear that all major policies and concessions related to fixed telephone services were issued during between 1993 and 1996, economic growth periods for both countries and the Southeast Asian region. In Thailand, the concessions for the 1.5-million-telephone lines for the rural areas were awarded during this time.[44] In the Philippines, one of the most effective government policies, EO109, the focus which was on universal service, was issued during the economic growth period.

When the economy grows, fiercer competition and entry also occur, be it in any form allowed, ranging from fiercer bidding for a concession in a closed market in Thailand, or higher rate of entry and competition in a more liberal market in the Philippines. This relationship is quite simple to explain. The higher the economic growth, the more attractive the market is, and thus, the more likely that investments will produce returns. As a result, investors are more interested in investing in the market. The liberalization process in the Philippines is a good

[44] Donyaprueth Krairit, "The Viability of Telecommunications Regulatory Changes in Thailand" (M.S. Thesis, University of Colorado – Boulder, 1994), 32.

example of this situation. It was started in 1993[45] when the GDP per capita in the Philippines started to increase noticeably. The allowance of new entrants coupled with strong economic gains attracted several new entrants into the market.

In general, positive economic trends increase penetration rates and negative trends pull down the penetration rates. During the financial crisis, both countries had a tough time surviving, especially the telecommunications companies whose investments were huge and who depended on large loans from foreign countries and financial markets. Many investment projects were stopped and several big companies faced financial troubles and finally entered into mergers.

Since bad economic trends worsened the penetration rates, there is no doubt that they worsened the universal service of the fixed telephone service. During the economic downturn, a Thai company that received concessions for a 1.5-million-line rural projects faced severe financial troubles. Even though their networks were almost completed at that time, the bad economic situation lowered the sales of the lines significantly. In the Philippines, although almost all companies met the rollout deadline of EO109, none of them were able to meet the 10-to-1, urban-to-rural ratio set by the NTC.[46] This is not to say that the inability to meet the set ratio was due solely to economic factors. But one cannot dismiss the economic situation as an unrelated factor either.

Political trends also definitely impact the penetration rate and the universal service of fixed telephone service. This fact can be best seen during 1996 in Thailand and 1992 in the Philippines. In 1996, Thailand's GDP per capita increased, but the change in penetration rate of the fixed line service decreased. This can be explained by the huge natural floods that devastated

[45] Pablito A.Perez and Jinky Rose L. Go, "Report on Philippine Telecommunications Industry" Unpublished Paper, (Pasig City, Philippines, 2000), 14.

the country, including in Bangkok during the last half of 1996. This flood came at the same time as the third election during the one-year period of 1995-1996. The instability in politics, coupled with the natural disaster that resulted in a delay in the construction of the new network from the awarded concessions, rendered the investment situation bleak.

In the Philippines, 1992 reflects a different relationship too. In 1992, the GDP per capita of the Philippines increased, but the penetration rate decreased. This phenomenon, though in the same direction as Thailand in 1996, was of a lesser magnitude. In that year, the GDP of the Philippines did not grow significantly enough to pull up the investment and the penetration rates. Investing in telecommunications decreased due to the uncertainty over the upcoming election and because the Aquino government was in power for four years and new election was required which added to the effects of the termination of the Marcos era that were still felt in the Philippines. So, the political situation was still very much unsettled. This resulted in a slightly lower penetration rate that year.

However, the political environment in both countries was not always unstable. When it was stable and there were strong supports from the government, the penetration rate went up, sometimes significantly too. The clear example in the Philippines would be during the government of President Ramos, during which several policies were issued, including EO59 and EO109. President Ramos is a distinguished leader in a sense because even though he came from the military, he was able to separate quite clearly civic and military duties and never used his military support to promote himself. As a result, the military influence played a lesser role in telecommunications development during the Ramos presidency (1992-1998).[47]

---

[46] Ibid, 7.
[47] Sida Sonsri, Economics and Political Developments in The Philippines (Bangkok, Thailand: Kop-Fai Publications, 1999), 80.

In Thailand, a positive political environment played an even more important role than in the Philippines because the Thai telecommunications industry was and still a monopoly industry. Strong support from the Minister of Transport and Communications, the Prime Minister, as well as the cabinet, helped pass the two concessions that increased the penetration rate and universal service significantly.

Strong political support also played an important role in increasing the private sector participation in the industry in both countries. Thailand allowed more Thai private companies to invest and construct new networks. The Philippines went even further and allowed for liberalization of the market.

This evidences along with the analysis, once again, suggests that economic and political factors indeed had a strong effect on the penetration rate and universal service of fixed telephone services in the two case studies.

- Cellular Mobile Telephone Service

Even though cellular mobile telephone service was not affected by policies and regulations as much as fixed telephone service, its penetration rate was affected by economic and political factors quite the same way as the fixed telephone service was. The following table summarizes the political-economic effects on cellular mobile telephone services.

Table 5.5: Effects of Political-Economic Factors on Cellular Mobile Telephone Services

Factors Type	Factors	Effects on	Thailand	The Philippines
Economics	Economic growth	Penetration Rate	Change in penetration rate from 1988-1999 varied directly with the direction of a GDP change in that year, except for one year, 1996.	Change in penetration rate from 1988-1999 varied directly with the direction of a GDP change each year, except for one year, 1992.
		Universal Service	No specific measure on the universal service available at this time.	No specific measure on the universal service available at this time for cellular service.
		Competition and New Entrants	Cellular telephone service was and still is one of the most competitive telecommunication concessions.	Even in the economic recovery period of 1998-1999, there were companies waiting for cellular licenses.
	Economic downturn/ Financial crisis	Penetration Rates	Change in penetration rates decreased when GDP decreased.	The penetration rate decreased when GDP decreased.
		Universal Service	No specific measure on universal service available at this time.	No specific measure on universal service available at this time.
		Competition and New Entrants	The two biggest companies were talking about a possible merger. One major player was acquired by one of the biggest companies.	The number of competitors remained at 5 after the financial crisis and increased to 7 during 1999 and 2000.
Political	Instability	Penetration Rate	In 1996, the penetration rate decreased even though the GDP increased because there was an upcoming election, the first since the coup in 1992.	In 1992, the penetration rate decreased even though the GDP increased because there was a recent coup and upcoming election.
		Universal Service		
		Competition		
	Political Support	Penetration Rate	No specific goals to increase cellular phone penetration rate. The government mainly used cellular phone concessions as a means to increase private company participation in the industry.	The government used the CMTS license service to increase basic phone penetration.
		Universal Service		
		Competition and New Entrants	The cabinet backed an increasing number of private companies participation.	Liberalization was initiated and completed with backup from the president.

The analysis shows that the change in penetration rate of cellular mobile telephone service varied directly with the GDP per capita each year. This is the same direction as the fixed telephone service. In the case of Thailand, given the fact that there were more operators than in

the fixed telephone service due to overlapping authorities in granting mobile cellular phone concessions between two government agencies, many operators began fiercely competing for the concessions when this market started to open to more private participation through concessions. In the Philippines, an archipelago, wireless mobile was perceived as the quickest and most cost-effective method to implement a nationwide network and secure a customer base. As a result, even though the NTC limited the number of CMTS operators to 5, many companies fought in the courts and waited for years for pending applications before the NTC decided to allow two more licenses in 1999 and 2000.[48] This shows how lucrative and attractive cellular mobile telephone service is. As a result of these new licenses, the penetration rate of the cellular mobile telephone service shot up sharply after the two new entrants came in. However, the industry penetration rate is still low and thus, makes the market very much attractive to numerous operators. Since operators' investment depends mainly on the economic situation, economic factors have direct effects on the penetration rate of cellular mobile phone services since it directly affects the investment decision and incentives.

From a political point of view, the penetration rate of cellular mobile telephone service was also affected by the political instability as the fixed telephone service. The change in penetration rate of cellular mobile telephone service decreased when the GDP per capita increased in Thailand in 1996 and in the Philippines in 1992. These are the exact two years that the penetration rate of the fixed telephone lines decreased in both countries even though the GDP per capita in both countries increased. Therefore, one can imply that the shaky political environment, coupled with the natural disaster in Thailand, could have created an unstable enough effect on investors that it affected both the fixed and the cellular mobile industries.

---

[48] Pablito A Perez and Jinky Rose L. Go, "Report on Philippine Telecommunications Industry" Unpublished Paper, (Pasig City, Philippines, 2000), 36.

Even though it is clear from the analysis of both countries that economic and political factors affect penetration rates, it is more difficult to find a relationship between the economic and political factors regarding the universality of cellular mobile telephone service. This is because there is no specific measurement on the universal service of mobile telephone service compared to fixed telephone service. One reason could be that fixed telephone service is perceived as a necessity and thus a measure of development by international development and financial institutions. So, the governments all over the world have concentrated on the distribution of fixed telephone services (either wired or wireless local loop) rather than cellular mobile telephone services.

- Internet Service

The change in penetration rate of the Internet service is far different from fixed and cellular mobile services. The change in penetration rates did not vary with the GDP per capita since 1996, the year of its commercial introduction. From 1996 to 1998, the change in penetration rate of the Internet in both countries increased quite steeply while the GDP per capita in both countries decreased as the countries went into a financial crisis. However, in 1999, the penetration rate decreased even though the GDP per capita increased with Asia's financial recovery.

The following table summarizes the analysis of Internet Services.

Table 5.6: Effects of Political-Economic Factors on Internet Services

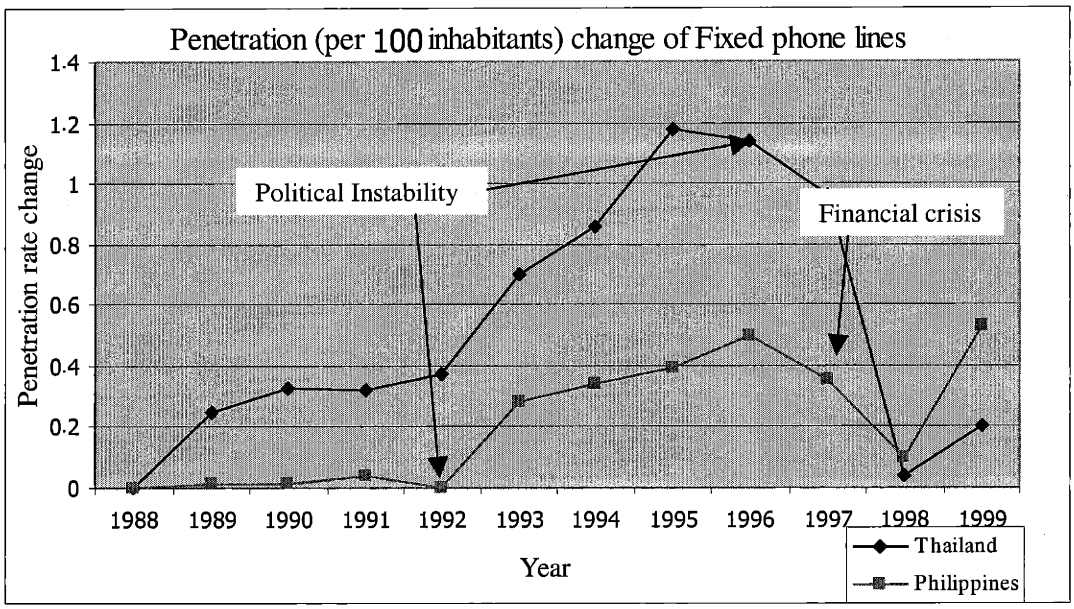
Services	Factors Type	Factors	Thailand	The Philippines
Internet Service	Economics	Economic growth	Does not vary with the GDP in any year since the commercial provision in 1996.	Does not vary with GDP in any year since the commercial provision in 1996.
		Economic downturn/ Financial crisis		
	Political	Instability	Still too early to identify the relationship. The government still holds a monopoly.	Still too early to identify the relationship. The government has no policies yet regarding the penetration of the Internet.
		Political Support for Telecommunications		

From a political point of view, the fluctuation in penetration rates of Internet service in both countries cannot be fully explained since there have been no major political events during the three years since the Internet has arrived in the two nations as a broad-based commercial enterprise. As a result, a reasonable relationship between political factors and the Internet penetration rate could not be drawn.

Moreover, since Internet offers a wide range of new applications that draws in new user groups and demand, it is difficult to separate the effects of user demand from the economic and political effects until a longer-term penetration rate can be identified, separate from the hype of new services.

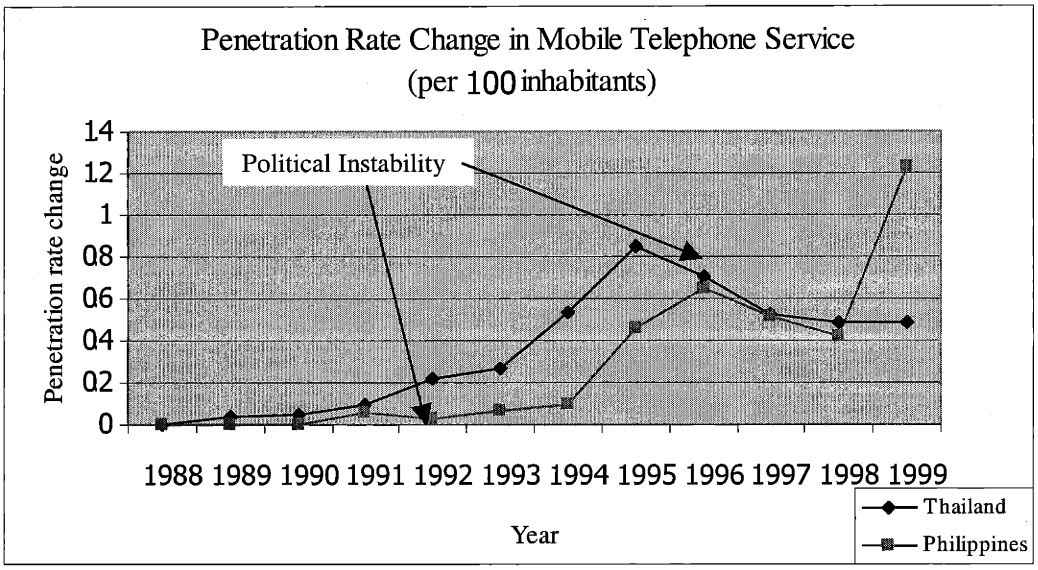
5.2.2.2 Statistical Summary on the Penetration Rate Based on Major Political-Economic Factors

Figure 5.4: Changes in Penetration Rate of Fixed Telephone Lines Based on Political and Economic Factors



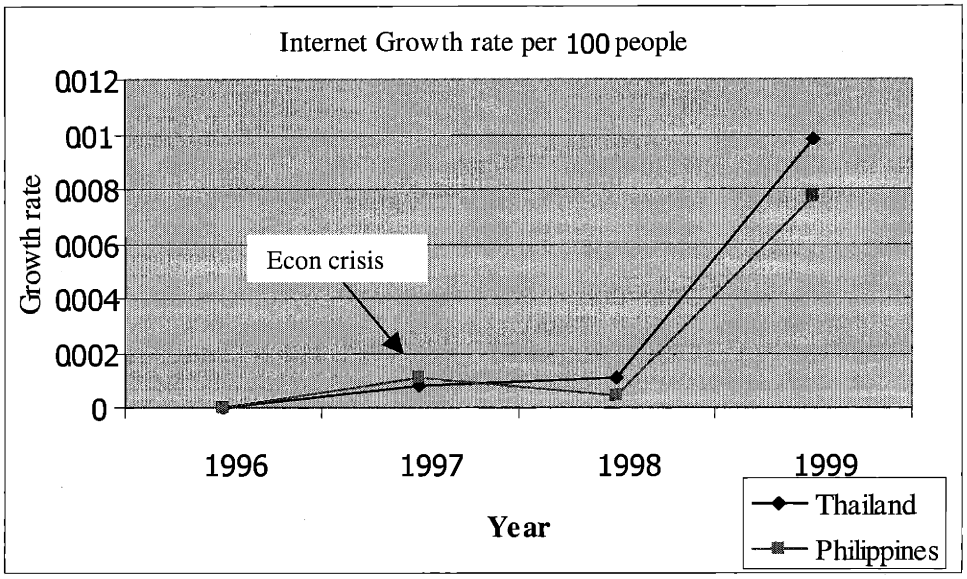
In the Philippines, in 1992, the penetration rate of the fixed telephone line decreased even though the GDP per capita increased because there was political instability in that year. The same relationship happened in Thailand in 1996 where there was also a natural disaster in that year.

Figure 5.5: Changes in Penetration Rate of Cellular Mobile Telephone Service Based on Political and Economic Factors



The changes in penetration rate of the cellular mobile industry are the same as those of the fixed lines. They increased when the GDP per capita increased except in the same two years when there was political instability.

Figure 5.6: Changes in Penetration Rate of Internet Service Based on Political and Economic Factors



From Figure 5.6, it can be seen that the Internet penetration rate decreased a little when the economic crisis strikes but bounced back quickly after the economic crisis period and the pattern of changes did not vary with the GDP per capita in any year since the Internet has been offered commercially.

5.2.3 Industry Competition and Competition Regulations

Another major influence on the penetration rate of any service is the extent of competition in that market. Even though policies play an important role in determining how the market is shaped, it is the competition, either in full or in part, or the implementation of those policies, through regulations, that will determine the service price and quality delivered to users. This is true even in the case of Thailand, which has a monopoly market, because the concession bidders will compete with different technologies and investment choices. And, theoretically, the government selects the bid that maximizes the consumers' benefits as well as meets the government requirements.

5.2.3.1 Evolution and Effects of Industry Competition and Competition Regulations

In this subsection, major regulations related to competition in the two countries will be presented and the effects of these regulations on price and competition will be analyzed. At the end of section, the competition situation on each service and in each country will be presented.

- Fixed Telephone Service

Even though on a broad policy level, Thailand and the Philippines have pursued the same goals regarding fixed telephone service, which is to increase the penetration rate and the universal distribution of the service, the implementation of their policies through regulations have been totally different. While the Philippines chose to implement its policies with the competition, Thailand implemented its policies with government concessions.

The following table summarizes the positions of the two countries regarding competition policies.

Table 5.7: Competition Regulations on Fixed Telephone Service

Services	Regulations Related to Competition	Thailand	The Philippines
Fixed Telephone Service	Rate Regulations	A soft form of rate of return from the concessions.	Rate and tariff fixing were deregulated, with the removal of the 12% cap on rate of return. But telephone companies have to inform the NTC of any proposed rate amendment.
	Incentive Regulations	Exclusivity in the concessions	RA7925 protects domestic LECs by prohibiting the uncompensated bypass or overlapping of LEC operations.
	Anticompetitive Issues	Committed to the WTO Agreement but at present, has no specific policies.	No telephone companies can engage in the telecommunications and broadcast business under the same franchise.
	Interconnection issues	No specific policies.	Interconnection must be on a non-discriminatory basis but access charges are left to a contractual agreement.

As can be seen clearly from the Table 5.7, the Philippines has a much stronger regulatory framework toward competition than Thailand. The NTC removed the "rate of return" regulations and thus encouraged open competition in the fixed telephone and local exchange service.[49] However, the government also implemented a checking mechanism by asking the NTC to consider proposed rate amendments. In contrast, Thailand, with its concession system, used rate of return measure to control the private operators. Since the operators who get concessions must pay concession fees based on their revenue as mandated by the TOT, the competition seen between the concessionaire and TOT in the same service area is still considered artificial competition.

The two countries also differ in the incentive regulations. Taking a liberal approach to competition, the Philippines issued the Republic Act (RA) 7925 to protect its domestic local

exchange operators. RA7925 prohibited the uncompensated bypass or overlapping of local exchange carriers' (LECs) operations, reserved the first option to provide pay telephone service or public calling stations to the LECs in their authorized areas of operation, and allowed LECs to operate their own interexchange carrier service if their viability depended on it.[50] The number of telephone companies providing interexchange national long-distance services was limited, but at least two national interexchange operators are allowed, if economically viable. Thailand, on the other hand, has put the incentive for operators in the concessions, which grant the operators the exclusivity of competition for a specific length of time and for a fee. The concession method appears to have been ineffective as evidenced not in the penetration rate but in the higher cost of connection fees and monthly charges, which are higher in Thailand than in the Philippines.

On the anticompetitive issue, the Philippines have once again appeared to have a better-defined regulation. They separate the service into different types, basic and value-added, and separate the service from infrastructure provision. The NTC has issued a restriction that no telephone companies can engage in the telecommunications and broadcast business under the same franchise.[51] Thailand, committed to the WTO Agreement and in preparation for liberalization, has drafted a new telecommunications law with no details on the categorization of the services and infrastructure, which is a basic requirement for regulating the telecommunications industry.

On the issue of interconnection, Thailand has no specific competition regulations toward the interconnection goal since the TOT is the sole owner of the networks because the concessions were awarded on a build-transfer-operate (BTO) basis. In the Philippines, despite

---

[49] Pablito A.Perez and Jinky Rose L. Go, "Report on Philippine Telecommunications Industry" Unpublished Paper, (Pasig City, Philippines, 2000), 19.
[50] Pablito A.Perez and Jinky Rose L. Go, "Report on Philippine Telecommunications Industry" Unpublished Paper, (Pasig City, Philippines, 2000), 22.

clear and categorical government regulation, full and efficient interconnection remains a problem due to unfair interconnection charges. Interconnection is required by law to be non-discriminatory but charges of anti-competitive practice have been made against dominant telecommunications entities. These charges include problems about facility compatibility, access charges and competitive pressures.

In summary, while Thailand and the Philippines have implemented various telecommunications policies, to accomplish the same objective to increase the penetration rate of fixed telephone service, they have do so very differently. While the Philippines allows competition, Thailand does not. Despite their differences, somehow both successfully increased the penetration rate of fixed telephone service.

- Cellular Mobile Telephone Service

From a policy perspective, Thailand and the Philippines have fewer policies regarding the penetration rate of cellular mobile telephone service than those regarding fixed telephone service. When it comes to regulation, the two countries have different regulations to protect consumers. And once again, the Philippines has developed a stronger regulatory framework to support competition and protect consumers from unfair competition and short-term rent seeking than Thailand.

In the Philippines, all cellular mobile telephone service (CMTS) providers are mandated to comply with internationally accepted CMTS standards, and interconnection between CMTS systems and PSTN or between and among CMTS networks is likewise imposed as a condition of their license.[52]

---

[51] Ibid., 23.
[52] Pablito A.Perez and Jinky Rose L. Go, "Report on Philippine Telecommunications Industry" Unpublished Paper, (Pasig City, Philippines, 2000), 26.

In the area of anticompetitive and consumer protection, in anticipation of the shift in technology, present NTC regulations require that existing analog CMTS operators who intend to upgrade their systems must maintain their analog CMTS within set performance standards for as long as there are subscribers in the analog system.[53]

The following table shows the comparisons of competition regulations in the two countries.

Table 5.8: Competition Regulations on Cellular Mobile Telephone Service

Services	Regulations Related to Competition	Thailand	The Philippines
Mobile Telephone Service	Rate Regulations	A soft form of rate-of-return for the concessions	No rate-of-return policies.
	Incentive Regulations	Concessions	Exclusivity in the license
	Anticompetitive Issues	Still in the monopoly situation	CMTS operators who intend to upgrade their analog systems must maintain their networks within set performances standards. Licensing restrictions on technical compatibility to interconnect with the PSTN.
	Interconnection Issues	No specific policies	EO59, licensing restrictions on technical compatibility to interconnect with the PSTN.

In contrast, Thailand has no such regulatory framework to protect consumers and has not focused on the competition among providers. As a result, quite a number of providers operate in other telecommunications services, and since there are no anticompetitive regulations, they have used their competitive advantage to gain a market share in the cellular mobile market. As a result, during the financial crisis, some smaller companies were acquired by one giant company in the telecommunications and media industry.

[53] Ibid, 26.

The Thai government also did not anticipate future technology issues when they granted concessions to CMTS operators. Therefore, when the CMTS operators attempt to shift to the new systems, they use the pricing mechanisms, such as the reduction of the promotion of the old system, to partially force the customers to move to the new systems. As a result, Thai consumers are losing their promotion benefits when operators want to increase their revenue or market share. In addition, Thai people are also paying higher prices for cellular handsets than other countries because the operators reduce the service fees to increase their customer bases but collect the revenue through the overcharged end equipment.

As a result, once again the Philippines has shown that it has stronger regulations to support competition and protect consumers than Thailand. The lack of regulations in Thailand has put Thai consumers at a disadvantage.

- Internet Service

Internet service is the only service that Thailand and the Philippines have comparable regulations, that is, almost no regulations because the Internet service industry is just emerging.

The following table shows the regulations on Internet service in both countries.

Table 5.9: Competition Regulations on Internet Service

Services	Regulations Related to Competition	Thailand	The Philippines
Internet Service	Rate Regulations	A soft form of rate-of-return from the concessions and joint ventures. Higher fees than any other Asian countries.	No Internet policies.
	Incentive Regulations	Concessions	A VAS provider who does not set up its own network need not secure a franchise.
	Anticompetitive Issues	No specific policies.	VAS operations cannot be cross-subsidized by utility operations, and separate books of accounts are to be maintained for VAS and telecommunication services.
	Interconnection Issues	No specific policies.	No specific policies.

In the Philippines, value-added services (VAS), defined as enhanced services beyond those ordinarily provided for by local exchange operators, interexchange operators and overseas carriers including Internet services, are not strictly regulated. A VAS provider that does not set up its own network and relies solely on transmission, switching, and local distribution facilities of enfranchised telephone companies need not secure a franchise, and in order to operate, need only register with the NTC.[54] VAS operations, however, cannot be cross-subsidized by utility operations, and separate account books must be maintained for VAS and telecommunications services. These regulations act as a safety net aimed to protect consumers' interests.

Thailand, as it does with other telecommunications services, has no regulations to safeguard consumers and support fair competition. As a matter of fact, one can look at the industry as competitive or as a monopoly because of the fact that the CAT still controls the connections to the international networks and therefore acts as a fee collector for the

[54] Pablito A Perez and Jinky Rose L. Go, "Report on Philippine Telecommunications Industry" Unpublished Paper, (Pasig City, Philippines, 2000), 48.

international gateway facility (IGF) service through a rate-of-return mechanism. At the local level, many ISPs are cross-subsidized by major telephone and cellular mobile companies. This makes it even harder to ensure consumers of fair competition.

So, even though the two countries do not have specific Internet regulations, the Philippines has implemented a safety net for consumers while Thailand has not. The differences in their regulations are expected to grow wider in the future if the telecommunications monopoly situation in Thailand still exists.

5.3 Interview Data Analysis

In addition to the documentary analysis, several interviews were also conducted with people from academia, industries, and government agencies. However, due to strict confidentiality arrangements, the subjects' names, titles, and organizations will be kept confidential. The interview data are divided into sections about each specific service with the final section dedicated to the liberalization issues and effects.

5.3.1 Interviewees' Comments on Fixed Telephone Service

In Thailand, most operators have a good understanding of the market including the penetration rate and distribution of the fixed telephone service. They learned from their experience that fixed telephone service is reaching a saturated level in the profit-making areas, such as metropolitan areas, and that the best new market is the business markets. However, surprisingly, the private operators in Thailand repeated over and over again their concerns that universal service should be implemented in the near future so that people in the rural areas will also have at least basic telephone services. They even suggested some strategies that would provide incentives to operators so that the government can achieve the universal service of the fixed telephone service quickly. An officer from a private telephone company said, "There are

still a lot of needs for telephone services in the rural areas of Thailand. At least, we have to be able to provide at least a community telephone service to them to make sure that the telecommunications development is going in the right direction."

On the contrary, policymakers in Thailand considered the goal of universal services less important than do the operators. Government agencies expressed the belief that incentive regulations and private sector participation are useless or weak motivators to help achieve the universal service goal. Rather, they expressed belief in government intervention and a degree of government control in establishing universal service and showed a strong interest in handling the universal service issue on their own. One government officer stated that, "We have never had private companies participated in the universal service projects in the past. I am not sure that they will truly understand the goal of universal service or will be able to establish the universal service as well as the government."

In the Philippines, the operators expressed strong confidence in the current state of competition. One regional operator said that, "I am very confident that we will be able to expand the services, both telephone and Internet, to the national level in the near future. I am positive that the competition will help keep the cost of telecommunications services down in the long run." However, they voiced some concerns about interconnection issues and a large number of idle lines despite a large investment in installing the lines according to EO109. Some operators said that the government made a mistake in the planning by implementing the service area scheme. They also expected a slower growth rate of fixed telephone lines in the future.

In both countries, policymakers are quite confident of their understanding of users' demands after the planned liberalization, and, as a result, they also said they can frame the policy for future services, especially for fixed telephone service, with a significant degree of

confidence. They also think that their confidence is justified because they have a knowledge base that they have been collecting over the years. This phenomenon is found both in the Philippines, where liberalization has already taken place, and Thailand, where liberalization is being planned.

However, academicians in both countries do not agree with the policymakers about future consumers' demands. They said these policymakers are simply overconfident and do not listen to the suggestions from other agencies, either the operators or academic research. A leading Thai researcher in the field of telecommunications policy suggested that, "I wish that the government would listen to inputs from other non-government agencies and incorporated them into their decision-making process." They also pointed out that Thailand still lacks the checks-and-balance mechanism in the new telecommunications law and suggested that the government should be more open to research and suggestions from outside the government agencies.

Operators and academicians alike complained about the telecommunications policy bureaucracy in the governments in both countries. They said that the bureaucracy has not changed despite the recent liberalization efforts.

5.3.2 Interviewees' Comments on Cellular Mobile Telephone Service

In the Philippines, most of the concerns in the cellular mobile telephone service are about the interconnection issues. The NTC has been involved in serious interconnection disputes about unfair access charges between the major operating telecommunications entities. With the interconnection issues barely resolved, the two leading cellular companies were the subject of vociferous public complaints regarding their billing practices and the inadequacy of their service due to network congestion. Almost all operators and government agency officials voiced their concerns on the interconnection issues, except for the industry dominant players. One

government official expressed his concern on this issue that, "It is a very important problem for the industry right now. I think that we need to resolve this issue before we can move on and say that the competition in the cellular mobile industry is fair. Both the users and new entrants will be of disadvantaged unless this interconnection issue is resolved."

In Thailand, government agencies acknowledged the artificially high price of the cellular handsets but said they cannot do anything until the new telecommunications law is passed in 2001. A government officer acknowledged this problem but said, "I am sorry we have to say that there is nothing we can do right now to lower the price of the service and equipment because the providers is protected by their concessions. I think we will have to wait until the new law comes into effects and removes the concessions." Operators expressed no concern about current competition situation saying that they can offer new technologies as soon as those operators in other developed countries. However, they said they are fully prepared for the coming competition and have been preparing strategies to secure their customer bases.

5.3.3 Interviewees' Comments on Internet Service

Currently, Internet service policies and regulations are being discussed in the Philippines. The reason is the so-called Senate Bill (SB) 2084, which requires ISPs to set up connectivity in the rural areas in exchange for a license for their own broadband infrastructure.[55] Operators have concerns regarding whether the ISPs should be treated like a telephone company in fulfilling the universal service requirements. An industry analyst expressed his concerns that, "At present, it might be too early to regulate the Internet service. Moreover, Internet service is different than telephone service and I do not think that applying the telephone universal service regulations to Internet service would be such a good idea."

[55] Pablito A Perez and Jinky Rose L. Go, "Report on Philippine Telecommunications Industry" Unpublished Paper, (Pasig City, Philippines, 2000), 28.

In Thailand, the focus is on how to increase the penetration rate of the Internet service, and not to the issue of universal service. However, the Thai ISPs expressed concerns that the Internet service market in Thailand is still immature and might be dominated by international companies once the market is liberalized in 2006. A major Thai ISP said that, "We are quite worried about the liberalization at this point. I am not sure that there is enough protection for domestic ISPs." They suggested that there should be some kind of protection measures for domestic ISPs so that they are not out-competed by the global enterprises.

In both countries, however, government agencies affirmed that they would try to keep the Internet industry as open and unregulated as possible. They also accepted the fact that the Internet is a young industry and that they still do not have sufficient information to frame its regulations.

5.3.4 Interviewees' Comments on Liberalization Issues and Effects

The interviews indicate that policymakers in Thailand do not fully understand the liberalization process and what they should do to promote an increase in penetration and to prepare for liberalization. They are not quite sure about how to support fair competition and protect customers. One major operator said, "Since we are both operator and regulator, the focus now is for us to strengthen ourselves as an operator for future competition. I am not sure that there is a clear concern about the universal service and consumer protection in our organization at this time." Policies and regulations in the new telecommunications law were found to be mix of regulations used in many developed countries, and not specifically tailored to Thailand's specific needs, a problem also pointed out by academicians and operators.

However, every party interviewed expressed an optimistic view about the planned liberalization and its expected outcomes. Everyone hopes for more competition and a greater variety of services for users.

Operators and academicians agreed that, after the liberalization processes in both countries, the mobile telephone service will grow fastest, followed by Internet service. They also agreed that in the future, the penetration rate of the fixed telephone service would slow down.

In the Philippines, operators expressed the same opinion on the growth rate of these three services. They also expressed their confidence in the liberalization process and their optimistic view on how the future competition will benefit consumers. One operator said that, "I think everyone in the industry is very confident about the competition in the telecommunications industry. As of now, most operators do not expect changes in government support for competition in the industry."

5.4 Survey Data Analysis

Even though extensive documentary research and interviews have been conducted for this study, the results from these two data sources can tell only one side of the story, the supply side of the service and policies. To conclude anything from only this information would be misleading because there is another important "other" side, that is, user demand. As a result, the survey of user demands was conducted to bridge the gap between theories used in making policies and producing supplies and the reality of user demands.

Based on the 20 interviews conducted by the author, the author found that policy makers usually make many implicit assumptions when framing a policy or regulations. One of the most common mistakes of policymakers is to assume they understand consumers' perceptions of and demand for different services. Moreover, policymakers often think that they know and can

precisely predict future trends and usage patterns. The sad fact is they do not and that consumers can voice best how they perceive the services and the reasons why they would or would not want the services. Input from consumers is very important and definitely should be incorporated into the process of any policy making.

This survey was designed to achieve better understanding on consumers' perceptions of the three services, fixed telephone, cellular mobile telephone, and Internet, and of the liberalization effects.

Unfortunately, the survey could be done only in Thailand. However, to maximize results, the survey was conducted in two Thailand locations. One location was Bangkok, the capital of Thailand, and its metropolitan area, which has the highest fixed-line telephone penetration rate in the country. The other location was Ang-Thong, a province in the central region with the lowest penetration rate of fixed telephone lines, only 3 lines per 100 inhabitants. More than 400 people answered the survey, which randomly selected respondents.

The results of this survey are analyzed in the subsequent sections to explain the past and future trends of the three services.

5.4.1 Sample Sizes

The following Table 5.10 shows the sample size of the survey separated by locations and status of users.

Table 5.10: Sample Sizes in the Survey

Type of Users		Location	
		Bangkok	Ang-Thong
Current Small and Medium Enterprise Business User	Manufacturing	32	30
	Trading	39	33
	Service	30	30
Total		101	93
Current Home User	High Income	30	9
	Medium Income	41	35
	Low Income	33	47
Total		104	91
Non-Current Home User	Medium Income	31	25
	Low Income	30	39
Total		61	64
Grand Total		266	248

5.4.2 Hypothesis Testing for Survey Data

5.4.2.1 Test for Data in Each Location

The data in each location was tested by the T statistics to determine if they were statistically significant within one location. The test, however, was done for samples of 30 or more to ensure a proper standard distribution. The data was also tested at the 95% confidence level to ensure reliability.

5.4.2.2 Test for Data across Locations

The data from each location was then combined and analyzed to compare the differences in two sample groups.

5.4.3 Statistical Analysis Results

This section presents the results of the statistical analysis by grouping and interpreting the statistical results into descriptive conclusion about the three services and the effects of liberalization. For each service, the descriptive conclusions drawn are divided into three subsections, one on factors for using the service, another one on factors for future usage, and the last one on users who do not have the service.

5.4.3.1 Fixed Telephone Service

- Fixed telephone is currently the most common service because users perceive it as a necessity.

Table 5.11 shows communications equipment used by sample users.

Table 5.11: Equipment used by Samples

Equipment	% of Samples in Bangkok	% of Samples in Ang-Thong	% differed
Fixed Telephone	77.1	74.2	2.9
Cellular Mobile Telephone	39.1	27.8	11.3
Internet	13.9	3.2	10.7
Nothing	18.0	19.8	-1.8

Note: The total percentage is more than 100 because the subjects could choose multiple answers.

Based on Table 5.11, fixed telephone service is the most common communications method, with about 70% of the respondents, followed by cellular mobile telephone service. Only 14% of the users have Internet service in their homes. In addition, 18% of the respondents have no communications equipment or services at all. Those who have no communications equipment or services account for 79% of the metropolitan users and 77% of the province users who do not have basic fixed telephone service. That is, the remaining 21% and 23% of those who do not have a basic fixed telephone service, in the metropolitan area and province area respectively, use mobile cellular telephone service as their only means of communication. Moreover, the statistic shows that users who do not have basic fixed line telephone service in the province area appear to use mobile phones as a substitute for fixed line phones more than those in the metropolitan area.

When asked about the importance of different communications methods, users perceived basic fixed telephone service as the most important, followed by cellular mobile telephone

service, and Internet service, respectively. This trend is similar for users both in the metropolitan and province areas.

When the current fixed telephone users were asked why they use this service, more than 75% of users (at the 95% confidence level) in both areas attributed it to necessity.

- Most current fixed telephone users are unlikely to ask for an additional line or change providers of their fixed telephone service in the future.

When asked if they would be interested in changing to a new fixed telephone service provider or for an additional line, 80% of the current fixed phone users in both areas said they had no interest in doing so because it is not necessary and they are satisfied with the current rates and services.

For the 20% of the users interested in changing to a new service provider or asking for an additional line, no specific statistically significant factors appeared (at the 95% confidence level): not a reduction in usage fees, not because of the value-added service, such as, the Internet, and not because of the new wireless local loop application.

- Users in the metropolitan areas who do not have the fixed line service lack it because the service costs too much, while in the provincial areas, it is because there is no service available.

When asked why they do not have basic fixed telephone services, 50% of the respondents in this group from the metropolitan area said the service costs too much; 40% said the telephone service is not necessary.

In contrast to metropolitan users, users who do not have the fixed telephone service in the provincial area said they are still on the waitlist and were told that there are not enough lines in their area.

As for the future, 78% of respondents in the metropolitan area and 55% of respondents in the provincial areas who have no fixed telephone service said they want to get a basic phone service because they see it as a basic necessity. The remaining 21% of the metropolitan respondents will not ask for the service because they cannot afford it and felt that the service is not necessary because they can use payphones. The remaining 45% of the provincial respondents will not ask for the service because they do not think the service is necessary. They said they can borrow their neighbors' phones instead of paying for one of their own.

5.4.3.2 Cellular Mobile Telephone Service

- Current users use cellular mobile telephone services because of their convenience.

The number of cellular mobile telephone service users differed most between the two areas. Thirty nine percent of metropolitan respondents have cellular phone services while 28% of province respondents have the service. In other words, there are 11% more metropolitan use cellular phone users than provincial users.

However, when it comes to the reasons why they asked for the cellular service, current users from both areas answered similarly. Seventy five percent of cellular mobile telephone users in both areas said they had the service because of the convenience of cellular service. Sixty percent of the users in both areas said the secondary reason for having cellular service is due to necessity. And, 50% of the metropolitan users said the third most important reason for having a cellular phone is to be "in fashion," while 50% of the provincial users said the third most important reason to use a cellular phone is because of its nationwide network coverage.

- Most current cellular mobile users are not interested in getting an additional service or in changing their service providers in the future.

When asked whether they would be interested in obtaining an additional number or changing their mobile telephone systems, more than 50% of the users in both areas said they were not interested. They indicated that cellular phones that they are using are modern enough and there is no need for another one or a newer model. Those who wanted an additional phone said they wanted an additional one for the convenience in their calling circles. Those who wanted to change to a new system said they wanted the new calling plan packages with new promotions offered. The users did not identify value-added services, such as wireless Internet, or a reduction in monthly charges as important reasons to change service providers or to ask for a second mobile phone.

- Users who do not have cellular mobile telephone service said it costs too much.

Sixty two percent of respondents in both areas do not have cellular mobile phone services. When asked why they do not have the mobile phone service, 62% of the respondents in this group said it is not necessary and 11% said it costs too much.

As for the future, 55% of metropolitan users and more than 80% of provincial users said they are not interested in having cellular phone services.

For the 45% of the metropolitan users who are interested in asking for the service in the future noted convenience as the most important factor, followed by basic necessity and nationwide network coverage. Only 14% of the provincial users reported being interested in using cellular phone in the future and the sample sizes are too small to test any statistical significant factors.

5.4.3.3 Internet Service

- Current Internet users use Internet service mainly to obtain information.

For the users of Internet services, which accounted for 13% of the metropolitan respondents and 3% of the provincial respondents, 75% (at the 95% confidence level) of them had the service mainly to obtain information. The second most important reason for having Internet service is to receive news from all over the world. Fifty percent of Internet users also had the service for their personal and/or business communications. This is the third reason. These three reasons are the same for users in both urban and rural areas.

- Most current Internet users are unlikely to change their ISPs in the future.

Sixty-seven percent of the Internet users in Bangkok have no interest in changing ISPs and said they are satisfied with the service of their current ISPs. The statistical test cannot be done with the provincial data because the sample size of the Internet users was too small (less than 30 samples).

- Users who do not have Internet service said it is too costly.

For users who do not currently have Internet services, 57% of them in the metropolitan area and 48% of provincial samples said they did not have Internet service because it is not necessary and too costly. The second most important reason, for the 18% of metropolitan respondents and 42% of provincial respondents, for not having Internet service is that they lacked knowledge about computers and do not own computers.

In addition, 60% of this sample group from the metropolitan area and 84% from the provincial area, who currently have no Internet service, said they will not ask for the Internet in the future too because they think the service is not necessary and costs too much including the cost of the computers and the ISP service charges.

For those who said they would like to have Internet service in the future primarily wanted to receive information and news through the Internet.

5.4.3.4 Effects of Liberalization

- Less than a quarter of the respondents knew about the liberalization.

Only 24% of the respondents in the metropolitan area and 14% of the respondents in the provincial area knew that there will be a full-scale telecommunications liberalization in Thailand. Those who knew expected the fiercer competition for services and service fee reductions as the most likely outcome.

- Those who knew about liberalization expected the cellular service penetration to increase the most.

When asked about the trend of the three services after liberalization, the users from both areas predicted that after liberalization, mobile cellular phone penetration would increase the most because of price reductions, with the Internet as the second fastest growing service. More than half (53%) of this user group believe that the penetration of basic telephone services will remain at this level and will not increase or decrease with the liberalization process because they believe there are enough telephones for users and that it is not necessary to have more than one telephone line in their homes.

5.5 Analysis Results

This section presents the findings for the hypothesis by analyzing the evidence from the previous subsections.

5.5.1 Extensive liberalization does not increase fixed telephone penetration rate better than other less competition-oriented policy alternatives.

In the area of fixed telephone service, it is found that extensive liberalization efforts, in the Philippines case, did not increase the penetration rates of the fixed telephone lines better than the less competition-oriented alternative in the Thailand case.

From the documentary analysis, using the pattern matching analysis technique, it is quite clear that the penetration rate does not vary with the level of liberalization efforts. Although the Philippines put more effort into liberalizing the fixed telephone service market, Thailand, with a monopoly market, has been able to achieve the same direction and level of penetration rates. Therefore, it can be suggested that an increase in both nations' past penetration rates is unlikely to result from the liberalization process.

Moreover, there is evidence that fits the statistical patterns of fluctuation in penetration rates more suitably than the levels of liberalization efforts. These factors include government policies, economic and political. By examining various documentary sources, one can see that the change in penetration rates varied mainly with the GDP per capita each year in both countries. In the year when it did not (in 1992 in the Philippines and 1996 in Thailand), severe political instability or natural disasters occurred in both countries.

Moreover, one can see that strong government support of telecommunications development policies also plays an important role in the cyclical fluctuations in penetration rate. This is very clear in the case of the Philippines whose penetration rates varied more dramatically

than Thailand. The penetration rate shot up when EO109 was issued and declined with the financial crisis and then, shot up again when the deadline for EO109 had to be met because operators risked losing their licenses. Even though the Philippines has been continuously pursuing the liberal approach, the penetration rate changes were never so dramatic as when the EO109 came into effect.

The interview analysis shows that policymakers in both countries think that it is important for the government and thus, for them, to explicitly intervene in the competition and the distribution of telephone lines even after the liberalization process in order to achieve higher and more evenly distributed penetration rates. This implies that policymakers from both countries do not trust that liberalization will effectively increase penetration rates. This finding confirms the result from the documentary analysis that liberalization may not increase penetration rates in the fixed line service to the two countries.

In the survey analysis, it is found that consumers, in contrast to the policymakers better understand the market situation. In fact, they understand the broad picture of future service growth as well as do the policymakers. They said they are satisfied with the current low price of the fixed telephone service and that they see fixed telephone service maintaining current pattern after the liberalization because they think that most people have sufficient fixed-phone services at affordable prices. In fact, the survey even shows that price is not a statistically significant reason for users to change a service provider or to ask for an additional line. As a result, the survey about future consumers' behaviors also confirms that even price reductions, which is expected from liberalization, might not lead to significantly higher penetration rates in fixed telephone service as theories suggest.

In summary, the analysis from all sources- documentary, interview, survey and statistical tests- shows that extensive liberalization does not increase penetration rates of fixed telephone service better than the less competition-oriented policy alternative. In addition, the liberalization in the area of fixed telephone service does not guarantee the increase in penetration rates of the service.

5.5.2 Extensive liberalization could increase cellular mobile telephone penetration rate better than other less competition-oriented policy alternatives.

In the area of cellular mobile telephone service, it cannot be exclusively concluded that extensive liberalization does not increase the penetration rates of the cellular service better than other policy alternatives, because the analysis evidences from Thailand and the Philippines point in contrasting directions.

From the documentary analysis, since there are no specific policies to increase the penetration rate of the cellular mobile telephone service, the focus of the analysis was on whether the penetration rate varied with the economic or political factors, or with the competition in each country.

In both countries, the changes in penetration rate each year varied directly with the GDP per capita in that year, except in the years when severe political instability or natural disasters occurred. This result is similar to that of the fixed line service.

However, when taking a look at details, the difference between fixed and the cellular mobile service can be detected in the Philippines case. Although moving in the same direction with the GDP per capita, the change in penetration rate of cellular mobile service in the Philippines increased at a much steeper rate than did its GDP per capita. This phenomenon is in contrast to the Thailand case, where penetration rates of cellular mobile telephone service

increased at about the same rate as did its GDP per capita. This finding also is in contrast to the penetration rates of the fixed line service in both countries, which increased at about the same rate as the GDP.

As a result of the differences between the two cases, it cannot be concluded that the penetration rates varied according to the economic and political factors. Also, since there are no specific policies for this service, it cannot be concluded that the penetration rate of the cellular mobile service varied according to the policy factors.

The different phenomenon can be better explained when one looks at the competition in the two countries. Although they both have no specific policies on cellular mobile service, they do have different competition regulations and competition environments. In Thailand, even though there is competition among providers, the competition is controlled by the government in the form of rate of return specified in the concessions. In other words, the CMTS companies have to pay a fee to the government for a concession and as a result the required fees are reflected in their pricing of the handsets. They also bias the result of the competition because the price is not being set based on actual costs. Since Thailand also does not have anticompetitive measures and political influence is very strong in the process of granting a concession, it is difficult for Thailand to achieve effective competition and prices that reflect the actual costs in this market. Although the price of the service is competitive among providers, it is the high price of the handsets, which are a major revenue source of this service, that is a major hindrance in providing new services for consumers.

The Philippines, on the other hand, although it has a limited numbers of operators, has no rate of return regulations, and recently allowed new operators to enter the market, which in effect has boosted the competition. It also has anticompetitive regulations to protect consumers. As a

result, the competition in cellular mobile telephone service in the Philippines is fiercer and more effective in keeping rates low than in Thailand because the operators do not have to add the costs that they have to pay to the government. With more competitors entering the market, and the possibility that new operators could enter any time, the prices of the services must kept closer to actual costs.

The interview analysis for both countries shows everyone's concerns of about the current cellular mobile telephone service competition in each country. Unlike in the fixed telephone markets, policymakers in both countries are less concerned about penetration rates, and more focused on the competition issues. The Thai policymakers, who are also the concession granting bodies, acknowledge that the prices of the handsets are artificially high but said they have no authority to change this until the new telecommunications law is passed and that they hope that the price of the handsets will decrease once the liberalization process is completed. In the Philippines, policymakers and everyone alike are concerned with the interconnection access charges issues among CMTS and PSTN providers. They think that this is the most important issue that must be corrected to achieve the more effective competition.

Based on the survey, most Thai consumers who already have a cellular service indicate that they are not motivated by price in terms of getting additional cellular mobile service. However, about 60% of the samples who do not currently have cellular mobile service indicated that the price of the handset is important to them; this is a statistically significant factor that stopped them from getting the service. The survey also shows that consumers expect the cellular mobile telephone service market to grow the most after the liberalization process, even more than fixed telephone service. This result shows that consumers are perceiving cellular mobile service as a necessity more than in the past and are expecting lower prices on the service after the

liberalization. It also shows that the consumers think that the price is artificially high. The consumers who do not currently have the service identified price as the second most important factor for obtaining the service in the future.

In summary, what can be concluded from analysis and survey on the cellular mobile telephone service in Thailand and the Philippines is that in the developing cellular telephone mobile market, if the liberalization policy stimulates effective competition, then extensive liberalization efforts will be able to increase penetration rates better than other less competition-oriented policy alternatives. And in the case where competition is not effective, as in the case of Thailand, economic and political factors instead play an important role in determining the changes in penetration rates.

5.5.3 Extensive liberalization efforts could increase Internet service penetration rate better than other less competition-oriented policy alternatives.

From the documentary analysis, in both countries, the penetration rates of Internet service did not vary according to economic or political factors. In fact, they moved in the opposite directions. In addition, there are no Internet policies in both countries so it is impossible to relate the policy effects to the penetration rates in this market.

From the documentary analysis, the major difference in policies and regulations between the two countries lies in their competition regulations. This is the same difference as in the cellular mobile telephone service. And, once again the Thai ISPs have to pay fees to the CAT, who is the license-granting body and an operator, for the use of the monopolized international gateway facility (IGF) service. This added artificial cost is passed on to consumers, and as a result, Thai consumers pay one of the highest ISP service charges in the region. In contrast to

Thailand, the Philippines has open competition in the IGF service. Therefore, the Philippines ISPs do not add artificial costs to their prices.

From the interview analysis, it is found that policymakers have little knowledge about the Internet service market. When asked about possible future Internet policies, policymakers in both countries said they plan to liberalize or continue to liberalize the Internet service industries in the future. The Thai government telecommunication regulatory agency, CAT, is planning to convert the ISP concessions into other kinds of compensation so that competition in the Internet service can be introduced in the future. Policymakers in the Philippines plan to continue to keep the industry open in the future although some regulations might be added regarding universal service. An example is the current controversy of whether the ISPs should be treated in the issue of universal service the same way as telephone companies are. The decision of this issue could affect the universality of this service in the future.

From the survey analysis, most consumers appear to view Internet service as a luxury and believe that the current communications modes (fixed and mobile telephone services) are sufficient. And more than 50% said they still do not have plans to use the Internet in the next few years. As a result, one can expect that Internet service will be limited to specific groups of users such as students, academics, and business people.

In summary, it is quite clear that this situation resembles the cellular mobile telephone service industries of the two countries. Even though it is not clear how the penetration rate of the two countries will differ in the future, if the existing regulatory framework remains in place in Thailand, in the future, one can expect steeper and more significant changes in Internet service penetration rates in the Philippines due to its more liberal policies and effective competition environment, just as in the cellular mobile telephone industry.

5.6 Conclusion

The results of the historical analysis show that in the past 11 years (1988-1999), extensive liberalization regime in the Philippines did not increase the penetration rate of fixed telephone service better than the less competition-oriented policy in Thailand. Liberalization also appears to have fewer effects on fixed telephone services than it does for cellular mobile telephone and Internet services. This conclusion is drawn mainly because the fluctuation in fixed telephone penetration rates can be better explained with the long-term economic, political and policy effects alone than by the competition in the industry. This is opposite to the cellular mobile telephone and Internet services where the fluctuation in the cellular mobile telephone and Internet service penetration rates can be better explained by effects of liberalization on competition and competition policies than by economic and policy factors alone.

The results from the survey also supported this conclusion because it shows that if users perceive fixed telephone service as a necessity then they tend to be less sensitive to price changes. In fact, the survey did not find that price was a statistically significant factor for users requesting fixed telephone service.

Besides the fact that consumers tend to be less sensitive to price changes once they perceive fixed telephone service as a necessity, another possible reason as to why liberalization has had less of an effect on the penetration rates of fixed telephone service than on cellular mobile telephone and Internet services could be that the governments, using the penetration rate as an international measurement of infrastructure development, focused on the fixed telephone service as a necessity and have reasoned that intervention in competition for the service is necessary to ensure universal service at an affordable price. In fact, the governments of both countries have been using a central planning regime in determining the numbers of lines that

should be installed. With the heavy government intervention in the fixed telephone service market from the past until now, coupled with the inelasticity of user demand, it could be expected that the effects of liberalization and open competition would be felt less in the fixed telephone service industry than in the other two services.

As for the future, the conclusions that extensive liberalization regime does not lead to an increase in penetration rates of fixed telephone lines but can lead to an increase in penetration rates of cellular mobile telephone and Internet services is likely to be true based on the interview results, statistical correlation tests and, more importantly, on data from the demand (user) side of the three services. The survey from the users, even only from one country, showed clearly that, in the future, even with liberalization, fixed telephone service is still likely to grow the least among the three services and that price reductions expected to follow liberalization efforts in Thailand will not have enough effects for the users to ask for an additional service.

In addition to future trends voiced by survey respondents that no statistically significant factors can influence them to order an additional line, the already high penetration rate of fixed telephone service in the metropolitan area is also likely to weaken the effects of liberalization of the fixed telephone service.

In fact, if the government wants to increase the penetration rates significantly in the future, based on the analysis, the focus will have to be on the underserved and non-profit rural areas. This, in turn, calls for more regulation of universal service and government intervention, not more liberal competition.

In both nations, consumers currently see fixed telephone service as a basic necessity, even though some are changing their perception of the cellular mobile telephone service as an increasingly necessary method of communication. As a result, since fixed telephone service has

been distributed more widely and is now the most common communication method, consumers as well as operators are expecting that in the future, cellular mobile telephone and Internet services will grow at faster rates. This future growth trend could be explained more clearly by comparing the S-curve of the three services.

Figure 5.7: S-curve of Fixed Telephone Service

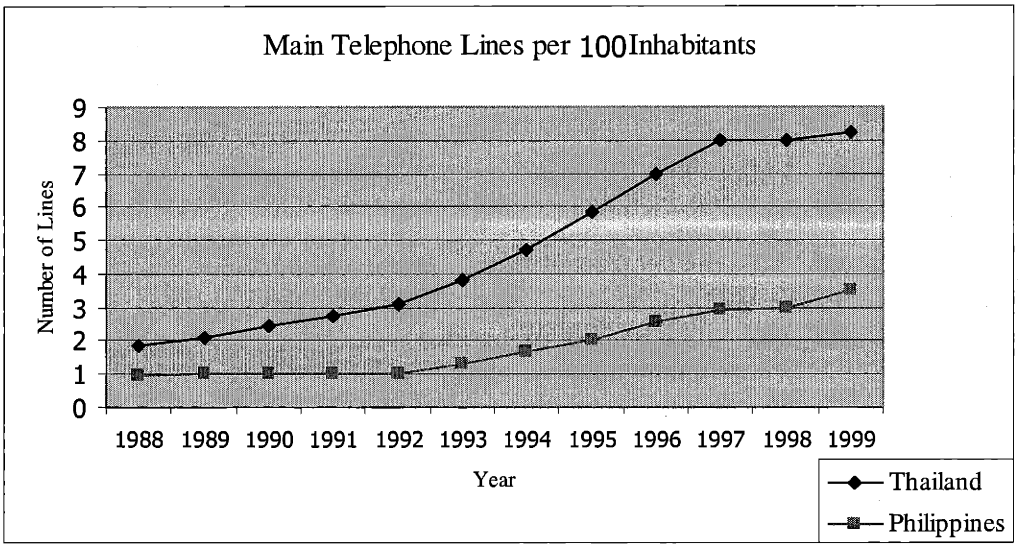


Figure 5.8: S-curve of Cellular Mobile Telephone Service

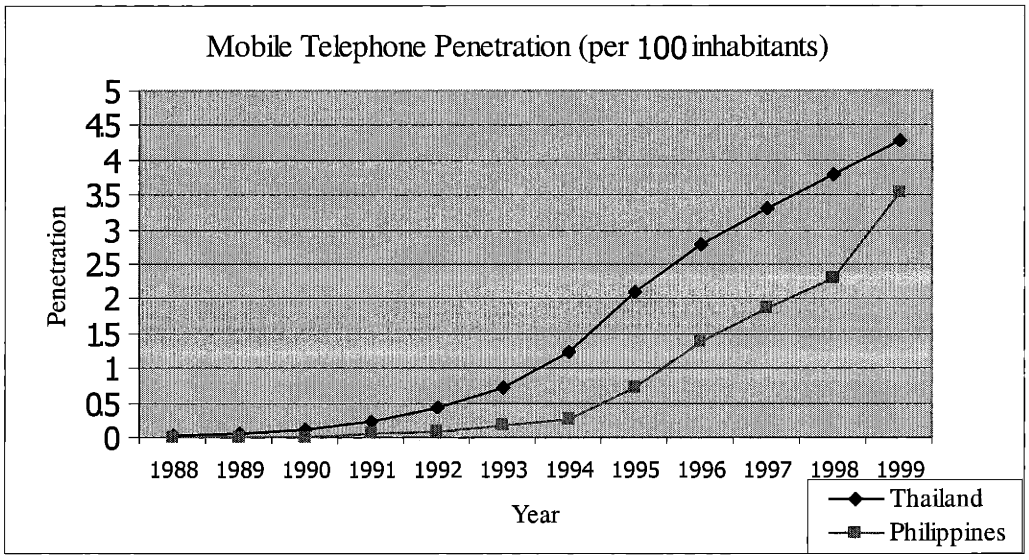
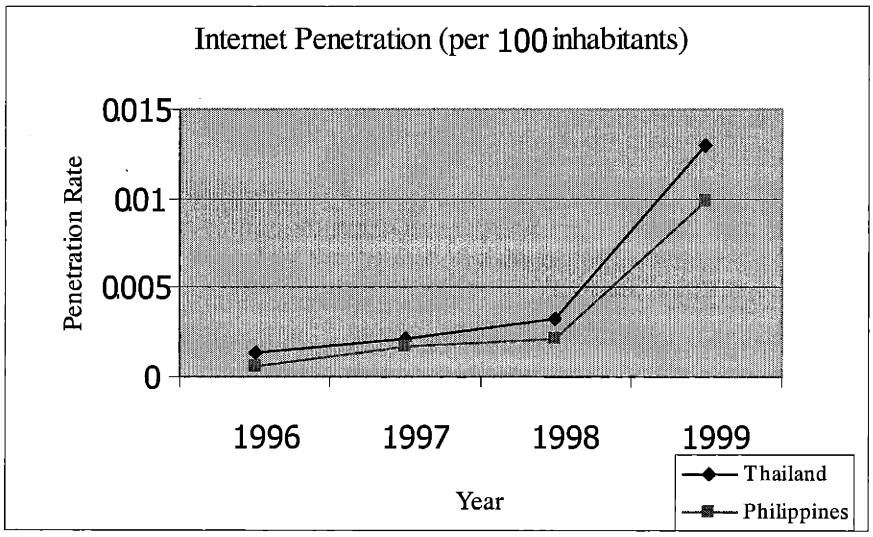


Figure 5.9: S-curve of Internet Service



As can be seen from Figure 5.7 through Figure 5.9, the penetration rates of fixed telephone lines, based on the S-curves, is at the saturation level in Thailand and is slowing in the

Philippines. In contrast, the penetration rates for cellular mobile telephone and Internet services in both countries still have not reached saturation levels and show signs of sharp increases. That is, S-curves are still going up. As a result, we can expect that the liberalization efforts alone in Thailand in the future will not likely promote an increase in penetration rates of fixed telephone service as it might increase cellular phone and Internet services.

As shown in the two case studies, cellular mobile telephone and the Internet service penetration rates remain sensitive to the degree of liberalization efforts, competition and regulations. The Philippines case has shown that liberalization stimulates low-cost effective services if it brings about effective competition and if it is accompanied with a sufficient and appropriate regulatory framework that also protects consumers. The fact that the markets still have a lot of room to grow also enables fiercer and more effective competition and renders the liberalization effects more visible when compared to the fixed telephone service market because there is still room for more competitors to get following the liberalization.

In sum, we found that, in contrast to common beliefs, an LDC that implements extensive liberalization reforms could be less successful in increasing the penetration rate of telecommunications services than those with less competition-oriented policies. Extensive liberalization reform efforts alone will not likely lead to higher penetration rates of telecommunications service under the following conditions, assuming that the service has not reached its saturation level:

(1) Users perceive the service as a necessity and are able to afford it.

As one can see, the penetration rates of the fixed telephone service in both countries varied with the GDP per capita. This implies that if users can afford the service, that is, if their income (GDP per capita) readily covers other basic necessities, they will get the service because

they see it as the next most important necessity. This is why the GDP is shown to be a good indicator of the penetration rates. However, after they get the service, the survey found that users are less sensitive to price changes, expected from the liberalization and increased competition, in getting an additional line, if they think they are already getting the current one at a reasonable price. And,

(2) the government perceive the service as a necessity; and

(3) the government strongly commits and are able to implement, and closely monitor "effective" policies, either liberal or not, that can provide the service at an affordable price and keep up with users' demands until the overall penetration rates of the service enter the steep part of the S-curve or start to reach a saturation level.

Usually these policies in (3) will be considered "effective" when they introduce and call for the transfer of government authority in providing the service to the private sector, i.e., increasing private investment. However, this does not mean that the government has to fully or extensively liberalize or deregulate the service. It only means that governments will allow other players to invest in and/or provide the service to users. In other words, governments can allow for more local control and market incentives instead of centralization to increase penetration rates. Whether the government will still have authority and monopoly control over these new players is not as important. This third finding is clear from the two case studies. The Thai government still has monopoly control over the whole industry while the Philippine government does not. However, both were able to achieve higher penetration rates through their effective policies, which allowed for more local and distributed control and authority in providing the services.

So, extensive liberalization will not do better in increasing penetration rate of the service than the less competition-oriented policies if all conditions (1)-(3) exist, given that the service has not reached its saturation level. Extensive liberalization will also not do better in increasing penetration rates than the less competition-oriented policies if:

(4) Liberalization occurs after the service reaches its saturation level. It is found that liberalization efforts will increase the penetration rate if it occurs before the service reaches its saturation level as in the case of cellular mobile telephone and Internet services in both case studies.

CHAPTER VI

Conclusion: Policy Implications and Future Research

This chapter summarizes the main findings presented in the conclusion of Chapter V. It then presents several policy implications that arise from this research and suggests future research directions. The conclusion of the thesis, focusing on the hypothesis, is also presented.

6.1 Policy Implications

This section presents the policy implications of the literal and theoretical findings of the thesis. Other important lessons learned during this research and analysis will also be presented.

6.1.1 Central planning policies may be outdated.

From the interviews with policy makers, Thai policy makers and officials seem to want to hold on to the government control and central planning schemes but see liberalization as unavoidable because of the Thai government commitment to the WTO agreement. Thai policy makers have a vague understanding of how liberalization may benefit the nation. In addition, they do not have clear ideas of how to protect consumers from unfair competition if liberalization occurs. It can be seen that the goal of protecting consumers is secondary to the survival of the government officials and enterprises, including regulatory agencies, from privatization and competition. As a result, the draft of the new Thai telecommunications law insures the control of competition, rather than promotes competition. The law also puts significant power in the hands of the so-called National Telecommunications Committee without any check-and-balance mechanisms because government agencies want to use the new law and the committee as shields after the liberalization process is completed.

In the Philippines, the government implemented a central planning scheme to determine the number of lines to be installed by operators. Even though the number of lines targeted have been met, it is important to note that only 36% of those lines are being used.[56] So, it is important to question whether the increasing teledensity include idle lines. This phenomenon in the Philippines and in Thailand raises the issue of whether central planning is effective in increasing penetration rates and determining future user demands.

Also, from the survey, it is clear that in some rural areas, there are not enough lines and the areas remains underserved. This phenomenon demonstrates the importance of policy planning and local service provision, which is a major proposal of this thesis. After all, it is impossible for the central planning policymakers to plan for every area in one country since each area has different characteristics and needs.

6.1.2 Fixed telephone is not the only technology providing local access.

This study is based on the assumption that the users of the Internet access their ISPs mainly via fixed and wired telephone lines. Therefore, the prerequisite of using the Internet is to have a wired telephone line. This may not be the case in the future when high-speed wireless Internet technologies come into play. These include new technologies, such as, Ricochet and 802.11, which are capable of offering high-speed community-based wireless voice and data communications.

Even though the fixed telephone network is not the only technology viable for local access, most governments still continue to fixed promote and implement fixed wireline telephone networks and infrastructure and thus, limit themselves and delay the supply for users, who might only want the basic voice service. One reason for this bias could be that the penetration of fixed

[56]Pablito A Perez and Jinky Rose L. Go, "Report on Philippine Telecommunications Industry" Unpublished Paper, (Pasig City, Philippines, 2000), 24.

telephone lines is used as an international measurement of the development of telecommunications infrastructure. Another reason is that wireless is a new technology and wired fixed telephones have been the traditional provider for nearly a century. Hence, governments have a bias against other technologies. In some cases, like Eastern Europe, where wireless services are much more widely used, governments are more likely to support this technology.

6.1.3 The penetration rates of fixed telephone lines may not be good indices for development.

Traditionally, the penetration rate of fixed telephone lines is used as a measurement of telecommunications infrastructure development. However, in many research (Singh 1999, Sachs 2000) including this one, it has been found that the penetration rate of fixed telephone lines may not be a good indicator because new technologies, including wireless and other data communications have been increasingly gaining popularity among users. These new technologies can also offer the same communications capabilities that the fixed telephone line could offer but with much shorter installation time and less infrastructure requirement. The widespread use of the wireless technologies and the fact that some groups of users are using their wireless phones as their only phones makes the penetration rate of fixed telephone lines an increasingly obsolete indicator.

In addition to the above reason, the penetration rate of the fixed telephone lines is also based on the assumption that the higher the number of fixed telephone lines per head, the better. However, this goal is not realistic because not everyone or every household in the world needs to have a telephone line. In fact, the survey from this thesis showed that there are a group of users who said the phones are not important to them and that they can use community phones or they can just share with their neighbors even though they can afford to have one to themselves. So, it

is important to keep in mind when using the penetration rate of fixed telephone lines as an indicator that the saturation rates, or the optimum levels of the penetration rates, in each country are different.

Another reason why the penetration rate of fixed telephone lines are used widely as a measurement of development is that it is found to be associated with GDP per capita and other economic development indicators while other means of communications including wireless applications are increasingly used and the penetration rates of these other means of communication, such as mobile telephones, still cannot be clearly associated with GDP per capita. However, with the increasing use of these new technologies, it will not be long before the new measurement that accounts for technologies other than the fixed telephone lines has to be invented.

6.1.4 Need for policies to prevent the widening digital divide, with the main focus on education and human resource development.

Another important policy implication deriving from this research is that each country needs policies that will help prevent the gap of the "digital divide" between those who have and do not have access to basic telecommunications services. Once again, this is where there is no definite definition as to what comprises basic telecommunications services. Countries at different stages of development can find different packages of basic telecommunications services useful. However, no matter how basic service is defined, policies need to be in place to lessen the gaps of the services between the haves and the have-nots, and, at the same time, promote the idea of universal service to consumers.

As to the universal service aspect, several current researchers have shown that the idea of community telephones is workable and should be introduced. These projects include Project

Lighthouse in Thailand and the Grameen Phone Bank in Bangladesh.[57] Both projects provided users in the rural areas with community telephone (the Grameen Phone Bank) and computers (Project Lighthouse) and educated them to use these technologies. The results were satisfactory in that participants in both projects were able to develop their own businesses and knowledge base. Both of the projects have shown that community phones or computers are the practical solution to expanding universal service and is an effective way to help the community to be self-sustainable in terms of telecommunications service because it allows for new business and finance opportunities for users in the village to run their own telecommunications service and, at the same time, provide the access to those who cannot afford the service by themselves. The two projects also showed that the rights to education and human resource development are the most important factors to help sustain the development and lessening the digital divide.

The idea of the digital divide has been cited and explored on more frequently in recent research. In fact, it has become so important for researchers in telecommunications that it has become another field of research in methods of assisting developing countries become more self-sufficient, and become self-financed in telecommunications development in the long run. Prominent researchers in this field, including Prof. Kenneth Keniston (2000) at MIT and Prof. Jeffrey Sachs (2000) of Harvard, have stressed that the human rights, education, and self-sustainability are keys to the development of telecommunications services. They have stressed that the opening of the telecommunications industry because of economic problems can be a mistake if the country and its people are not ready because it may cause the country to become "colonized" in terms of technologies and economic development.[58]

---

[57] Jeffrey Sachs, Visions of E-Development, Speech to the E-Development Symposium, Cambridge, MA: Massachusetts Institute of Technology, October 19, 2000.
[58] Jeffrey Sachs, Visions of E-Development, Speech to the E-Development Symposium, Cambridge, MA: Massachusetts Institute of Technology, October 19, 2000.

6.2 Preliminary Examination for Future Research

The hypothesis and analysis of this case study will be useful if the proposition can be applied to other developing countries that are planning or implementing the liberalization reforms. After all, the validity of any research lies in finding evidence for propositions through their confirmation in other cases and empirical analysis while also remaining sensitive to the differences among the cases to ascertain the causes for variation.[59]

As a result, it would be interesting to repeat the kind of analysis done with Thailand and the Philippines with other countries. However, it is worth noting that the examination of other countries presented in this section is only preliminary and that further investigation by policy experts of these countries is still needed to confirm these preliminary findings.

Several countries were selected to test the following findings of this thesis.

- Extensive liberalization does not increase the penetration rates of the telecommunications services better than other less competition-oriented policy alternatives under three conditions, assuming that the services have not yet reached their saturation levels based on the S-curves developed for the penetration rates (per 100 inhabitants) in each country.
    1. Users perceive the service as a necessity; and
    2. Government perceives the service as a basic necessity; and
    3. Government strictly commits and implements policies that intend to increase penetration rates of the services.

    Or,

[59] Alexander George, Case Studies and Theory Development: The Method of Structured, Focused Comparison, Edited by Paul Gordon Lawrence in Diplomacy: New Approaches in History, Theory and Policy (New York: The Free Press, 1979), 45.

4. If the liberalization is implemented after the saturation level of the service is reached.

It is important to note at this point that only these theoretical propositions of the thesis will be examined in this chapter. This is because the literal propositions, which are those statements such as liberalization does not significantly affect the increase in penetration rates of telephone lines, serve only as a vehicle to extract theoretical propositions which are usually more general and are applicable to more cases. As a result, literal propositions from the case studies might not be true for every country and, therefore, will not be used for the preliminary examination for future research purposes in this chapter.

6.2.1 Countries Selected for Preliminary Examination for Future Research

The countries examined for future research are Kenya, China, India, and Venezuela because these countries differ from one another in many aspects, political, social and economic; yet, they remain categorized as developing countries by the International Telecommunications Union (ITU).

Furthermore, the countries selected are at different stages of implementing their liberalization policies. While Venezuela has already completed its privatization and liberalization reforms, begun in 1991,[60] China, India, and Kenya have just started to realize the needs to liberalize their telecommunications industries. This difference should make clear the before-and-after effects of liberalization reforms on penetration rates.

The four countries examined for future research represent a wide range of characteristics in many developing countries. First of all, they are situated in different continents with different geography and social-political environments. These geographic and environment factors

[60] Krishna Prasad Jayakar, "Industry Structure, Regulatory Choices and the Diffusion of Telecommunications Services: What Government Can Do to Further Universal Service" (Ph.D. Dissertation, Indiana University, 1999), 102.

sometimes play a key role in the selection of the nation's local access technology. For example, Kenya's terrain is mostly flat allowing it to adopt wireless technology, unlike India, whose geography is mountainous, which easily obstructs frequency transmissions. This difference should present a good opportunity to show that the findings of this thesis are not limited to one kind of technology.

Secondly, these countries have different governing regimes. While China is authoritarian and ruled mostly by the military, others, such as India, have democratic governments. Because this thesis is also concerned about institutional factors, it is quite important that a wide range of governing regimes be considered.

Thirdly, these countries have different GDP per capita. While Venezuela is considered a medium-high income LDC, India and China are among one of the poorest nations in the world.[61] This difference should provide a good comparison of the effects of personal income and the methods different governments employ to deliver the services to users at affordable prices.

Lastly, these countries, before the liberalization efforts, had different teledensity of fixed telephone service. While Venezuela had penetration rates of 8 lines per 100 inhabitants before they initiated liberalization efforts[62], China and India had close to none. This should provide a good comparison of the effects of saturation levels on liberalization efforts and penetration rates.

6.2.2 Results of the Preliminary Examination for Future Research

The results of the preliminary findings of selected countries will be presented in the order of major differences between countries.

---

[61] International Telecommunications Union, World Telecommunications Development Report 1998 (Geneva: ITU, 1998), 56.

[62] Krishna Prasad Jayakar, "Industry Structure, Regulatory Choices and the Diffusion of Telecommunications Services: What Government Can Do to Further Universal Service" (Ph.D. Dissertation, Indiana University, 1999), 102.

- Differences in geography and technology choices

As mentioned in the previous subsection, different countries have different constraints and have made different choices in implementing their local telecommunication service. In Kenya, where most land mass is flat, the government and some researchers have suggested wireless technologies in their local loop to distribute the basic voice service to users more quickly and more cost-effectively.[63] While it is found that the fixed-line penetration rates of African countries are growing at a slower rate than others, the fact that other technologies are equally capable of delivering basic voice communications should not be neglected.

In fact, it does not matter what technologies end up serving the local loop; the findings from this thesis will remain valid because if the government chooses to deploy wireless local loops, and allows for distributed provisioning of the service and more service providers, the country could increase its penetration rates significantly. While Kenya is just starting off in the process, already several firms have voiced an interest in providing wireless services to Kenyan users and most urban users in Kenya currently have access to wireless phones.

Other examples that suggest that different technologies will not affect what this thesis' results are cases of several countries in Eastern Europe, in which the governments have allowed and promoted wireless technologies, which subsequently resulted in significant increase in telecommunications penetration rates.[64] This shows that it is possible to increase the penetration rates with the same principles that this thesis proposes, that is, with greater distribution of authority to provide the service and strong government supports and commitments, a government can increase penetration rates no matter what technologies are adopted.

---

[63] Mugo Kibati and Donyaprueth Krairit, "Wireless in Developing Countries: Is it too soon for data?," Communications of the ACM 18 (June 1999): 38.
[64] Mugo Kibati and Donyaprueth Krairit, "Wireless in Developing Countries: Is it too soon for data?," Communications of the ACM 18 (June 1999): 38.

- Differences in governing regimes

India and China provide the best comparison to show that the governing regime does not significantly affect the findings of this thesis. In 1990, both India and China had only one phone line for every 100 people. Both countries had the same number of cellular subscribers, zero. And China's state-owned telecommunications operator earned less revenue and invested less each year than its Indian counterparts. Today, with 33% more people, China has nearly five times as many phone lines than India, and China's telecom firms earn five times as much as as India's and are now investing six times as much in its infrastructure development.

When looking at the comparison, one might say that it is because of the authoritarian and highly directed power that the Chinese government has used to create a far-reaching telecommunications infrastructure in a short time. This is not true because when looking more closely, one can see that China succeeded because it abandoned its centralized authority in providing the service in favor of local and more distributed government authority.

The comparison shows that an even distribution of authority and distributed control in providing the service, even if under strong government control, is superior to the centralized provisioning, even if dressed up in liberal clothing. India failed because it applied a patchy deregulatory veneer to a system that remains firmly controlled by bureaucrats.

China's key telecommunications reform move was decentralizing local loop management. Today, provincial governments compete against each other for investment and growth, thus also compete against each other to create telecommunications infrastructure. This is one finding of this thesis, which is that the government does not have to implement a full-scale, all-out liberalization scheme, but to distribute control and thus provide greater opportunities to provide the service from both governmental and private sectors. So, simply by

greater distributing authority to provide the service, given that strong government supports and commitment exist, is enough to increase the penetration rates significantly, even under heavy government control, as in the case of China and Thailand.

- Differences in GDPs

As found in this thesis, GDP per capita plays an important role for users in first obtaining a telecommunication service. Clearly GDP per capita determines whether or not users will be able to afford the service and thus the penetration rates. It is also equally important however that the service providers offer the service at an affordable price. It is also the price of the service that determines the penetration rates, and not the demand side alone.

The countries selected for comparison, India, China, Venezuela and Kenya, varied widely in terms of their GDPs per capita. In fact, when compared, countries with higher GDP per capita usually have higher penetration rates. This is consistent with the findings of this thesis. The thesis proposes that if the government considers the service a basic necessity, it has to implement and commit to the supply of these services. This is exactly the case with China and the result has been more affordable services, while India still has the most expensive phone service of any major economy.

- Differences in the teledensity before liberalization efforts

The difference in teledensity deals directly with the proposition of this thesis: That the three conditions under which extensive liberalization efforts will not significantly increase penetration rates include the assumption that the service has not yet reached its saturation level based on the S-curve of the penetration rates.

When Venezuela started its liberalization efforts, its teledensity was at 8.22 lines per 100 inhabitants. Seven years after liberalization started, its teledensity increased by about three lines

per 100 inhabitants. This is a much slower rate than Thailand and China, even though Thailand and China started out with a lower penetration rates and have just started to allow more service providers in recent years. The statistical results support what this thesis proposed, which is that Venezuela had already progressed up the steep part of the S-curve when it started implementing the reforms while Thailand and China were still at the bottom of the S-curve. So, it is easier to see significant growth when the service is not yet saturated. It is also easier to see that, even with the liberalization, if the service has started to reach its saturation level, liberalization could actually slow down the increase in penetration rates.

6.2.3 Conclusions of the Preliminary Examination for Future Research

Based on the preliminary examinations of other LDCs, the findings proposed in this thesis are supported under a wide range of circumstances and environments. While it is tempting to conclude that the findings of this thesis could be generalized, further assertion would be needed by examining each country in more detail.

As a result, the findings are found to be applicable to other developing countries only at the preliminary stage and should be developed further in future research by policy experts of each country if the findings of this thesis will be used as a formal guideline for the implementation of the liberalization in other developing countries.

6.3 Conclusion

This thesis has shown that extensive telecommunications liberalization efforts does not necessarily increase penetration rate of telecommunications services. It has shown that past research either has not paid attention to this issue or has assumed that the more extensive the reform, the faster and the better the telecommunications development. This thesis does not find that to be true. Some LDCs are realizing that they do not have to fully implement the reforms

and that they can and should specifically tailor their telecommunications reform policies to their own pace and needs.

This study found that extensive liberalization reforms or extensive opening of the market does not increase penetration rates of the services better than other less competition-oriented policy alternatives under the following conditions:

Assuming that the services have not yet reached their saturation levels based on the S-curves,

1. Users perceive the service as a necessity; and
2. the government perceives the service as a basic necessity; and
3. the government strictly commits and implements purposeful policies with the intention of increasing penetration rates of the services through the distribution of service provision authority.

Or,

4. If the liberalization is implemented after the saturation level of the service is reached.

This thesis also proposes that LDC's government should implement policies that promote the objectives of telecommunications and economic development. That is, they should distribute equal opportunities to the "not-haves" to lessen the digital divide, which is increasing in LDCs as telecommunication service grows. Liberalization can be a useful and effective alternative to lead to higher penetration rates, when and only when, the country and its people understand its goals, effects and implications and, more importantly, when the government provides the policy framework for universal service for the benefits of its people and for the liberalization to lead to self-sustainable development.

Bibliography

Albery, B. "What Level Of Dialtone Penetration Constitutes "Universal Service"?" Telecommunications Policy 19 (June 1995): 119-125.

Amsden, Alice H. Asia's Next Giant: South Korea and Late Industrialization. New York: Cambridge University Press, 1985.

Anderson, Brian L., L. Jean Camp and Amitabh Dabla. Expansion of Accessibility of Telecommunications Infrastructure in Emerging Nations: The Case of Bangladesh. Paper presented as part of the "1999 Telecommunications Policy Research Conference," Washington, DC, October 1999.

Antonionelli, C. Diffusion of Advanced Telecommunications in Developing Countries. Paris: OECD, 1991.

Anupama, Dokeniya. "Reforming The State: Telecom Liberalization In India." Telecommunications Policy 23 (March 1999): 80-87.

Aquino, T.G. "Philippines Telecommunications in the Asia-Pacific Region." The Columbia Journal of Business 24 (May 1989): 28-35.

Aquino, T.G. The Philippines. Edited by Eli Noam, Seisuke Komatsuzaki, and Douglas A. Conn. Telecommunications In the Pacific Basin: An Evolutionary Approach. New York: Oxford University Press, 1988.

Arndt, H.W. and Hal Hill, eds. Southeast Asia's Economic Crisis: Origins, Lessons, and the way Forward. Singapore: Institute of Southeast Asian Studies, 1999.

Asia-Pacific Telecommunity. Asian Communications: Cellular, Wireless and Paging Yearbook 2000. United Kingdom: Icom Publications, 2000.

Asia Pacific Telecommunity. Asia Pacific Telecommunity Yearbook 2000. United Kingdom: Icom Publications, 2000.

Becher, Ernst. Restructuring of Telecommunications in Developing Countries: An Empirical Investigation with ITU's Roles in Perspective. Geneva: International Telecommunication Union, 1991.

Becher, Ernst. Restructuring of Telecommunications in Developing Countries. Geneva: ITU, 1991.

Bohlin, E., I. Aizu, H. Oniki. Convergence and development in East Asia (Editorial). Telecommunications Policy 23 (February 1999): 78-81.

Boramanan, Nantawat. Privatization of Thai State-owned Enterprises. Bangkok: Institute of Public Policy Studies, 2000.

Bruce, Robert R. and Jeffrey P. Cunard. "Restructuring the Telecommunications Sector in Asia: An Overview of Approaches and Options." Edited by Bjorn Wellenius and Peter A. Stern. Implementing Reforms in the Telecommunications Sector: Lessons from Experience. Washington, DC: The World Bank, 1994.

Bruce, Robert R., Jeffrey P. Cunard, and Mark D. Director. The Telecom Mosaic: Assembling the New International Structure. Fromme, Somerset: Butterworth Scientific for International Institute of Communications, 1988.

Bruce, Robert, Ioannis Kessides, and Lothar Kneifel. Work in Progress (The World Bank): Overcoming Obstacles to Liberalization of the Telecom Sector in Estonia, Poland, the Czech Republic, Slovenia, and Hungary. Washington, DC: The World Bank, 1999.

Caught, Kellie, Mark A. Shadur, and Rene Kienzie. Strategic Challenges of New entrants in Australian and New Zealand Telecommunications Markets. Paper presented as part of the "1999 Telecommunications Policy Research Conference," Washington, DC, October 1999.

Caves, Richard. Multinational Enterprise and Economic Analysis. London: Cambridge University Press, 1996.

International Telecommunication Union. Challenges to the Network: Telecoms and the Internet. Geneva, Switzerland: International Telecommunication Union, 1997.

Cherry, Barbara A. The Irony Of Telecommunications Deregulation: Assessing The Role Reversal In U.S. and EU Policy. Paper presented as part of the "1999 Telecommunications Policy Research Conference," Washington, DC, October 1999.

Cho-chai, Chat. "Appropriate Structures and Authority of the Telecommunications Regulatory Body in Thailand." LL.M. Thesis., Thammasat University, Bangkok, Thailand, 1997.

Chou, Y.T.J., and G.W. Brock. An Econometric Analysis of Institutional Factors in Telecommunications Reform. Paper presented as part of the "1998 Telecommunications Policy Research Conference," Washington, DC, October 1998.

Chua, Johnson. The Impact of Liberalization: Communicating with APEC Communities: Telecommunications Industry in the Philippines. Australia: The Australian APEC Study Center at Monash University in Melbourne, 1998.

Compaine, B.M., and M.J. Weiraub. "Universal Access to Online Services: An Examination of the Issue." Telecommunications Policy 21 (November 1997): 128-140.

Cowhey, Peter F. The Political Economy of Telecommunications Reform in Developing Countries. Edited by Bjorn Wellenius and Peter A. Stern. Implementing Reforms in the Telecommunications Sector: Lessons from Experience. Washington, DC: The World Bank, 1994.

Cowhey, Peter F., and Jonathan Aronson. Managing the World Economy: The Consequences of Corporate Alliances. New York: Council of Foreign Relations, 1993.

Deesuwan, Narumon. "Relationship Between the Thai Telecommunications Systems and Foreign Direct Investment." M.S. Thesis, Thammasat University, Bangkok, Thailand, 1997.

Funston, John. Trends in Southeast Asia: Malaysia/Thailand, A Mid-Year Review: Contrasting Political Trajectories. Singapore: Institute of Southeast Asian Studies, 1999.

Garnham, N. Universal Service. Edited by William Melody. Telecommunications Reform: Principles, Policies and Regulatory Practices. Lyngby, Denmark: Den Private Ingenoirfond, 1994.

Garnham, S., J. Cornford, and Marvin Sirbu. "The Socio-economic Benefits of a Universal Telephone Network: A Demand Side View of Universal Service." Telecommunications Policy 20 (October 1996): 120-137.

George, Alexander. Case Studies and Theory Development: The Method of Structured, Focused Comparison. Edited by Paul Gordon Lawrence. Diplomacy: New Approaches in History, Theory and Policy. New York: The Free Press, 1979.

Gillett, S.E. Technological Change, Market Structure and Universal Service. Paper presented as part of the "1994 Telecommunications Policy Research Conference," Washington, DC, October 1994.

Gruber, Harald. "An Investment View Of Mobile Telecommunications In The European Union." Telecommunications Policy 23 (August 1999): 58-80.

Harrington, J. Companies and Capital in Asia-Pacific Telecommunications. Edited by John Ure. Telecommunication in Asia: Policy, Planning and Development. Hong Kong: Hong Kong University Press, 1995.

Hashim, R. "Impact of New Technologies on Communication in Asia and the Pacific." Media Asia 9 (February 1992): 30-35.

Henderson, J. and R.P. Applebaum Situating the State in the East Asian Development Process. Edited by J. Henderson and R.P. Applebaum. States and Development in the Asian Pacific Rim. Newbury Park, NJ: Sage, 1992.

Hudson, H.E. Global Connections: International Telecommunications Infrastructure and Policy. New York: Van Nostrand Reinhold, 1997.

Hudson, H.E. Restructuring of the Telecommunication Sector in Southeast Asia: Policies and Pitfalls. Paper presented as part of the "1996 Telecommunications Policy Research Conference," Washington, DC, October 1996.

Hudson, H.E. When Telephones Reach the Village: The Role of Telecommunication in Rural Development. Norwood, NJ: Ablex, 1984.

Hudson, H.E. "Telecommunications and the Developing World." IEEE Communications 25 (October 1987): 78-84.

Hyun, Daiwon and Jahn A. Lent. "Korean Telecom Policy In Global Competition: Implications For Developing Countries." Telecommunications Policy 23 (June 1999): 85-96.

Institute of Southeast Asian Studies. Southeast Asian Affairs 2000. Singapore: Institute of Southeast Asian Studies, 2000.

International Telecommunication Union. 1997 Asia-Pacific Telecom Indicator. Geneva: ITU, 1997.

International Telecommunications Union. Telecommunications and the National Economy. Geneva: ITU, 1988.

International Telecommunication Union. Trends in Telecommunication Reform 1999. Geneva, Switzerland: International Telecommunication Union, 1999.

International Telecommunication Union. World Telecommunications Development Report 1994-1999. Geneva: ITU, 1994-1999.

Jackson, Karl D. (Ed.). Asian Contagion: The Causes and Consequences of a Financial Crisis. Boulder, CO: Westview Press, 1999.

James, Jeffrey (Ed.). The Technological Behavior of Public Enterprises in Developing Countries. USA: Routledge Press, 1989.

Jantarasutr, Somsakul. Information Technology Laws and Regulations in Thailand. Bangkok, Thailand: SE-ED Company, 2000.

Jayakar, Krishna P. "Local Exchange Competition In Early US Network Development: Considerations For Developing Countries." Telecommunications Policy 23 (June 1999): 58-65.

Jayakar, Krishna Prasad. "Industry Structure, Regulatory Choices and the Diffusion of Telecommunications Services: What Government Can Do to Further Universal Service." Ph.D. Diss., Indiana University, 1999.

Jussawalla, Meheroo. "The Impact Of ICT (Information And Computer Technology) Convergence On Development In The Asian Region." Telecommunications Policy 23 (April 1999): 48-56.

Jussawalla, M., ed. Global Telecommunications Policies: The Challenge of Change. Westport, CN: Greenwood Press. 1993a.

Jussawalla, M. and M. Hukill. "Structural Change of Telecommunications in Southeast Asia: New Regulatory Regimes and Private Interests." Media Asia 19 (January 1981): 20-28.

Jussawalla, Meheroo, Dan J.Wedeweyer, and Vijay Menon. The Passing of Remoteness?: Information Revolution in the Asia-Pacific. Singapore: Asian Mass Communication Research and Information Center, 1986.

Kahin, Brian, and James Keller. Public Access to the Internet. Cambridge, MA: MIT Press, 1995.

Kahin, Brian, and Wilson Ernest, III. National Information Infrastructure Initiatives: Vision and Policy Design. Cambridge, MA: MIT Press, 1997

Keniston, Kenneth. Digital Hype, Digital Divide: The Case of India. Speech to the Society and Technology Program. Cambridge, MA: Massachusetts Institute of Technology. October 10, 2000.

Kibati, Mugo and Donyaprueth Krairit. "Wireless Local Loop in Developing Regions: Is it too soon for data?" Communications of the ACM 18 (June 1999): 35-40.

Krairit, Donyaprueth. "The Viability of Telecommunications Regulatory Changes in Thailand." M.S. Thesis, University of Colorado – Boulder, 1994.

Krairit, Donyaprueth. Mobile Communications in Thailand. Edited by Frank Barnes. Worldwide Wireless Communications. Chicago: IEC Press, 1996.

K.S., Jomo, ed. Privatizing Malaysia: Rents, Rhetoric, Realities. Singapore: Westview Press, 1995.

Levy, Brian, and Pablo T. Spiller, eds. Regulations, Institutions and Commitment: Comparative Studies of Telecommunications. Cambridge: Cambridge University Press, 1996.

Longstaff, P.H. Telecommunications Competition and Universal Service: The Essential Tradeoffs. Cambridge, MA: Program on Information Resources Policy, Harvard University, 1996.

Lowe, Vincent. "Malaysia and Indonesia: Telecommunications Restructuring." Edited by Eli Noam, Seisuke Komatsuzaki, and Douglas A. Conn. Telecommunications In the Pacific Basin: An Evolutionary Approach. New York: Oxford University Press, 1988.

McCain, Roger. "Essential Principles of Economics: A Hypermedia Textbook." Journal of Economic Education 31 (January 2000): 6-10.

Melody, William H. "Telecom Reform: Progress and Prospects." Telecommunications Policy 23 (November 1999): 12-15.

Melody, William, ed. Telecommunications Reform: Principles, Policies and Regulatory Practices. Lyngby, Denmark: Den Private Ingenoirfond, 1997.

Minges, Michael. "Mobile Cellular Communications in the Southern African Region." Telecommunications Policy 23 (September 1999): 49-55.

Mody, B., J.M. Bauer, and J.D. Straubhaar, eds. Telecommunications Politics: Ownership and Control of the Information Highway In Developing Countries. Mahwah, NJ: Lawrence Erlbaum, 1995.

Mueller, Milton. "Telecommunications as Infrastructure: A Skeptical View." Journal of Communications 43 (Spring 1993): 40-46.

National Research Council (U.S.): NII 2000 Steering Committee. The Unpredictable Certainty : Information Infrastructure through 2000. Washington, DC: National Academy Press, 1996.

Noam, Eli and A. Nishuilleabhain, eds. Private networks, Public Objectives. Amsterdam: Elsevier Science, 1996.

Noam, Eli, Seisuke Komatsuzaki, and Douglas A. Conn, eds. Telecommunications In the Pacific Basin: An Evolutionary Approach. New York: Oxford University Press, 1988.

Noam, Eli. Telecommunications in Africa. New York: Oxford University Press, 1999.

North, Douglass C. Institutions, Institutional Change and Economic Performance. Cambridge: Cambridge University Press, 1990.

Nueman, W. Russell and Lee McKnight. Gordian Knot. Cambridge: The MIT Press, 1998.

Nulty, Timothy. Emerging Issues in World Telecommunications. Edited by Bjorn Wellenius, Peter A. Stern, Timothy E. Nulty, and Richard D. Stern. Restructuring and Managing the Telecommunications Sector: A World Bank Symposium. Washington, DC: The World Bank, 1987.

OECD. OECD Communications Outlook 1990-1999. France: OECD, 1990-1999.

OECD. OECD Science, Technology and Industry Scoreboard. France: OECD, 1999.

Paltridge, Sam. Mobile Cellular Communication: Pricing Strategies and Competition. Washington, DC: OECD, 1996.

Paltridge, Sam. Telecommunication Infrastructure : the Benefits of Competition. Washington, DC: OECD, 1995.

Panciera, Ludovic. "Strategies for Thai Public Telecommunications Operators to stay competitive after Privatization." MBA Thesis, Asian Institute of Technology, Bangkok, Thailand, 1999.

Perez, Pablito A. and Jinky Rose L. Go. Report on Philippine Telecommunications Industry. Unpublished Paper. Roco Bunag Kapunan & Migallos Law Offices. Pasig City, Philippines. 2000.

Perez, Pablito A. and Jinky Rose L. Go. "Selected Philippines Laws, Policies, and Regulations on Telecommunications." Unpublished Paper. Pasig City, Philippines: Roco Bunag Kapunan & Migallos Law Offices, 2000.

Petrazzini, Ben. "Diversity in East Asia." Telecommunications Policy 23 (May 1999): 12-16.

Petrazzini, Ben. The Political Economy of Telecommunications Reform in Developing Countries: Privatization and Liberalization in Comparative Perspective. Praeger Publisher, 1995.

Phagaphasvivat, Somjai. Economic and Political Development Thailand. Bangkok, Thailand: Kop-Fai Publications, 1999.

Piarabutr, Thusanai. "Strategic Management of Telecommunications Services in Thailand." Ph.D. Diss., Asian Institute of Technology, Bangkok, Thailand, 1997.

Podiralahamy, G.R. Handbook on Rural Wireless Communication Technologies for Developing Countries: Deliverables to Study Groups of the Asia-Pacific Telecommunity. Bangkok, Thailand: Asia-Pacific Telecommunity,1999.

Pool, I.S. Competition and Universal Service: Can we get there from here? Edited by H.M. Shooshan. Disconnecting Bell: The Impact of the AT&T Divestiture. New York: Pergamon, 1984.

Pool, I.S. Technologies of Freedom. Cambridge, MA: Belknap Press, 1983.

Pool, I.S. and Eli Noam. Technologies without Boundaries: On Telecommunications in a Global Age. Cambridge, MA: Harvard University Press, 1990.

Roy, Santayan. "The Importance of Social and Economic Parameters in Telecommunications Network Planning: The Case of Thailand." M.E. Thesis, Asian Institute of Technology, Bangkok, Thailand, 1996.

Sachs, Jeffrey. Visions of E-Development. Speech to the E-Development Symposium. Cambridge, MA: Massachusetts Institute of Technology. October 19, 2000.

Saga, Kenji. "APEC: Steps To Harmonizing Regional Telecom Policy." Telecommunications Policy 23 (November 1999): 37-48.

Samarajiva, R. and P. Shields. Value Issues in Telecommunications Resource Allocation in the Third World. Edited by S. Lundstedt. Telecommunication, Values and the Public Interest. Norwood, NJ: Ablex, 1997.

Sapolsky, H., R. Crane, W.R. Neuman and E. Noam, eds. The Telecommunications Revolution: Past, Present, and Future. New York: Rouledge, 1988.

Saunders, John. Telecommunications and Economic Development. Washington, DC: The World Bank, 1994.

Schoonmaker, S. "High-tech Development Politics: New Strategies and Persistent Structures in Brazilian Informatics." Sociological Quarterly 36 (February 1995): 30-38.

Sen, Amartya. Beyond The Crisis: Development Strategies in Asia. Singapore: Institute of Southeast Asian Studies, 1999.

Singh, Daljit and Nick J. Freeman, eds. Regional Outlook: Southeast Asia 2000-2001. Singapore: Institute of Southeast Asian Studies, 2000.

Singh, J.P. Leapfrogging Development: The Political Economy of Telecommunications Restructuring. New York: State University of New York Press, 1999.

Sonsri, Sida. Economics and Political Developments in The Philippines. Bangkok, Thailand: Kop-Fai Publications, 1999.

Sopheap, Hin. "Market-Entry Decisions and Marketing Strategies of Multi-National Corporations for Asian Markets: A Case Study of Thailand and Cambodia in the Telecommunications Industry." MBA Thesis, Asian Institute of Technology, Bangkok, Thailand, 1999.

Straubhaar, J.D. From PTT to Private: Liberalization and Privatization in Eastern Europe and the Third World. Edited by B. Mody, J.M. Bauer, and J.D. Straubhaar. Telecommunications Politics: Ownership and Control of the Information Highway In Developing Countries. Mahwah, NJ: Lawrence Erlbaum, 1995.

Straubhaar, J.D., P.K. McCormick, J.M. Bauer, and C. Campbell. Telecommunications Restructuring: The Experience of Eight Countries. Edited by B. Mody, J.M. Bauer, and J.D. Straubhaar. Telecommunications Politics: Ownership and Control of the Information Highway In Developing Countries. Mahwah, NJ: Lawrence Erlbaum, 1995.

Suriyawong, Kukiat. "Competitive Capability Assessment of a Telecommunication Firm: The Case of the Communications Authority of Thailand." MBA Thesis, Asian Institute of Technology, Bangkok, Thailand, 1999.

Sussman, G. Telecommunications for Transnational Integration: The World Bank in the Philippines. Edited by G. Sussman and J. Lent. Transnational Communications: Wiring the Third World. Newbury Park, CA: Sage, 1991.

Tangkitwanich, Somkiat and Duenden Nikomborirak. Competition and Internet Prices in Thailand. Bangkok: Thailand Development Research Institute Foundation, 1997.

Tangkitwanich, Somkiat. Forecasting the usage of Internet in Thailand from 2000-2007. Bangkok: Thailand Development Research Institute Foundation, 1999.

Teekaput, Prasit. Business Telecommunications. Bangkok: McGraw-Hill, 1999.

Teppayayont, Orada. "Frameworks and Theories in Establishing a Telecommunications Regulatory Body." LL.M. Thesis, Thammasat University, Bangkok, Thailand, 1997.

Tiralab, Arnupab. Options and Solutions for the Thai Telecommunications Industry: Ideas, Guidelines, and Cases in Managing and Controlling the Telecommunications Industry. Bangkok, Thailand: RDI Venture Capital Company, 1999.

Traisut, SoiTip. "Thai Telecommunications Policies: Cases Studies of the Development of the Telecommunication Master Plan during 1995-1997." M.A. Thesis, Thammasat University, Bangkok, Thailand, 1998.

Verhoest, P. "Regionalism and Telecommunications Infrastructure Competition: The Belgian Case." Telecommunications Policy. 19 (June 1995): 50-64.

Wade, Robert. Governing the Market: Economic Theory and The Role of Government in East Asian Industrialization. Princeton, NJ: Princeton University Press, 1990.

Wagner, Douglas K. "Discourse and Policy in the Philippines: The Construction and Implementation of A Strategic IT Plan." Ph.D. Diss., University of Colorado – Boulder, 1999.

Warwick, Donald P. and Samuel Osherson. Comparative Research Methods. Prentice-Hall, 1973.

Wattnasombat, Watcharapong. "Telecommunications Sector Reform in the Communications Authority of Thailand: Preparing for Change." MBA Thesis, Asian Institute of Technology, Bangkok, Thailand, 1997.

Wellenius, Bjorn and Peter A. Stern, eds. Implementing Reforms in the Telecommunications Sector: Lessons from Experience. Washington, DC: The World Bank, 1994.

Wellenius, Bjorn, Peter A. Stern, Timothy E. Nulty, and Richard D. Stern. Restructuring and Managing the Telecommunications Sector: A World Bank Symposium. Washington, DC: The World Bank, 1987.

Wolf, A.B. and G. Sussman. Privatization of Telecommunications: Lessons from the Philippines. Edited by B. Mody, J.M. Bauer, and J.D. Straubhaar. Telecommunications Politics: Ownership and Control of the Information Highway In Developing Countries. Mahwah, NJ: Lawrence Erlbaum, 1995.

The World Bank. World Economic Outlook : A survey by the staff of the International Monetary Fund. Washington, DC: The Fund, 1998.

Xiong-Jian, Lian, and Zhu You-Nong. "China." Edited by Eli Noam, Seisuke Komatsuzaki, and Douglas A. Conn. Telecommunications In the Pacific Basin: An Evolutionary Approach. New York: Oxford University Press, 1988.

Yan,Xu and Douglas C. Pitt. "One Country, Two Systems: Contrasting Approaches To Telecommunications Deregulation In Hong Kong And China." Telecommunications Policy 23 (June 1999); 58-70.

Yin, Robert K. Case Study Research: Design and Methods. Thousand Oaks, CA: Sage Publications, 1994.

Yoon, Chang-Ho. "Liberalization Policy, Industry Structure And Productivity Changes In Korea's Telecommunications Industry." Telecommunications Policy 23 (August 1999): 35-42.

Zhao, D.A., and L. Junija. "Development and Economic Growth in China." Telecommunications Policy 19 (May 1994): 45-55.

Zhubieta, R. "Telecommunications in Argentina." IEEE Communications 34 (May 1996): 58-63.