

## **COPING WITH POVERTY IN THE HEALTH SECTOR: EVIDENCE FROM PUBLIC SPENDING IN THAILAND**

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*This paper examines whether an increase in government expenditure on health has been accompanied by greater equality between the poor and non-poor in Thailand. In the period 1992-2000, real government expenditure grew on average 10 per cent per annum, the number of health services personnel and facilities increased and the rise was far greater than the growth in population or incomes per capita. However, in the distribution of public resources on health the bottom quintile of the population received disproportionately less government spending. The widening inequality between the poor and non-poor could partly be explained by large differences in the mix of health resources used by each province in the country over time and the associated costs involved. These phenomena imply that improving equity in public health care provision needs to be given higher priority in Government spending.*

Since a healthy life is an asset for poor people, it is important to minimize the risk of falling ill and to promote health in order to increase their productivity and earning capacity. The Millennium Development Goals (1990-2015) set targets for improvements in health, primarily reducing child mortality, improving maternal health and controlling HIV/AIDS and other diseases, coupled with other important goals such as the reduction of poverty, improving the provision of education, promoting gender equality and protecting the environment. Thailand's high economic growth, particularly between 1988 and 1996, enabled the health sector to enjoy a period of expansion that delivered important benefits to the population at large. Reducing infant mortality, improving life expectancy and decreasing morbidity rates were notable

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developments in the Thai health sector. These successes were reflected in higher spending on health in terms of GDP, which increased from 4.6 per cent in the early 1980s to 5.7 per cent in the late 1990s. More significantly, perhaps, real government spending on health grew about three times faster than the rate of growth of GDP while per capita government spending increased fourfold from 1988 to 1996. During the 1997-1998 crisis, progress in these fields came to a halt as both household incomes and real government expenditures on health services declined. For the poorer households, the effect of a loss or reduction of income coupled with an increase in price levels in the provision of private health services was particularly severe given their dependence on public health services.

However, such developments have been uneven in their effects on different groups of people and between rural and urban areas. According to World Bank estimates nearly 40 per cent of the Thai population does not have access to adequate health care, primarily in the rural areas (World Bank, 2000). The lack of access to health care services is reflected in the overall levels of health. In the second half of the 1990s in rural Thailand, 28 infants (per 1,000 live births) died before reaching their first birthday and the rural infant death rate was 1.85 times higher than in urban areas. The disparity in health indicators still exists among and within regions even though the health status at the national level has improved significantly. As a result, the question of universal access to both quantitative and qualitative health care services became important issues in the 1997 constitution of Thailand and in various national economic and social development plans.

A health system typically functions with large variance in the distribution of resources across different levels of the system, regions and various groups of people, as noted by Fogel and Lee (2003), and Wagstaff (2002). Analysing the impact of public spending patterns on disadvantaged groups is crucial in this regard and in overall poverty reduction strategies. With this background, the question of the distribution of Government expenditure becomes critical as it is the primary source for the provision of health care services in rural Thailand. The main question is whether poor people really benefit from general increases in Government expenditure, in other words, how and to what extent has the recorded increase in expenditure been accompanied by increasing equality between the poor and non-poor. In doing so, this paper will document how much the richest receive, how much the poorest receive, whether they have always received the same allocation over time and whether the gap is widening or being reduced towards more equality.

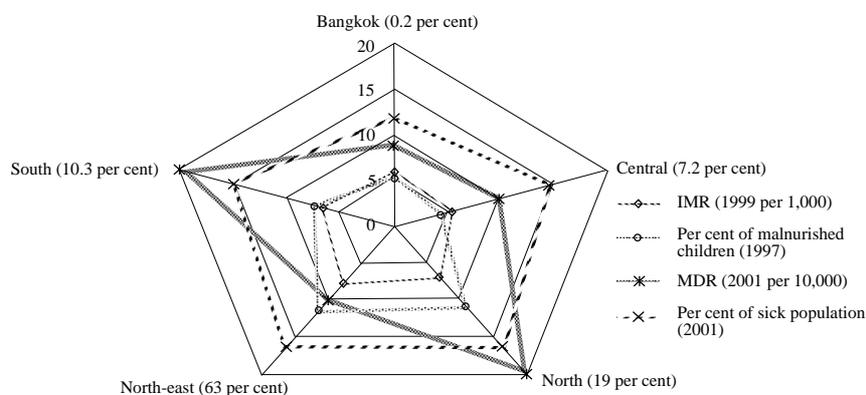
The paper is organized as follows. Section I reviews the health situation in Thailand while section II briefly documents the Thai health care system under two headings: health care facilities and health personnel and health care financing. The latter will concentrate more on the issues of efficiency by comparing it with other Asian countries and with the impact of the crisis on the health system. Section III examines the basic pattern and distribution of Government expenditure on health by

region. Section IV analyses the incidence of benefits from Government expenditure on health and the Government policy response to poverty and section V summarizes the findings and discusses the relevance of the findings.

### I. UNDERSTANDING THE HEALTH SECTOR

An analysis of health outcomes, to some extent, can help one understand the concept of need-based distribution, i.e., how people are getting the health care that they need. Based on National Statistics Office data, in Thailand, between 1984 and 1996, the infant mortality rate (IMR) per 1,000 live births decreased by 15 per cent and the maternal mortality rate per 100,000 live births decreased by 33 per cent while life expectancy at birth increased by 8 per cent.<sup>1</sup> The prevalence of HIV/AIDS, however, has been on the rise. Between 1984 and 1998, 148,806 AIDS-related cases were identified, of which 20 per cent have died (Suwit, 2000). Figure 1 shows the regional differences in three health profiles in the late 1990s: infant mortality rate, malnourished children and the sick population. Table 1 shows selected socio-economic indicators.

**Figure 1. Identifying the neediness of health care services by region, 2000**



*Sources:* Report of Health and Welfare Survey 2001, NSO;  
Thailand Public Health 1999, Alpha Research Co., Ltd., Thailand

*Notes:* (a) Central region includes vicinity of Bangkok, Eastern and Western regions.  
(b) (...) parenthesis indicates the regional share of poverty incidence.  
(c) Malnourished children as percentage of total primary students.

<sup>1</sup> IMR is defined as the number of deaths under one year of age per 1,000 live births. Maternal mortality rate is the death of a woman while pregnant or within 42 days of termination of pregnancy irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management.

**Table 1. Selected socio-economic indicators for Thailand, 1990-2000**

<i>Indicators</i>	<i>1990</i>	<i>1996</i>	<i>1998</i>	<i>2000</i>
GNP per capita (US\$)	1 510	2 985	1 780	1 941
Real GDP growth (1995)	8.6	5.5	-8.0	4.3
Real government expenditure growth (1995)	16.8	10.8	-6.3	1.4
Recurrent expenditure/total expenditure (health)	–	74.7	73.0	89.6
Government expenditure/GDP	0.95	1.34	1.69	1.32
Population (million)	57.0	59.9	61.2	62.4
Poverty (million): head count index	15.5 (27.2)	6.8 (11.4)	7.9 (13.0)	8.9 (14.2)
Income distribution (Q5/Q1)	57.8/4.2	56.7/4.2	56.5/4.2	57.6/3.9
Life expectancy at birth (M/F) <sup>a</sup>	68.6/73.4	69.4/74.1	70.2/74.7	–
Infant mortality rate (per 1,000) M/F	9.2/6.9	5.8/4.5	4.9/4.1	–
Maternal mortality rate (per 100,000)	24.8	15.6	7.6	–
Prevalence of underweight (per cent of school children)	19.8 <sup>b</sup>	7.9	12.3	–
Prevalence of iodine deficiency (per cent of primary school children)	16.8	7.1	3.9	–
Population with safe drinking water (per cent) <sup>c</sup>	80	–	–	84
Gross enrolment rate <sup>d</sup>	46.6	57.6	61.3	74.1

*Sources:* Thailand Health Profile 1997-1998, Ministry of Public Health, Thailand; Development Evaluation Division, NESDB.

– Data are not available.

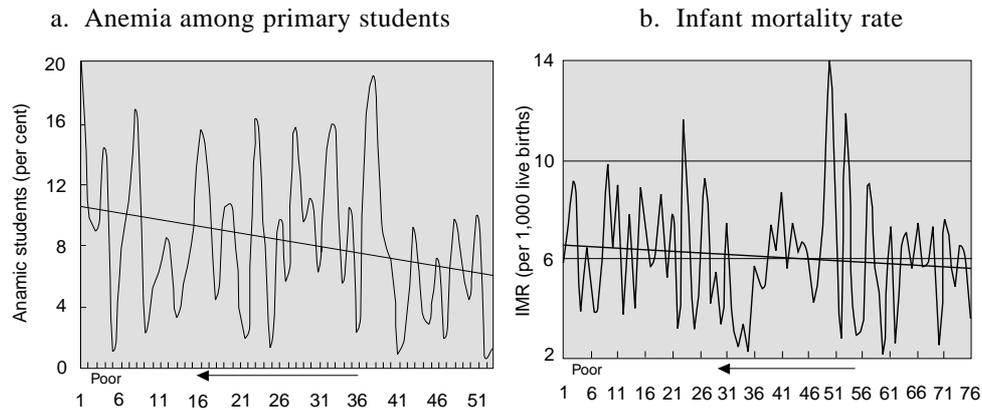
<sup>a</sup> Thailand Health Profile 1997-1998, MOPH and the data indicate each five-year period beginning with the year as mentioned.

<sup>b</sup> 1991.

<sup>c</sup> <[www.unicef.org](http://www.unicef.org)>.

<sup>d</sup> Combined primary, secondary and tertiary level students as a percentage of school age population (3-21 years of age).

Within Thailand, a region's performance, on each of four indicators, is expressed as a percentage and the lowest value indicates best performance and vice versa. Bangkok had the highest achievement in all these indicators as it is located closer to the minimum on every output. The percentages of maternal death, sick population and malnutrition among children are higher in poorer regions: the northern, southern and north-eastern regions. However, in terms of IMR (figure 2) and becoming ill, the southern region is comparable to the central region and is less than the northern and north-eastern regions. The transition in IMR is shown in figure 2b. From 1990 it declined substantially but during the crisis this trend was reversed. Although the increase was common in all regions during this period, it was

**Figure 2. Identifying need for health care services, 2000**

Source: Thailand Public Health 1999, Alpha Research Co., Ltd., Thailand.

higher in the north-eastern region. The differences in health outcomes not only indicate the structural characteristics of each region but also the differences in the availability of health services.

The SES on health, conducted by the National Statistics Office, is available for collecting information regarding the ill health of the Thai people at various levels and household choice in seeking treatment. The choices of seeking treatment reflect the availability, cost and quality of services. The data are reported in table 2 and the findings are summarized below. First, illness has increased in urban areas between 1996 and 2001 and it was higher amongst females. Furthermore, it has been increasing since 1996. Second, although the Government-provided health care is the main destination for all patients irrespective of where they live, rural people pay more visits than others to such facilities. Third, urban patients are frequent visitors to private sources. Finally, rural people are less likely to report illnesses than their counterparts in urban areas. Lower reporting could be because of the fact that the characteristics of poor people, such as lower level of education and acceptance of illness as a normal feature of life, determine their attitudes and responses to illness.

## II. THE NATIONAL HEALTH CARE SYSTEM

This section briefly documents the two main aspects of the national health system: health care services and health financing. The Ministry of Public Health (MOPH) is the office responsible for budget allocations, provision of health services and the implementation of policies. In addition, other ministries such as the Ministry of Interior, the Ministry of Defence, the Ministry of University Affairs and the Ministry

**Table 2. Percentage of ill and type of last treatment by sex and area, 2001**

	<i>Ill as per cent of population in 1996</i>	<i>Ill as per cent of population in 2000</i>	<i>Of those ill, per cent seeking treatment by source (2000)</i>				
			<i>No care</i>	<i>Self-and traditional treatment<sup>a</sup></i>	<i>Government sources</i>	<i>Clinic</i>	<i>Private</i>
Thailand total	15.3	15.15	4.88	24.87	53.37	3.90	3.90
Male	13.7	13.15	5.00	24.90	52.59	12.44	4.35
Female	16.9	17.13	4.79	24.85	53.97	12.32	3.56
Urban	11.6	13.63	3.95	29.71	39.58	17.24	8.86
Rural	16.3	15.88	5.26	22.87	59.07	10.36	1.85

Source: The Health and Welfare Report, 2001 and 1996.

<sup>a</sup> Self-and traditional treatment is the sum of herbal medicine users and traditional healer

of Labour and Social Welfare and non-governmental organizations are also significant participants in the national health system.

Health care facilities in Thailand's public sector consist of three major components, namely primary, secondary and tertiary care levels.<sup>2</sup> According to the latest available list of health facilities (1998) in Thailand, the higher level health providers, in descending order, are regional/general hospitals (243), community and extended hospitals at district and subdistrict levels (716), health centres at Tambon level (9,689) and community health posts at village level (69,108).<sup>3</sup> The available health professionals number about 19,500 practicing doctors, of which 69.4 per cent are specialists. There are also 6,278 dentists, 13,329 pharmacists, 56,366 professional nurses and 30,633 health centre workers (see table 3).

It is certainly the case that the Government of Thailand has been focusing more on building health centres and community hospitals aimed at increasing primary health care facilities in rural areas. Between 1987 and 1998, the number of health centres and community hospitals grew by 37.5 per cent and 26.7 per cent, respectively, while general hospitals increased by 26.4 per cent. More importantly, the spending priorities aim to increase the number and size of the community hospitals. As a result, the ratio of population per bed in community hospitals has declined.

<sup>2</sup> Such a classification would be a rough calculation as their services overlap within levels.

<sup>3</sup> The figures under the regional/general level hospitals include military hospitals, specialized hospitals and medical school hospitals. Figures under the health centres include public health centres and branches administered by the Bangkok metropolis.

**Table 3. Expansion of the health care system in Thailand, 1989-1997**

	1989	1995	1997
<i>Health facility</i>			
Government hospitals	774	923	943
Private hospitals	237	357	358
Community hospitals	561	688	712 (1999)
Health centres	6 992 (1987)	8 842 (1996)	9 614 (1998)
Population/bed	938	739	459
<i>Health personnel</i>			
Doctors	4 361	4 180	3 649
Pharmacists	3 825	5 867	5 941
Professional nurses	1 478	1 092	1 073
<i>Health financing (per cent of total health financing)</i>	1991	1995	1998
Government <sup>a</sup>	23.5	30.1	34.7
Of which SSS	0.56	1.73	2.7
Out-of-pocket	75.2	68.7	63.9
Private Insurance	1.1	1.1	1.3

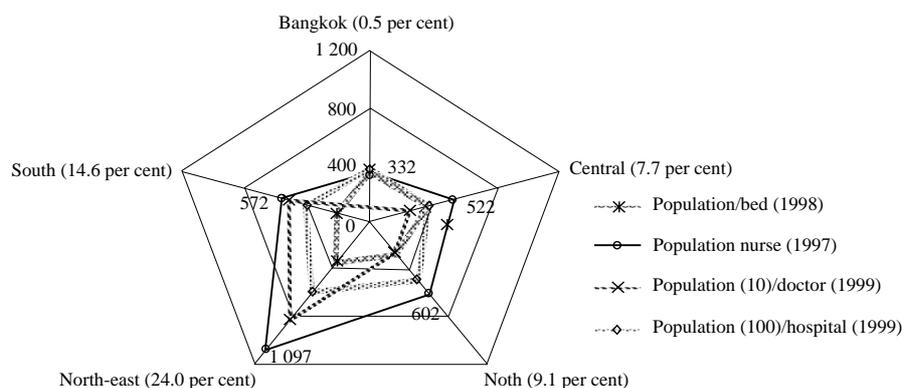
Source: Thailand Health Profile 1997-1998, MOPH.

<sup>a</sup> Government refers to the general Government and includes ministries and state enterprises of the country's central and local governments.

### ***Distribution of health facilities by region***

Public health facilities by region vary significantly. Figure 3 compares the health inputs in terms of the number of population per facility together with regional poverty incidence (noted in brackets for each region) by region; thus the maximum value of each of the axes indicates a lack of facility in a particular region.

For example, the north-eastern region has the highest population in Thailand, roughly one third of the country's total population including two thirds of the poor, but the number of available health inputs for people is insufficient. The most affluent area, Bangkok is home to less than 0.5 per cent of the country's poor but has the highest number of facilities. The southern and northern regions share nearly equal facilities while the central region is higher than the other four regions. In the last decade, the changes in the distribution of health facilities have favoured the richer provinces (see the appendix). Overall, it is demonstrable that the distribution of health facilities and health personnel are Bangkok-centred but the distribution of needs is skewed towards the north-eastern and northern regions.

**Figure 3. Health facilities and professionals by region**

Source: Directory of Hospitals and Public Health Statistics in Thailand 2000-2001, Alpha Research Co. Ltd. (in Thai).  
 (...) Parenthesis indicates the poverty incidence at the regional level in 1998.

### *International comparisons of the health care system*

Table 4 compares the health system efficiency within selected Asian countries. According to the information provided in the *World Health Report 2001*, the efficiency of the health system is actually lower in Thailand than many other countries that spend considerably less. The efficiency is assessed by calculating the Health Performance Index (HPI) and the value of the index explains how an efficient health system translates expenditure into health achievement.<sup>4</sup> The index of zero, therefore, means the least efficient and one, the most efficient. Table 4 reports that the health performance and Thailand was ranked, in descending order, 102 among the 161 member countries of WHO. Thailand's efficiency index is 0.71, less than 75 per cent of efficiency compared to 93 per cent in Singapore.<sup>5</sup> In terms of GDP allocation, it is spending more than any other country listed in table 4. Similarly, expenditure per person has increased markedly over the past decade with only minimal effects on health outcome. The curative health care system is blamed for such inefficiency in the way of over-utilization of drugs, irrational technical use and spending waste. The report further states that in terms of health output the return from the cost of curative

<sup>4</sup> Health achievement is measured by disability-adjusted life expectancy (DALE) and it is an estimate of burden of disease using disability-adjusted life expectancy as a measure of the health gap in the world.

<sup>5</sup> The *World Health Report 2001* also reports the uncertainty interval occurring in the above performance. For Thailand, the interval is 0.682-0.736, which is again too low and for Singapore, the range is 0.909-0.942.

**Table 4. Health system in Asia**

	<i>Total health expenditure, per cent of GDP (2000)</i>	<i>PPP public expenditure per capita (1998)</i>	<i>U5MR<sup>a</sup> (1999)</i>		<i>Life expectancy at birth (2001)</i>		<i>HPI<sup>b</sup> (1997)</i>	<i>Fairness of financing health</i>
			<i>M</i>	<i>F</i>	<i>M</i>	<i>F</i>		
India	5.1	20	97	104	59.6	61.2	0.67 (118)	0.96 (43)
Indonesia	2.7	14	63	53	64.4	67.4	0.74 (90)	0.94 (73)
Malaysia	2.5	97	15	13	69.2	74.4	0.75 (86)	0.92 (123)
Singapore	3.5	263	4	3	76.5	81.8	0.93 (14)	0.93 (101)
Sri Lanka	3.6	51	25	19	66.6	74.1	0.78 (66)	0.94 (78)
Thailand	5.7	121	40	27	65.7	72.2	0.71 (102)	0.91 (128)

Source: World Health Report 2000 and 2001, WHO.

(.....) Parenthesis denotes the rank of the country within WHO members.

<sup>a</sup> The U5MR is the probability of dying between birth and exactly five years of age per 1,000 live births.

<sup>b</sup> The Health Performance Index (HPI) reports how efficient health systems translate expenditure into health as measured by disability-adjusted life expectancy (DALE) and it is defined as the life expectancy at birth minus the total time expected to be lost being ill.

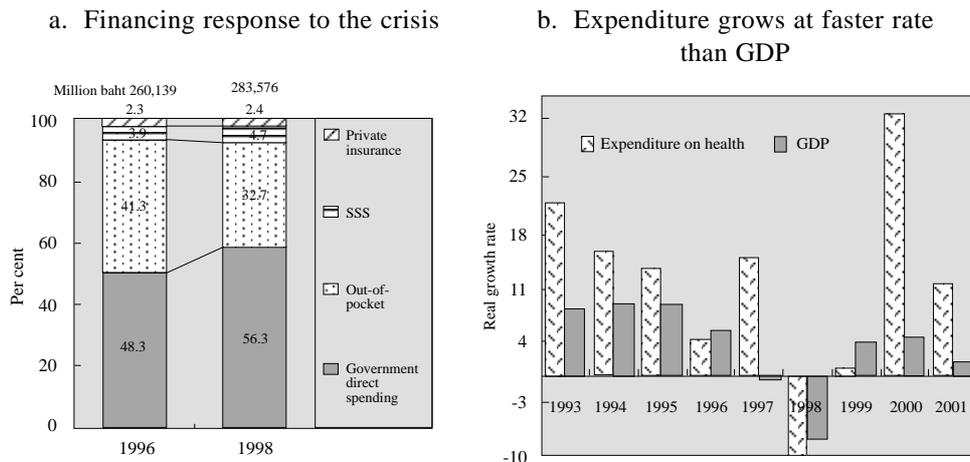
care is lower than that from the cost of preventive care which could reduce the risk of illness and decrease the morbidity and mortality rates.

#### ***Financial adjustment to the 1997 crisis***

This section discusses briefly the financing mix of health services and how these have adjusted in response to the economic and financial crisis in 1997. In Thailand, health care services are financed through two main channels, out-of-pocket and direct Government spending. The insurance mechanism is not so developed. It is notable that the role of government financing in the health sector has increased since the late 1990s. In 1998, a National Health Accounts exercise estimated that the total national outlay on health was 179 billion baht or 2,935 baht (US\$ 71) per person. The Government was the largest contributor at about 60 per cent and the remaining 40 per cent came from private sources, mainly out-of-pocket spending (33 per cent), and other third party arrangements, involving insurance, private employers and charities

(see figure 4). Before the crisis, these proportions were 52.2 per cent and 47.3 per cent, respectively. (National Accounts Division, NESDB, 1996 and 1998) The fall in household income was reflected in a lower demand for health as the people switched demand for health from private to public facilities because the latter were subsidized. To offset the effect of the decline in private expenditure on health outcome, at least partially, the Government responded positively by increasing recurrent expenditure on health. Such an adjustment could be viewed as a response to the negative effect of the crisis. Another notable development in the pattern of Government financing was the expansion of various health insurance schemes as a part of enhanced social safety nets programmes such as low-income and voluntary health card system and the introduction of the 30-baht scheme by the present Government to enlarge access to health services at a low nominal cost. Finally, the relative price of health care services rose compared to the country's general price level, because of the strong depreciation of the baht during the crisis.

**Figure 4. Health care financing in Thailand**



Sources: For figure 4a, National Accounts Division, NESDB and for figure 4b, Economic and Financial Statistics, BOT.

Within the Government sector, the MOPH is the main agent in financing the health sector and its role has increased following the crisis. In 1996, about 53 per cent of the total Government expenditure on health (or 29 per cent of total national financing) was channelled through the MOPH while in 1998 it was 61 per cent (or 36 per cent of the national spending on health). In 1998, 43 per cent of MOPH financing was spent on hospital and health professionals, 28 per cent on investment in

facilities, 12 per cent on administration and 13 per cent on health promotion and disease control (National Accounts Division, NESDB, 1996 and 1998). In Thailand, even though the contribution of insurance financing appears to be growing it is not so developed as to displace a substantial amount of direct Government spending. In 1998, the expenditure on private hospitals and doctors significantly declined in both absolute and relative terms from one fourth of the total national health expenditure (in 1996) to one fifth as a result of the closing of a number of private hospitals which had experienced a decline in demand.

### III. PATTERN OF GOVERNMENT EXPENDITURE ON HEALTH

Total Government spending on health in Thailand is 1.6 per cent of GDP or 9.3 per cent of total Government expenditure, with an estimated average of baht 1,237 (approximately US\$ 32) spent per person in the year 2000. As reported in the National Health Accounts (1998), the Government is the largest provider of health care funds (60 per cent), with physicians the largest component (33 per cent) followed by hospitals (30 per cent). Total Government spending on health rose from 1.2 per cent of GDP in 1988 to 2.1 per cent in 1998 before declining to 1.6 per cent in 2000.<sup>6</sup> Until the late 1990s, on average, the growth rate of real Government expenditure on health was more than three times the rate of growth of GDP and between 1998 and 1999 these trends were slightly reversed before Government expenditure started to increase again in 2000.<sup>7</sup>

The composition of the public budget allocations also matter in creating a link between health expenditure and health outcomes. Although it is widely accepted that spending on health promotion and disease prevention could effectively translate into overall health improvement, a large proportion of Government spending falls into curative services. Between 1993 and 1999, about 64 per cent of the national health budget was allocated to curative services while 22 per cent was allocated to health promotion and prevention. There is, thus, scope for improving social outcomes by changing the composition of public expenditure. Moreover, the classification of expenditure by economic type reveals that in 2000, 92.6 per cent of health expenditures was spent on recurrent expenditures and 7.4 per cent on capital investment (Bureau of the Budget, 2000).

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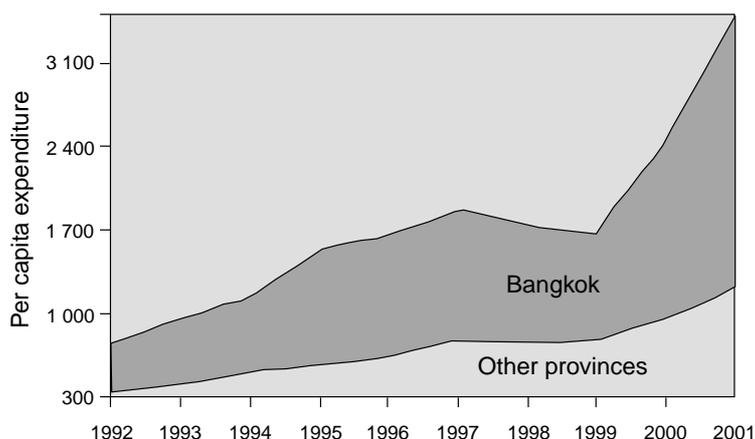
<sup>6</sup> The capital expenditure on health has declined nearly 63 per cent between 1998 and 2000. The share of current expenditure to the total expenditure rose from 63 per cent in 1997 to 90 per cent in 2000.

<sup>7</sup> During 1990-1998, the growth rates of real Government expenditure and real GDP were 12.9 per cent and 5.7 per cent respectively and between 1999-2000, they were -9.3 per cent and 4.2 per cent, respectively.

### *Distribution of Government health expenditures by region*

Figure 4a presents the annual public subsidies per person by region before and after the crisis and the horizontal line – the average Government expenditure per person at the national level – indicates how far each region deviates from the average. Regions in figure 5 are arranged with poverty incidence in ascending order. It shows that the poor regions receive the lowest subsidy per person and the gap between Bangkok and the north-eastern region is still widening. Although a large proportion of health needs in Bangkok is fulfilled by the private sector a significant disparity exists in the public sector between Bangkok and the rest of the regions. The poorest regions are much worse off than the national average. While 26 per cent of the total Government expenditure is in Bangkok, its population accounts for only 12 per cent of the total population, but 23 per cent of the expenditure is in the north-eastern region, which accounts for 34 per cent of the total population.

**Figure 5. Widening gap in per capita public spending**



Source: Bureau of the Budget.

#### **IV. BENEFIT INCIDENCE ANALYSIS**

The Benefit-Incidence Analysis (BIA) is used to evaluate how public health spending benefits the poor. The BIA deals with only the monetary value of Government health services and this technique assumes that the benefit derived from health services is equal to the cost of providing such services. It combines the cost of providing such services with information on their ultimate usage to show how the benefits of Government spending are distributed across different socio-economic groups.

### ***Data and methodology***

The BIA brings together three sources of information. First, poverty incidence (from the Development Evaluation Division, NESDB) is used to rank the provinces.<sup>8</sup> Second, population (from the Report of Census and Housing, NSO) is used to construct the deciles/quintiles. It should be noted that the total population is considered as beneficiaries (from health expenditures) rather than the number of patients. This is done in order to understand the subsidy implication of achieving universal health care which Thailand wants to achieve. Third, the actual total Government expenditure on health (from the Bureau of the Budget) is assigned to calculate the benefits for each decile/quintile.

The major steps in the calculation are:<sup>9</sup>

- Ranking the provincial population by poverty incidence
- Calculating the provincial share of population
- Dividing the sample into quintiles
- Calculating the provincial expenditure shares going to each quintile

The distribution of expenditure is then analysed by constructing expenditure concentration curves for the whole population ranked by poverty incidence.<sup>10</sup> Such a calculation can indicate whether the health financing system in Thailand is proportional or biased in favour of either the rich or the poor. The main hypothesis in this section is that there are no differences in the allocation of Government subsidies across the population and each group of the population contributes to the financing of health care according to its ability to pay.

### ***Who benefits and by how much***

Table 5 and figure 6 summarize the concentration of Government subsidy among various groups. The top 25 per cent of the population receives more than 35 per cent of the total Government expenditure and the bottom 14 per cent of the population, which falls above 30 per cent of the poverty line, receives less than 10 per cent of expenditure. More importantly, the range of disparity in expenditure allocation between the bottom 10 per cent (or next 10 per cent) and Bangkok is large. A person who lives in Bangkok has a 10 times higher chance of receiving a Government

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<sup>8</sup> Poverty incidence means the number of persons falling below the poverty line during a given period and is calculated as a percentage of total population.

<sup>9</sup> To examine the burden of health financing, that is vertical equity, similar steps are followed using household per capita income, instead of poverty.

<sup>10</sup> The expenditure concentration curve is a plot of cumulative population from poorest to richest against the proportion of expenditure (subsidy) received.

**Table 5. Distribution of Government expenditure on health by poverty incidence in 2000**

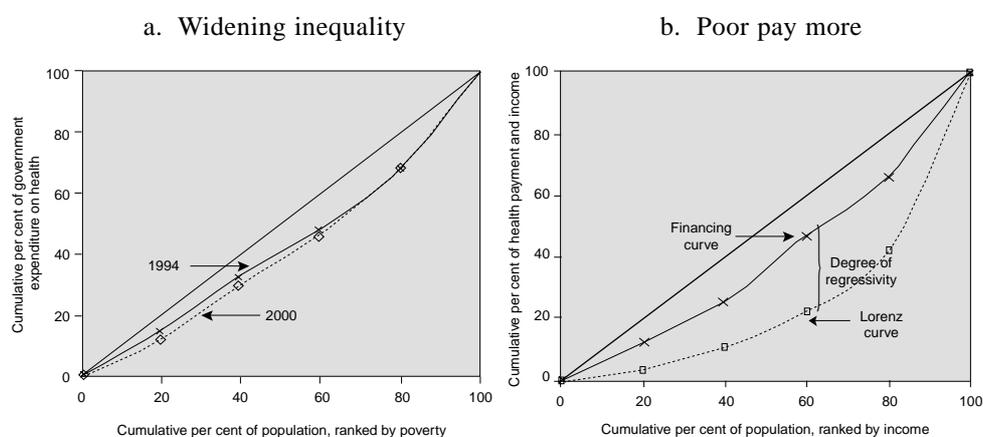
<i>Per cent of poverty (Range – HCI)</i>	<i>Share of population (per cent)</i>	<i>Share of health expenditure (per cent)</i>	<i>Health expenditure (million baht)</i>
< 1.9 <sup>a</sup> (0.26) <sup>b</sup>	12.4 (11.8)	11.6 (25.6)	27 119 (18 651)
2.0 – 9.9	21.8	23.2	16 729
10.0 – 19.9	23.2	20.0	14 925
20.0 – 29.9	16.8	11.4	10 771
30.0 – 39.9	7.0	5.1	3 533
40.0 >	7.0	3.8	2 892

*Source:* Author's calculation using data from NESDB and Bureau of the Budget.

<sup>a</sup> Excludes Bangkok.

<sup>b</sup> Bangkok only.

**Figure 6. Expenditure concentration curves: 1994 and 2000**



*Source:* Author's estimation.

*Note:* Lorenz curve (LC) is pre-tax income and financing curve (FC) is the tax concentration curve. Population is ranked by pre-tax income as with LC. If the average tax rate rises with income the FC lies below the LC, so that the system is progressive and if the opposite is true then taxes, that is the financing system, are regressive.

subsidy as one who lives in Mae Hong Son or seven times higher than one who lives in Yasothon. In 2000, the poverty incidence of these two provinces was 30 per cent and 50 per cent, respectively. The bottom two deciles share more or less the same amount of expenditure but a person living in Bangkok receives a sum nearly four times higher than his or her counterpart in the bottom levels.

The important issue related to concentration is equity. This paper adopts two alternative yardsticks to evaluate the issues of equity, the first, that Government spending should be according to need. As explained in the preceding section, since the risk of sickness and need are relatively high amongst the poor, the distribution of Government health care spending should favour the poor. Regarding this, the expectation is that the relationship between Government expenditure and the changes in poverty incidence should be progressive or even proportional. For examining such a hypothesis, the poverty incidence is used as the base. The second yardstick is that financing of health should distribute burdens fairly across people with different abilities to pay. In other words, should those with a greater ability to pay be proportionally paying more (or should the degree of regressivity be minimal)? For testing this hypothesis, the average monthly income per household is used.

The expenditure concentration curves are plotted in figure 6. The vertical axis measures the cumulative proportion of expenditure received while the horizontal axis measures the cumulative percentage of population, ranked by poverty incidence from poorest on the left to richest on the right. It is similar to the Lorenz curve (it is ranked by income level) but here the population is ranked by poverty incidence. If the constructed curve coincides with the diagonal, everyone, irrespective of poverty status, enjoys an equal share of Government subsidy. If the curves deviate from the diagonal this will be an indication of inequality. A concentration below the diagonal line indicates a pro-rich approach and above the diagonal, a pro-poor approach.

Clearly government health financing system in Thailand is less than ideal as the curves lie below the diagonal. For example, in 2000, the poorest 20 per cent of the population only received about 11.8 per cent of the total government subsidy and the richest quintile, nearly three times more than the poorest. The distribution of expenditure over time is examined to determine whether the increasing expenditure has benefited the poor. If the concentration curve of the current year is everywhere closer to the diagonal than that of previous years, then the current year's concentration curve is considered as more equal than the previous ones. Figure 6a shows only two years, 1994 and 2000, because to make the picture clear the curves for other years are omitted. One can observe unambiguously that the curves in each year at the bottom levels (below 40 per cent of population) deviate from the diagonal. In such conditions, it seems reasonable to conclude that increasing expenditure could help increase the shares of the middle and upper levels of society rather than the bottom level.

It can be concluded, therefore, that in the past decade the people as a whole have not been treated equally and the distribution of Government subsidy on health

was not pro-poor. Admittedly, increasing disparity is part of a long-term trend and the degree of bias towards non-poor did not come into being in one or two years; the adjustment to a more neutral disposition will not be possible in one or two years.

Comparing the share of income received by each income group with its share of health care payments provides an alternative way of assessing equity. The constructed curves for both financing and income are shown in figure 6b. It clearly shows that the Thai health financing system is regressive, implying that the share of the total financing burden borne by lower income groups exceeds their share of society's income, while the share borne by higher income groups is less than their share of society's income. For example, the bottom income quintile in 2000 received 3.9 per cent of income but contributed 12.9 per cent to the health care services, whilst the top quintile received 57.6 per cent of income and made a 32 per cent contribution to the health care services. Government spending on health provides increasing benefits with income so that the health system in Thailand is regressive.

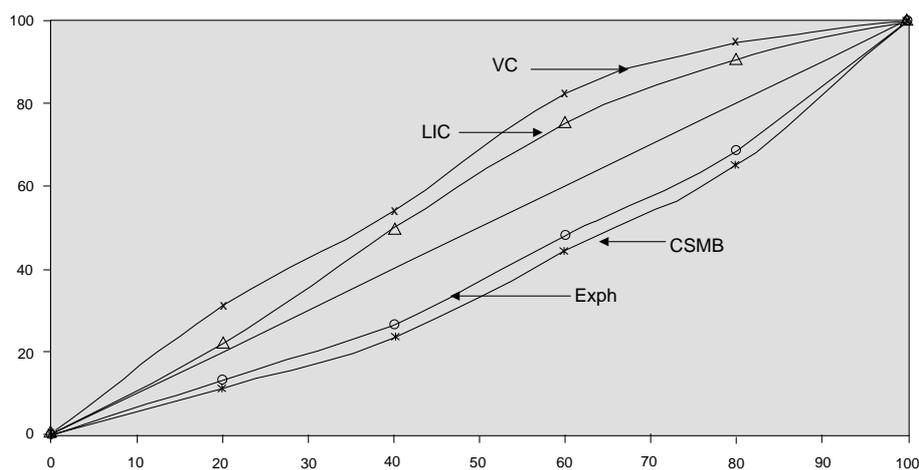
#### ***Financing health care coverage and the poor***

In Thailand, it is estimated that currently about 46 million people (76 per cent of the total population) are covered by at least one of the subsidized health insurance schemes (Donaldson et al., 1999). The five major insurance schemes are: Civil Servants Medical Benefits Scheme (CSMBS), Social Insurance Scheme (SIS), Voluntary Health Card Scheme (VHCS), Low Income Card Scheme (LICS) and other private health insurance. The rest of the population, the poorest groups, slum dwellers, subsistence farmers and other rural workers, receive no such coverage. In this study, three financing schemes, namely CSMBS, VHCS and LICS, for which data are available by province, are considered.

Means-tested spending programmes benefit only those whose financial resources fall below a certain level. In Thailand, the low-income health card is typically focused on low-income people so that it is able to benefit the poor. Even though the voluntary health card is available to anyone, it seems that the poor prefer to join the low-income scheme because of lower charges (see figure 7).

The distribution of Government expenditure on the voluntary health card and on the low-income card was pro-poor. However, it is important to note that, while the distribution of expenditure on the voluntary health card was more progressive than that of the low-income card, the fact is that the outlay on the voluntary card is too small to reduce the risk of poverty effectively. In total, less than 15 per cent of Government health expenditure usually falls on these programmes. Moreover, the relative ineffectiveness of Government expenditure programmes in protecting the vast majority of the people is still a puzzling issue.

**Figure 7. Distribution of government financing on selected insurance schemes and the poor in 2000**



Source: Author's estimation using data from the Bureau of the Budget and NSO.

Contrary to this, expenditure on CSMBs is regressive, which accounts for more than 20 per cent of the Government spending programmes on health. Health care expenditure for the more affluent areas, in the form of Government financing to health insurance, skew total growth expenditure further toward the better off.

### ***Policy response***

This section examines how the Government responded to the changes in the poverty level during the past decade. Government support for health is often viewed as enabling the patients of poor families to go to hospitals and thus is viewed to have a positive impact on poverty. If this is a valid hypothesis, one would observe a positive relationship between per capita Government expenditure and the incidence of poverty. To estimate exactly how and to what extent the poor really benefit and/or are the incidental victims of Government policy, the two variables, namely per capita Government expenditure and poverty incidence, are used. Before plotting them they were transformed into standardized values (STD value).<sup>11</sup> Such types of estimation clearly show that the share of population deviates from the national average. The

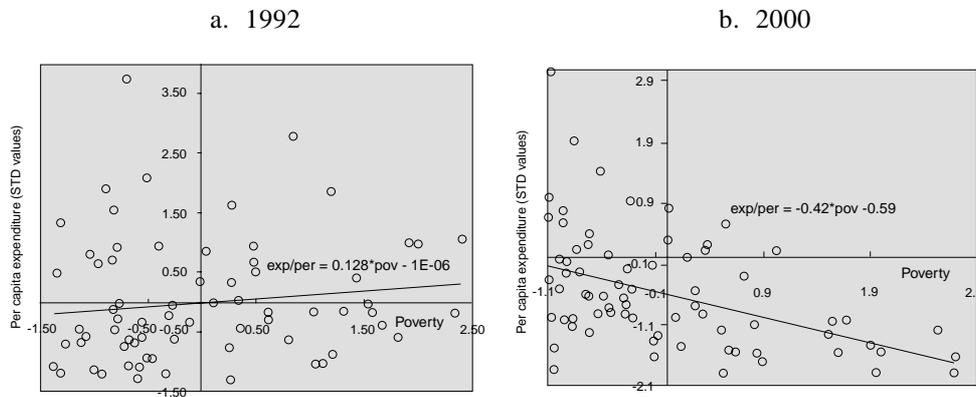
<sup>11</sup> The standardized values (STD) are calculated as:  $X_z = \frac{X_i - \mu}{\sigma}$ , where  $X_i$  =  $i^{\text{th}}$  province's per capita Government spending on health,  $\mu$  = mean of the Government spending on health, that is per capita spending at the national level, and  $\sigma$  = standard deviation of per capita spending. In a similar fashion, the standardized values of poverty incidence are calculated.

results are summarized in scatter diagrams in figures 8a and 8b and the details along with other health-oriented variables (only for 2000) are produced in table 6.

In 1992, the relationship between Government expenditure on health and poverty was positive even though it was not strongly significant (figure 8a). Figure 8b, however, shows the relationship is strongly negative indicating that the policy bias is pro-rich. Positive relationships are shown in the north-east and south-west quadrants of the diagram (figure 8b) and these two areas consist of 38 provinces which between them share only 28.4 per cent of the total Government expenditure and 36 per cent of the total population. This indicates that the Government expenditure programme failed to reach the disadvantaged groups.<sup>12</sup>

The following paragraphs document inputs and outputs in the health sector in line with changes in expenditure per person on health in order to understand the reasons behind it. The influence of certain variables (hospital facilities and health personnel) on expenditure can, at least in theory, be manipulated by Government policy. The policy stance here represents overall Government intervention on health such as spending and provision of health care services. In 2000, per capita outlays vary from over 2,400 baht in Bangkok to under 230 baht in Mae Hong Son. Combining both table 6 and the appendix provides evidence that there is a close link between the distribution of publicly provided health care services and Government expenditure.

**Figure 8. Government policy response to poverty**



<sup>12</sup> A possible policy lag is also examined and the conclusion on policy stance is the same, i.e., that a non-pro-poor expenditure policy with respect to health has been adopted, especially since the mid-1990s.

**Table 6. Health sector performance and policy (health) stance, 2000**

Poverty – government expenditure	Poverty	Per capita government expenditure	Household health expense/H H-income	Number of population per facility			Per cent of population	Infant death rate	Per cent of population	
				Bed	Doctor	Hospital			In- patient	Out- patient
High-low (25)	29.4	771.9	5.1	895	8 906	50 572	40.6	6.3	2.8	9.7
Low-high (14)	4.1	1 594.6	4.6	361	3 350	31 081	23.7	6.1	1.9	7.7
High-high (6)	19.8	1 407.6	3.9	427	4 473	30 176	3.94	7.2	1.0	3.0
Low-low (31)	5.7	925.2	4.4	564	5 624	40 516	31.8	5.6	4.0	14.7
Whole country	14.4	1 174.8	4.6	632	6 268	38 086	64.15 (million)	6.1	0.1	0.5

Source: Author's compilation using above sources.

Note: High-low would mean high poverty and low per capita government expenditure relative to national averages, and high-high, high poverty and high expenditure and so on.  
Figures in (...) denote the number of provinces falling within the range.

It would be useful to summarize some of the key results regarding the failure of Government health subsidies to reach the poor in Thailand.

- a) The poor spend proportionately more on health than the rich.
- b) High-cost health professionals are concentrated in the richer provinces. The number of active practicing doctors per 10,000 persons varies from 9.9 in Bangkok to 0.69 in Srisaket province (north-eastern region).
- c) Publicly provided services are skewed towards the rich, as more individuals from the higher income groups are likely to use health services. Population per bed ranged from 174 in Nonthaburi (one of the richest provinces in the vicinity of Bangkok) to 2,824 in Mae Hong Son.
- d) There is a close relationship between changes in the distribution of Government expenditure on health care services.
- e) The benefits of Government expenditure on health have shifted as the actual incidence (those to whom the benefits actually go) was different from the intended one.

## V. CONCLUSIONS AND POLICY IMPLICATIONS

This study has highlighted two stylized facts: first, between 1992 and 2001, real Government spending on health grew on average three times greater than that of

real GDP. Second, the distribution of Government expenditure on health has been widening in favour of the rich since 1992. In 2000, the poorest quintile of the population received only about 12 per cent of the Government health expenditure while the richest quintile received 36 per cent. This is explained by the fact of the bias in favour of richer provinces in the provision of public health care services, mainly their Bangkok-centred provision. A large number of rural people, therefore, still have limited or no access to health care services. The distribution of publicly provided services is skewed towards the rich. However, rural people decline to report illness more frequently than their counterparts in urban areas. This suggests that improving equity in Thailand would basically require increasing health awareness amongst rural people and providing information on health and health services are important to improving the access of the poor to quality health services. Since malnutrition and illness are higher among rural people, the budget allocation should address health promotion and preventive programmes in the public health system rather than secondary and tertiary levels of health care that are much less cost-effective.

The lack of public investment on health in the poorest provinces in relation to the size of the population should not merely mean increased Government expenditure but rather an extensive reform of existing policies with the focus on the composition of expenditure combined with equity-specific targets to ensure that efficiency in delivery and impact is maintained. As emphasized in recent research, a link between efficiency and equity is needed for a desired result in the health sector. Put in their own words, “.....(in Thailand) there are enough resources to provide everyone with a rather comprehensive health benefit package. Thus, the challenge is to improve the efficiency of health expenditures and the equitable distribution of financial resources”, Donaldson et al. (1999). The real challenge, therefore, is to maintain efficiency with equity within the existing financial resources.

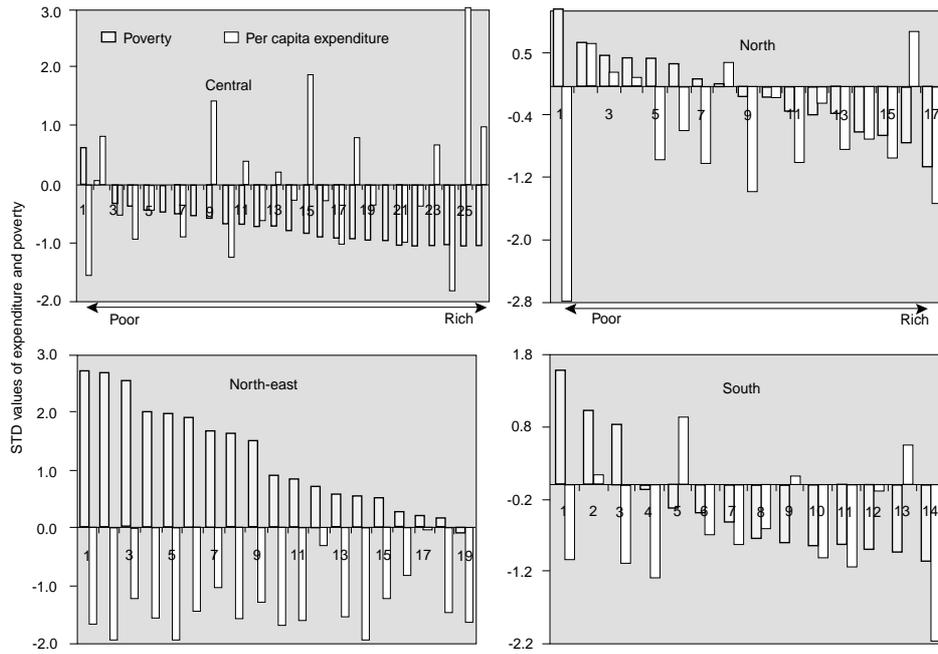
The pro-rich oriented Government expenditure, whether intentional or otherwise, appears to be a matter of distribution of publicly provided health services and, to some extent, the composition of expenditure. It therefore requires a closer examination of the distribution of health resources, and more importantly the degree of substitution among health professionals such as between physicians and nurses and between urban and rural areas. However, it would be more useful to extend the period of study beyond the year 2000 to cover the most recent developments, the new social security policies such as the 30-baht scheme, which is designed to play both a distribution and a risk reduction role in poverty reduction. Since this paper does not consider in a major way the composition of spending on health and the degree of crowding-out of private spending between rich and poor it must necessarily remain cautious in recommending specific policies on health care for the future.

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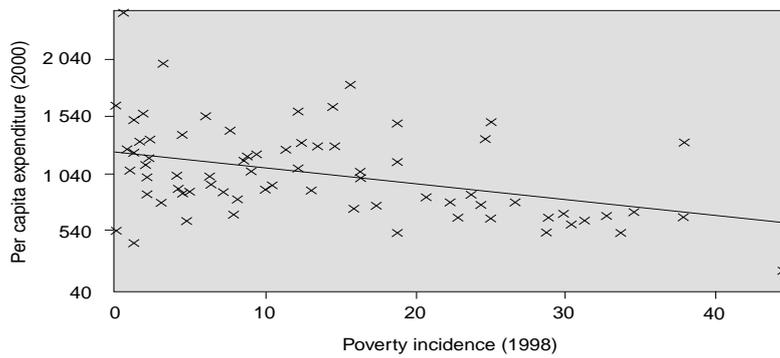
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**APPENDIX GOVERNMENT EXPENDITURE AND POVERTY**

**Table A1. Regional variation in Government expenditure, 2000**



**Table A2. Government policy (expenditure) and poverty, responding with policy lag**



Source: Author's estimation.