CHAPTER V

DISCUSSION, CONCLUSION, AND POLICY IMPLICATION

This chapter provides discussion, conclusion and policy implication.

5.1 Discussion

In previous chapter, we found that income elasticity in Thailand is over 1. This result is much different from previous studies of within a country analysis, which show the elasticity is less than 1 (Newhouse (1992), Tokita (2004)), rather similar to the results of international comparison (Newhouse (1977), Leu (1986), Parkin et al. (1987), Gerdtham et al.(1992)). This finding leads to have an interest how degree the provincial differences of income and health care expenditure is. That's why this section will consider the differences of income and health care expenditure.

When we discuss about income differences or income distribution, Gini Coefficient is used as a measure of differences. According to NSO's estimation[9], Gini Coefficient increased to 0.445 in 1992 from 0.429 in 1990. After that, Gini Coefficient continued to decrease to 0.421 in 1998 and increased again to 0.439 in 2000. This means that income differences got improve after 1992 and then, expanded again in 2000.

Figure5-1 Gini Coefficients in Thailand
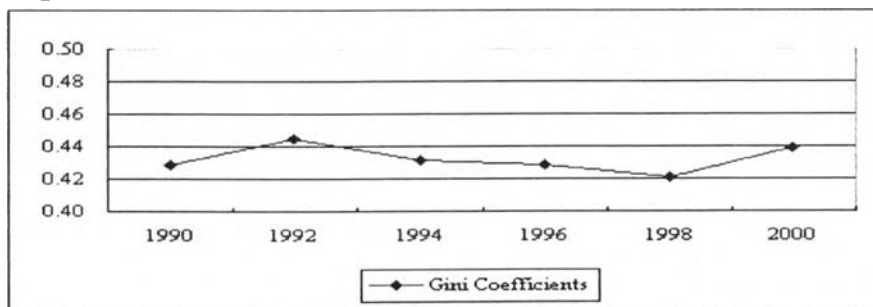
Source: Economic Statistics Division, NSO.website

---

[9] There is a study that points out the problem of estimation. Ikemoto and Uehara (2000) states that the results of NSO is "much lower than other estimates" due to using "conceptually wrong formula".

Next, we see the provincial differences of income in 1998 and 2000 by using data which was used in regression analysis. Figure5-2 shows that provincial income index is made a plot when average income for whole country is 1. All provinces are arranged in each region and order is Bangkok, Central, North, Northeast and , South from left side of graph. We find that income of North and Northeast are relatively lower than that of Bangkok, Central and South on the whole. Moreover, this tendency is found in both 1998 and 2000.

Figure5-2 The ratio of provincial household income/ average household income of the country in 1998 and 2000
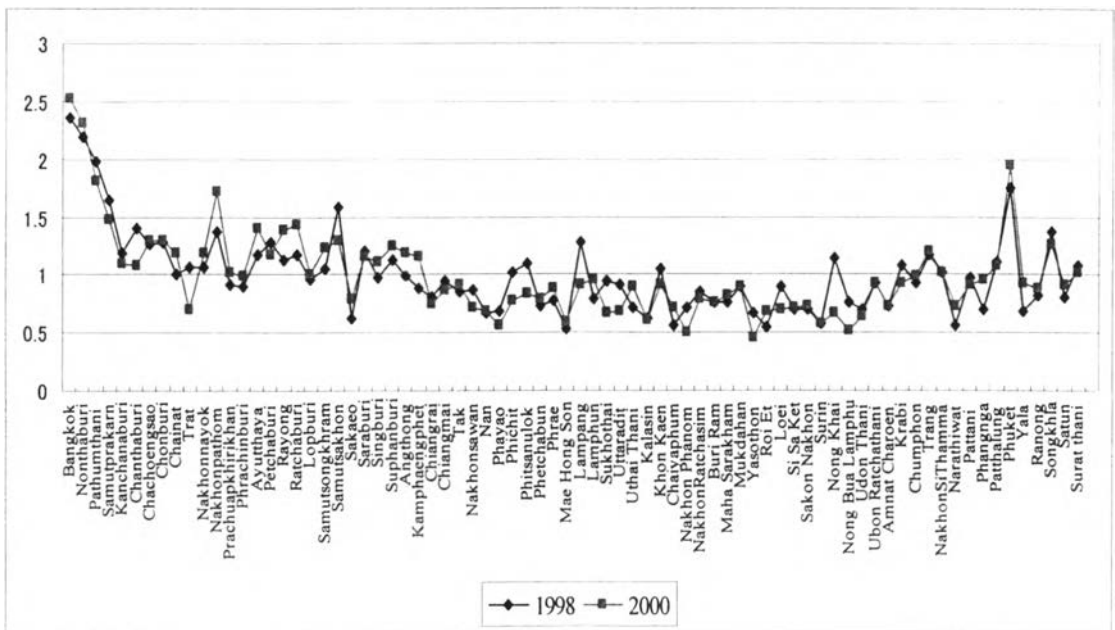
Source: Calculated from National Statistical Office(2000a) , (2001a)

Top 5 provinces are Bangkok, Nonthaburi, Pathumthani, Phuket and Samutprakarn in 1998 and Bangkok, Nonthaburi, Phuket, Pathumthani and Nakhonpathom in 2000. While bottom 5 provinces are Mae Hong Son, Roi Et, Chaiyaphum, Narathiwat and Surin in 1998 and Yasothon, Nakhon Phanom, Nong Bua Lamphu, Phayao and Surin (Table 5-1). Top 5 provinces are located in Bangkok and Central and South region and, on the other hand, bottom 5 provinces belong to North and Northeast region (excluding Narathiwat in 1998). More importantly, income differences increased between 1998 and 2000. Income differences by province is 4.39 times at maximum in 1998 and expanded to 5.57 times in 2000. This is consistent with the results of Gini Coefficient.

Table5-1 Provincial differences of average household income

	1998		2000	
	Province	Income	province	income
Top5	Bangkok	2.360	Bangkok	2.532
	Nonthaburi	2.193	Nonthaburi	2.311
	Pathumthani	1.974	Phuket	1.948
	Phuket	1.749	Pathumthani	1.814
	Samutprakarn	1.639	Nakhonpathom	1.721
Bottom5	Surin	0.579	Surin	0.585
	Narathiwat	0.568	Phayao	0.557
	Chaiyaphum	0.563	Nong Bua Lamphu	0.52
	Roi Et	0.542	Nakhon Phanom	0.502
	Mae Hong Son	0.537	Yasothon	0.454

Source: Calculated from National Statistical Office(2000a) , (2001a)

In the same way, we consider the differences of health care expenditure among provinces 1998 and 2000. Figure5-3 shows that provincial income index is made a plot when average income for whole country is 1. We find that the changes for each province between 1998 and 2000 are bigger than that of income.

Figure5-3 The ratio of provincial household health care expenditure/ average household health care expenditure of the country in 1998 and 2000
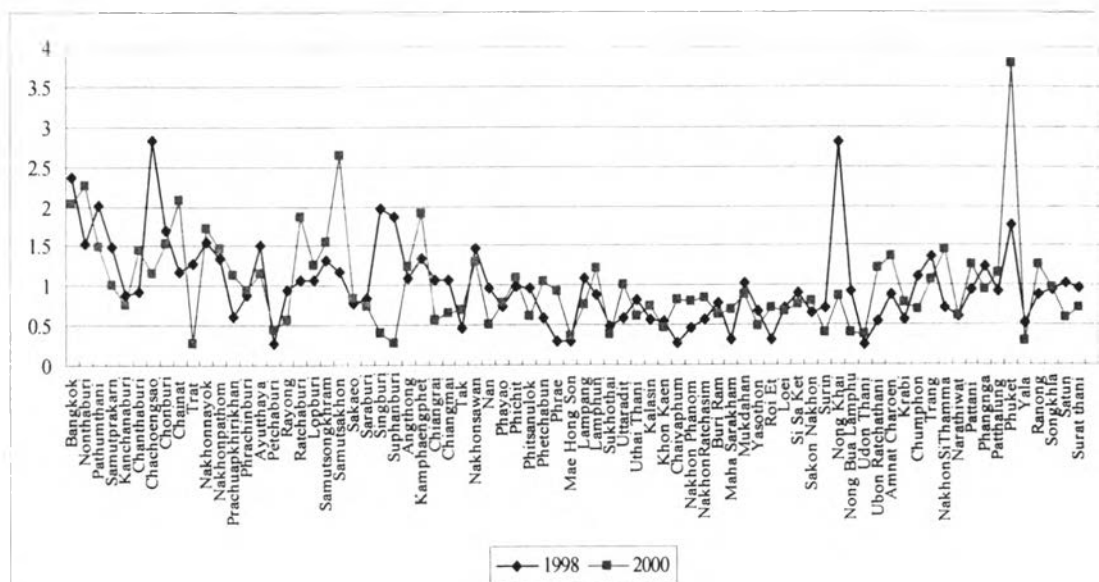
Source: Calculated from National Statistical Office(2000a) , (2001a)

Top 5 provinces are Chachoengsao, Nong Khai, Bangkok, Pathumthani and Singburi in 1998 and Phuket, Samutsakhon, Nonthaburi, Chainat and Bangkok in 2000. While bottom 5 provinces are Udon Thani, Chaiyaphum, Petchaburi, Mae Hong Son and Phrae, in 1998 and Suphanburi, Trat, Yala, Mae Hong Son and Udon

53

Thani, (Table 5-2). Provincial differences of health care expenditure is 10.77 times at maximum in 1998 and expanded to 14.18 times in 2000. These differences of health care expenditure is much larger than income differences. Some possible reasons to lead this big differences might be income level, ageing, gender, accessibility to health facility and urbanization.

Table5-2 Provincial differences of average household health care expenditure

	1998		2000	
	province	HE	province	HE
Top5	Chachoengsao	2.820	Phuket	3.792
	Nong Khai	2.812	Samutsakhon	2.642
	Bangkok	2.370	Nonthaburi	2.253
	Pathumthani	2.004	Chainat	2.066
	Singburi	1.977	Bangkok	2.026
Bottom5	Phrae	0.292	Udon Thani	0.369
	Mae Hong Son	0.289	Mae Hong Son	0.361
	Petchaburi	0.273	Yala	0.296
	Chaiyaphum	0.265	Trat	0.271
	Udon Thani	0.262	Suphanburi	0.267

Source: Calculated from National Statistical Office(2000a) , (2001a)

5.2 Conclusion

This study affords to investigate what are the determinants of average household health care expenditure in Thailand. The objectives of this study are to identify factors that determine average household health care expenditure and to estimate the income elasticity of health care. In order to identify factors affecting health care expenditure, we tried to do multiple regression analysis for the year of 1998 and 2000. The population of this study is whole provinces in Thailand, 76 provinces including Bangkok . Data were collected from NSO and MoPH.

This study use average monthly household health care expenditure as a dependent variable. The explanatory variables are average monthly household income, number of population under 14 years old per 100,000 people, number of population over 60 years old per 100,000 people, number of female per 100,000 people, number of hospitals in each 1,000km^2, number of physician per 100,000 people, number of hospital beds per 100,000 people, number of people living in urban area per 100,000 people, and Bangkok Dummy.

Finding from the estimation results are as follows:

Income is an important factor to explain provincial differences of health care expenditure, as many previous studies concluded. Income elasticity of health care is 1.287 and 1.132 in 1998 and 2000, respectively. The results excess 1.0 and are different from the one in literature review which estimates income elasticity in a country and results are less than 1.0 . On the contrary, our results are similar to the one in international cross-sectional analysis (Table2-1). This might suggest that the differences of income and health care expenditure in Thailand are huge, same as the differences among countries.

As for other factors to affect health care expenditure, the elderly has a positive impact, while female has negative impact on health care expenditure. Especially, the coefficient of female is very big, -10.378, and it could reflect the big change of health care seeking behavior of female. Another our finding is accessibility to hospital has positive effect on health care expenditure. But we didn't find significant effect of other supply factors, i.e. the number of physician and bed.

Urbanization also influence health care expenditure. our results shows negative sign significantly in 1998 but insignificant in 2000. We also confirmed that Bangkok is a negative factor on health care expenditure in 1998 but not in 2000. This might suggest the impact of economic crisis in 1997 is more severe in urban area than rural area or provinces.

Even we tried the best in this study, there are some limitations. First limitation of this study is concerned about the impact of economic crisis. As widely known, economic crisis influenced economy and society of many Asia countries. Because our analysis has done for 1998 and 2000, and doesn't cover before economic crisis, we can't identify the impact in estimates. Second, the results are likely to underestimate the real situation due to data is aggregated at provincial level and we use average number. However, the results could be useful for understanding roughly relationship between health care expenditure and some factors.

5.3 Policy implication

One of useful information from our study is income elasticity of health care. Our estimates are more than 1 and suggest health care is luxury goods. Suppose income elasticity of health care is 1.1 based on our results, 5% of income growth results in 5.5% growth of health care expenditure. Since our results covered only out-of-pocket expenditure, national health care expenditure might increase by more than 5.5%.

On the other hand, income elasticity could mean the differences of health care expenditure. If person A's income is 10% lower than that of B, then, this causes A health care expenditure 11% lower than B when income elasticity is 1.1 . It means person A might be exclude from having health care service what he or she needs. That is to say, we can't capture their potential demand for health care from utilization information of health facility. Anyway, the policy which makes the differences narrow is needed.

Fortunately, Thailand has had many public health insurance schemes including the scheme targeted low income group for long time. In 2002, Thai government started universal health insurance scheme called as 30 Baht Scheme and attained 100% coverage of insurance formally. As a result of implementation of 30 Baht Scheme, it is expected people's out-of-pocket decrease. On the contrary, public hospital has suffered from problem of deficit. This is partly because budget allocation is not appropriate. Government distribute the budget for 30 Baht Scheme by using capitation. For 2005 fiscal year, capitation is 1,396.3 Baht and actually health facility receive 1172.62 Baht per registered person for all provinces. As our results show, health care expenditure is affected by many factors, such as income, ageing, gender, accessibility to health facility and urbanization. When policy maker

calculates the budget for the scheme, it is more appropriate to consider those factors for solving the financial problem at health facility.