



Chapter 3

Research Methodology

3.1 Research Method

This study is a cross-sectional descriptive study, on incremental costs of Nopparat Rajathanee Hospital to implement contracting out primary medical care to private clinics as well as its incremental benefits. In this study 1992 and 1994 are the years to be represented for before and after situations of implementing contracting-out. The hypothetical situation has to be constructed to represent the situation without contracting out primary medical care to private clinics, and to be the comparator with the real situation.

3.2 Conceptual Framework

Costs and benefits in this study are considered in terms of the Nopparat Rajathanee Hospital perspective, by calculating costs and benefits resulted due to the implemented programme in 1994, and comparing with those resulted in 1994 if the contracting out was not implemented and the health services utilization of insured workers at Nopparat Rajathanee Hospital followed the 1992 situation. The conceptual framework is in Figure 3.1.

3.3 Population and Sample

The population in this study are the public hospitals which have contracting out primary medical care projects, their networks or sub-contractors and their registered enterprises. Then three groups of samples are chosen by various sampling methods.

3.3.1 Nopparat Rajthanee Hospital is the sample to represent public hospitals which have contracting out projects. Purposive sampling method is used because Nopparat Rajthanee Hospital is the first public hospital which has established contracting out primary medical care to private clinics and has the biggest network in Thailand.

3.3.2 Private networks of Nopparat Rajthanee Hospital are the representatives of private sub-contractors under the contracting out primary medical care programme. 36 private clinics of Nopparat Rajthanee Hospital's network are sampled by simple random sampling method.

3.3.3 Enterprises registered with Nopparat Rajthanee Hospital are selected to be the sample in this study. Simple random sampling method is used and the sample size is equal to 90 enterprises.

3.4 Data Collection.

There are two varieties of data in this study devised by sources to be collected:

3.4.1 Primary data: the data are not yet collected, the method of collection has to be designed. This type of data comes from observation, interview and questionnaire i.e. time of personnel spent for social security task, attitude of private networks and the owners of enterprises about the network and services provided.

3.4.2 Secondary data: the data were already collected by the hospital records or computerized. The data might be in detail or draft depending on the purpose of particular departments that collected them. Almost all of the data collected are in accounting style, different from economic style, so that all of the data we want have to be readjusted and analyzed later. The data in this study are:

1. Cost components: the components resulted in the implementation that Nopparat Rajathanee Hospital has to pay for them. In this case both accounting cost and opportunity cost were included. There are three cost components in this study: first is capital cost, second is recurrent cost and third is treatment charges paid to private networks.

1.1). Capital cost: inputs that last for more than one year, have value equal to or more than 1,000 baht and are concentrated at the beginning of a project and associated with the establishment of productive capacity and physical infrastructure (Abel-Smith and Creese, 1992). These include the cost of:

- **Building:** the space for social security office in Nopparat Rajathanee Hospital and its infrastructure furnishing, also built-in equipment. There are many approaches to calculate building cost i.e. look for the similar building and ask for its cost or use the renting cost for the similar space. For the building cost in this study under the assumption “all of the capital inputs are fully utilized”, then building cost in this study equals to zero because any incremental cost before and after implementation of the network is used, and the office has used the same area in the same building.

- **Equipment:** the categories used in the social security office that last one year or more and unit price is more than 1000 baht. To calculate the price of equipment, this study used the current price for similar equipment, not the original purchase price. According to the incremental (INC) cost used in this study, the equipment to be calculated are only those bought after 1993 (after implementing the Network).

The methodology employed to calculate capital cost are usually concerned with the cost of resources used over a specific period (one year: in this study), rather than at the time they are purchased, and have to be adjusted to annual economic cost. Then, to calculate the annual economic cost of each capital input, the following formula will be used:

$$\text{Annual economic cost} = \text{Current value} / \text{Annualizing factor}$$

where:

Current value = The amount of money which has to be paid to purchase a similar item now.

Annualizing factor = the value from standard table (3.971) (Creese and Parker, 1994), to get this value, useful life and discount rate have to be defined.

Useful life = Estimated number of years of useful life the item can realistically be expected to have (from the time of purchase). In this study, useful life of equipment = 5 years (American Hospital Association, 1988).

Discount rate = the rate of interest obtained from the bank if the money was put into the bank instead of buying the capital inputs. This study used World Bank discount rate = 10%.

$$\text{Then: Incremental Equipment Cost} = \sum_{j=1}^n (E_j / 3.971) \dots\dots\dots(1)$$

where: j = Index of equipment from 1st item to n th item
 E_j = the present value of the j th equipment

$$\text{Therefore: Total INC Capital Cost} = \text{INC Building cost} + (1)\dots\dots\dots(2)$$

1.2). Recurrent costs: are those costs associated with the operation or maintenance of facilities or assets (Abel-Smith and Creese, 1992). The items mentioned below will be considered as the recurrent costs.

- **Personnel:** Salaries, wages and other expenses associated with personnel, both directly involved in the social security office and other shared staff. Three approaches will be conducted to get personnel cost:

First: the personnel that directly involved in the social security office, the whole wages, salaries and other expenses are directly included in the personnel cost. According to incremental approach used in this study full-time personnel cost is only salaries and benefits of full-time staff who have been employed after implemented the contracting out programme, due to increasing of works in social security office.

Second: the shared personnel involved not only in the social security office, the percentage of time that they worked for social security tasks and increase in the number of registered insured workers that they have to take care of; are considered by looking at time schedules and observing their work, to know the real personnel cost of the social security task.

Third: Supported staff, there are committee members of the social security task in Nopparat Rajathanee Hospital. The personnel cost of these staff can be calculated by using their per diem which they received from the social security meeting.

$$\text{Then: incremental personnel cost} = \text{directed personnel cost} + \text{shared personnel cost} + \text{supported personnel cost} \dots\dots\dots(3)$$

- **Vehicles:** for the other studies vehicle cost is usually counted into capital costs, due to full time use of the vehicle. But for this study vehicle costs have to be put into the recurrent costs, because the vehicles in Nopparat Rajathanee Hospital have been used for many purposes, not only for social security tasks. Then, renting price of vehicle is considered as the cost of vehicle component and put into recurrent costs, instead of capital costs. Nopparat Rajathanee hospital has decided the renting price of vehicle is equal to 200 baht per time used. Then the vehicle cost of this study is equal to the amount of time, vehicles were used for the network's activities multiplied by 200 baht.

$$\text{Then: vehicle cost} = Vt. \times 200 \text{ baht} \dots\dots\dots(4)$$

where: $Vt.$ = amount of time vehicles were used for the network's activities.

Supplies: this category is for materials used up in the course of the year, as direct inputs to the principal activities performed by the programme and other small items purchased during the year (Creese and Parker, 1994), also the price is less than 1,000 baht. Costs in this category can be found from the records of the accounting department.

$$\text{Then: Supply cost} = PV_{SC94} - PV_{SC92} \dots\dots\dots(5)$$

where: PV_{SC94} = present value of supply cost in 1994.

PV_{SC92} = present value of supply cost in 1992.

- **Office utilities:** This category includes charges for electricity and telephones of the office. To calculate this cost, the telephone records, power requirement (kilowatt-hours) and length of time the electrical equipment are operated, will be classified and calculated in money terms, by using the phone fee

of the National Telephone Organization and cost per unit of electricity from the Metropolitan Electrical Office.

Then: Office Utilities Cost(6)

- **Treatment charges paid to Network:** The expenses for treatment given to Nopparat Rajathanee Hospital insured workers. This cost can be calculated from Clinic network money requirement bills.

Then: Treatment charges paid to network(7)

- **Other operating costs:** the residual category, which has not been mentioned yet, includes postage and also expenditure for meeting operations i.e. food, coffee and snacks. The real expenses of them are used.

Then: Other operating cost(8)

Therefore, Incremental Recurrent Cost = (3)+(4)+...+(8)(9)

So: Total Incremental Cost = (2) + (9)(10)

2. Benefit components: the positive consequences occurred to Nopparat Rajathanee Hospital due to the implemented private networks programme. The benefit components in this study are as follows:

2.1) Hospital revenue from National Social Security Office: capitation payment from National Social Security Office is 700 baht per one insured worker per year. The revenue to be included in the benefit component is incremental revenue from expanding private networks, calculated by:

$$\text{Incremental Revenue} = (X_{95} - Y_{95}) \times 700 \quad \dots\dots\dots(11)$$

where: X_{95} is the number of registered insured workers in 1995.

Y_{95} is the estimated number of registered insured workers in 1995, if the contracting out programme had not been implemented.

The reason to use this formula is to avoid the effect of the natural increasing rate of insured workers. Even if there is no implementation of the private networks

programme, the number of registered insured workers might be changed. The estimated number of registered insured workers in 1995, if the contracting out programme had not been implemented, can be calculated by following various trends such as the number of insured workers in Thailand , in Bangkok and in Nopparat Rajathanee Hospital. The ways to calculate these are shown in chapter 4.

2.2) Cost saving: due to the private networks implemented programme some categories of cost can be saved, these are:

- **Potential saving in social security OPD expenses:** by the concept, when the clinic networks are available, then the insured workers can get care from private clinics instead of the OPD clinic at Nopparat Rajathanee Hospital. The hospital could save some OPD expenses due to the networks.

- **Potential saving in IPD expenses for insured patient:** by the concept, when insured patients can get care from available clinic networks easily, then they can get treatment early, their sickness should be less severe and they do not need to be admitted into the hospital. By this concept the reduction of in-patient utilization rate by insured patient at Nopparat Rajathanee Hospital was considered and estimated in money terms. In this study cost-saving is conducted under the assumption of “Diseases pattern of Bangkokians in 1992 and 1994 are the same” .

Then: Cost saving = potential saving in OPD expenses + potential saving in IPD expenses + potential saving in treatment charges paid to public sub-contractors + potential saving in treatment charges paid to supra-contractors(12)

Then: Incremental Benefit = (11) + (12)(13)

3. Other categories:

3.1) Private Networks Questionnaire: this concerns the incentives for the private networks to maintain their network status (as the private provider), the attitude of them for management and financial policy of Nopparat Rajathanee Hospital (as the public financing). The model of this questionnaire is presented in the Appendix.

3.2) Questionnaire for the Responsible Personnel of Enterprises: This concerns the reasons they chose Nopparat Rajathanee Hospital as the Main-health facility for their workers and their satisfaction (as the consumer) of the services from the networks. The model of this questionnaire is presented in the Appendix.

3.5 Data Analysis

Both primary and secondary collected data were entered into Microsoft Excel and SPSS/PC, calculated for descriptive statistics. The analytical process were conducted to achieve the appropriate indicators according to the study's objectives.

Objectives to be achieved and their appropriate indicators

1. Administrative efficiency: this objective could be assessed by looking at government policy, fiscal policy within the hospital, administrators reward and their manageable freedom because administrative efficiency requires a conducive environment that stimulates and forces managers to use the most efficient methods for producing good health outcomes (William, 1992).

2. Financial efficiency: fiscal feasibility of the contracting out programme has to be evaluated by using net fiscal benefit and benefit -cost ratio of the programme as the indicators.

3. Technical efficiency: the ways to provide health care services by the most cost-effective method are found. Treatment charges per visit paid to private clinics for their health services and total charges per OPD visit for health services provided at out-patient department (OPD) of Nopparat Rajathanee Hospital are compared to look for the cheaper one, under the assumption treatment outcomes are the same.

4. Impacts in services provision: this objective is concerned with the potential ways to manage, maintain and monitor contracting out programme. Thus, attitudes of providers at both Nopparat Rajathanee Hospital and private contracted clinics should be examined.

5. Impacts in services utilization: this objective is set to examine the effects of implementing the contracting out programme from the consumer's side, such

as their utilization and satisfaction. Also the increasing in number of insured workers registered at Nopparat Rajathanee Hospital and changes in other scheme utilization rate are considered.

6. Non-monetary benefits: except monetary benefits of contracting out such as revenue from national social security office and cost saving mentioned before, there are non-monetary benefits from implementing the contracting out programme. Those are:

- **Equity in utilization and access to health services:** this benefit can be achieved by observing health services utilization rate of insured patients within the networks and distribution of the networks' health facilities that can improve convenience for insured workers to access health services.

- **Services' provision improvements:** in this study average length of stay, total charges per out-patient visit, cost of drug prescription per out-patient visit are used as the indicators to assess provision of services improvement. However, these indicators are quite difficult to interpret, some more indicators such as case mix and severity of diseases are needed but with the limited of time, incomplete data analysis can not be avoided.

- **Services quality improvements:** quality of services require to assess the consumer's attitude to measure whether they are satisfied with the services they received, or not. In, this study patient satisfaction, change in number of registered insured workers and employers' reasons when they selected Nopparat Rajathanee Hospital as the main-contractors to provides health benefits for them, are the indicators used to investigate improvement of the services quality.