ELSEVIER

Health Policy 39 (1997) 225–239

HEALTH policy

Taiwan's 1995 health care reform

Tung-liang Chiang*

*Institute of Public Health and Center for Health Policy Research, National Taiwan University,
Rm. 1519, 1 Jen-Ai Road, First Section, Taipei 10018, Taiwan, ROC*

Received 7 August 1996; revised 13 September 1996; accepted 16 September 1996

Abstract

Under considerable domestic political pressure, the Taiwan government inaugurated a compulsory universal health insurance scheme on 1 March 1995. This new scheme is financed mainly by payroll tax and provides comprehensive health care benefits with a moderate cost sharing. In order to gain efficiency in delivering health services, the scheme enters contracts with health care providers and has been developing a prospective payment system. Meanwhile, the scheme uses a uniform fee schedule and makes all payments through a public single-payer system to control health care costs. By the end of the inaugural year, the scheme covered 92% of the population and the utilization pattern of the newly insured became close to that of the previously insured. However, there is the beginning of a financial crisis because the payments of the scheme are rapidly increasing and expect to exceed the premiums in the coming year. Besides, the scheme did not bring in the efficient use of health care resources and probably caused it to worsen. Taiwan's health care reform has an unfinished agenda. © 1997 Elsevier Science Ireland Ltd. All rights reserved

Keywords: Health care reform, Taiwan; Universal health insurance; Macro-efficiency; Micro-efficiency; Health policy

* Corresponding author. Tel.: +886 2 3414493; fax: +886 2 3414493; e-mail: tlchiang@ntumc1.mc.ntu.edu.tw

1. Introduction

Health care reform is in progress throughout the world [1,2], and Taiwan is no exception. On 1 March 1995, the Taiwan government after a 6-year planning period inaugurated a national health insurance (NHI) scheme. The goal of Taiwan's reform was to establish an effective and socially affordable universal health insurance. In a broad sense, it was very similar to the goal of reforms in OECD countries [1]. However, the situation of Taiwan was very different. Before the introduction of the NHI scheme, about half of the population in Taiwan did not have any health insurance coverage [3]. Thus, it was a greater challenge for Taiwan to achieve a dramatic expansion of insurance coverage and to contain the rapidly rising health care costs at the same time. Under considerable domestic political pressure the Taiwan government had to fully implement the NHI scheme at once. Within a year of its inauguration, the NHI scheme covered 92% of the population and did not run into deficits.

This paper analyzes Taiwan's experience in health care reform and discusses the lessons for other nations. It specifically addresses the following questions: (1) what factors led the Taiwan government to establish a compulsory universal health insurance scheme? (2) what are the objectives and major strategies in Taiwan's health care reform? and (3) what remains to be done in light of how the system has evolved to date in response to the reform?

2. Background to the reform

Taiwan, with a population of 21.0 million in 1994, is a newly industrialized country. The 1994 GNP per capita was US\$11 604. Besides being an 'economic miracle', Taiwan has achieved a 'health miracle' as well (Table 1). In 1994 life expectancy at birth in Taiwan was 71.8 years for males and 77.7 years for females, which was comparable to that of OECD countries [3].

Although the Taiwan government had made many an effort (such as malaria control and mass vaccination) to improve public health, it did not pay much attention to health care delivery. What the government had undertaken was mainly to secure each of 21 counties and cities having at least one public hospital and to set up military and veteran hospitals. By the early 1970s Taiwan had less than 0.5 physicians and 2.5 hospital beds per 1000 population (Table 1).

By the end of the 1960s, with the fall of the death rate, non-infectious diseases had replaced acute communicable ones as the predominant health problem in Taiwan. Meanwhile, Taiwan's economy had shifted from agricultural to industrial, from import-oriented to export-oriented, and from relative poverty to prosperity. As a result, the demand for health care in Taiwan has increased rapidly since the 1970s.

To meet the challenge of the rising demand, Taiwan's health policies in the 1970s were devoted primarily to increasing the supply of health care resources. First, the government decided to expand medical education with an objective of one physi-

cian serving 1000 people [4]. Accordingly, new medical schools opened and the number of first-year medical enrollment per year increased from 600 to 1200. However, the geographic distribution of physicians was almost entirely left up to market forces until the group practice centers program was initiated in 1983. Under the group practice centers program, the government began to assign physicians who had received medical scholarships to serve in rural areas.

Second, the government continued to build and expand public hospitals to achieve a capacity of four hospital beds per 1000 people [5]. In 1978, the government attempted to establish a public hospital-based medical care network but it failed in part due to the rapid growth of the private hospital industry. As shown in Table 1, the public share of hospital beds declined steadily from 71.3% in 1961 to 39.9% in 1994. In 1985, the government implemented another medical care network program to improve the distribution of health care resources, and this time it involved both public and private sectors.

However, the government had been passive in health care financing, leaving a large part of the population uninsured. There were two social health insurance schemes in Taiwan: Labor Insurance and Government Employee's Insurance. The later was established in 1959 and the former in 1950. By 1980 both the Labor

Table 1
Basic and health care indicators: Taiwan, 1960–1994

	1960	1970	1980	1990	1994
Basic Indicators					
Population (million)	10.7	14.7	17.8	20.2	21.0
Per capital GNP (US\$)	154	389	2344	7954	11604
Crude death rate (1/1000)	6.8	4.9	4.8	5.2	5.4
Life expectancy (years)					
Male	61.8	66.1	69.6	71.3	71.8
Female	67.1	71.2	74.5	76.8	77.7
% of population aged 65 ⁺	2.5	3.0	2.3	6.2	7.2
Health Care Resources					
Physicians per 1000 persons	0.5	0.4	0.7	1.0	1.1
Hospital beds per 1000 persons	0.7 ^a	2.4 ^b	3.2 ^c	4.1	4.5
% of public hospital beds	71.3 ^a	60.8 ^b	53.3 ^c	42.7	39.9
Health Care Financing					
Per capita health spending (US\$)	NA	NA	78	330	599
Health spending as % of GDP	NA	NA	3.3	4.2	5.1
% of population insured	6.3	7.9	16.0	47.3	57.0

Source: Council for Economic Planning and Development, Republic of China, Taiwan Statistical Data Book, 1995; Department of Health, Executive Yuan, Republic of China, Health and Vital Statistics, Volume I. General Health Statistics, 1994; Chiang, T.L., Hospital policies in Taiwan, 1945–1994 (in preparation); Wu, K.S., Social health insurance in Taiwan: A review. In C.L. Yaung (ed.), Health Insurance (2nd edn.), Chu-Liu Book Co., Taipei, 1995. (in Chinese).

^a1961.

^b1971.

^c1982.

Insurance and the Government Employee's Insurance together covered only 16.0% of the population (Table 1). Besides, public hospitals and health stations charged for health services as if they were private providers. In summary, Taiwan had lagged behind in removing the financial barriers to health care.

By the late 1970s, some economists became concerned that a typical family was no longer able to adequately afford health care for the family members. They advocated the development of social sectors as a means to social stability, despite their primary concern being economic development. Meanwhile, increasingly aggressive criticism from the opposition brought security affairs to the fore in Taiwan [6]. In order to protect against the legitimacy crisis, the ruling party Kuomintang sought to expand coverage and the scope of social welfare [7]. As a result, major social welfare laws were enacted and/or amended in a relatively short time. Among them, there were the amended Labor Insurance Law and the statutes of Government Employee's Insurance sub-schemes that contributed to the rapid growth of the insured population in the 1980s.

More importantly, the Council for Economic Planning and Development (CEPD) organized a comprehensive planning task force to study Taiwan's social welfare programs in 1984. The task force completed an integrated planning report on social welfare 2 years later and recommended a universal health insurance scheme to be phased-in by the year 2000 [8]. In order to provide the medical personnel necessary to support the universal health insurance scheme, the task force also recommended an objective of 1.5 physicians and 5 beds per 1000 people. In 1986, the task force's recommendations became a chapter of 'Long-term Economic Perspectives in Taiwan, 1986–2000' [9], an official document adopted by the Executive Yuan as policy guidelines for Taiwan's economic development. Indeed at an earlier time in the same year, the Premier Kuo-hwa Yu already declared the objective of 'health insurance for all by the year 2000' in his statement to the Legislative Yuan [10].

Along with the rapid growth of political participation in Taiwan, the target year of 2000 seemed unrealistic. By the early 1980s, political participation had broadened from local level to national level and the Non-Kuomintang forces had already received 30% of the votes [6]. On 28 September 1986, the first opposition party—the Democratic Progressive Party was formed. In order to gain public support, the Non-Kuomintang (especially the Democratic Progressive Party members) fiercely attacked the Kuomintang on the issue of political freedom as well as the Kuomintang's social policies. One of the most publicly appealed issues at that time was to promptly implement a national health insurance scheme since it was ideologically advocated as a critical indicator of a 'good' government and a modernized nation.

Although the Executive Yuan had been reluctant to advance the target year, the political pressure was too strong to resist. In 1985, the government strategically implemented a farmers' health insurance on a trial basis, but it was expanded to cover all farmers 3 years later. On 28 February 1989, Premier Yu finally announced the new target year for implementing a national health insurance scheme to be 1995 [10].

Taiwan undertook drastic political reforms between 1986 and 1992; the government lifted the Emergency Decree Law (a martial law) and senior legislators who had been in office for more than 4 decades completely retired. As a result, the Kuomintang was moving into the role of being a competing rather than the dominating political force. In order to consolidate political power, the Kuomintang was no longer passive in developing the NHI [11]. Foreseeing an election of Legislative Yuan representatives in December 1995, and a presidential election in March 1996, the Kuomintang mobilized its legislators to pass the NHI Law on 19 July 1994. The Executive Yuan further ordered the Bureau of National Health Insurance to fully implement the NHI by 1 March 1995, so that the chaos resulting from the implementation might fade away prior to the elections.

3. Objectives and strategies of the reform

In spite of the reform process being very political, Taiwan's National Health Insurance was well planned. This was mainly due to concerns with the severe financial crisis of both the Labor Insurance and the Government Employee's Insurance, as well as learning lessons from the welfare crisis taking place in industrialized countries. In 1988, the Council for Economic Planning and Development appointed a NHI planning task force. The task force completed a preliminary NHI plan (the CEPD Report) 2 years later, [10] and the Executive Yuan charged the Department of Health to assume the responsibility of planning the details.

In a broad sense, Taiwan shares the same objectives of health care reforms in all industrialized countries [1]. Taiwan identified three objectives of the NHI as stated in the CEPD Report [10]: (1) to provide equal access to adequate health care for all citizens in order to improve the health of the people; (2) to control health care costs at a reasonable (or socially affordable) level and (3) to promote efficient use of health care resources. The remaining section describes major strategies employed to achieve these three objectives and their underlying rationales.

3.1. Equity in access to adequate care

To achieve the objective of adequacy and equity in access to health care, Taiwan's NHI incorporates the following features: (1) compulsory universal coverage; (2) uniform comprehensive benefits; and (3) financed by payroll tax with a heavy governmental subsidy.

One of the main concerns in Taiwan's health care reform was the large uninsured population, most of whom were workers of small firms, children, the aged and non-working adults. To remedy this, the NHI Law requires all citizens to participate in the NHI scheme regardless of their age, sex, family income, health status, etc. Moreover, universal coverage helps foster social solidarity and prevent adverse selection.

Like the Labor Insurance, the Government Employee's Insurance and the Farmers' Health Insurance, the NHI provides uniform comprehensive benefits on

political rather than economic considerations. The benefit package includes ambulatory care, inpatient care, emergency care, prescription drugs, X-ray and laboratory tests, rehabilitation, mental illness treatment, dental care, specified preventive services and home care. For ambulatory care, the insured may visit a Western medicine physician or a Chinese medicine physician. Also, the insured are completely free to choose their physicians.

Payroll tax is the principal source of financing the NHI [12]. In terms of progressive nature and administrative efficiency, a general income tax might be superior to payroll tax. However, to collect payroll tax will not come across the problem of earmark and the political risk of raising taxes. Besides, it seems to be more effective to collect payroll tax in a country like Taiwan where only 17% of personal income is subject to tax. Other financial sources as stated in the NHI Law include lotteries and the sin tax of tobacco and wine.

Taiwan's NHI employs the community rating to achieve vertical equity. According to the NHI Law, the premium rate should be identical and set on an actuarial basis except for the first 2 years where the premium rate was fixed at 4.25% as a result of political bargaining. However, the share of contributions varies among the insured groups. For public employees and their dependents, the insured and the government (as a employer) have 40 and 60% shares of the premium, respectively; for private employees and their dependents, the insured and the employer pay 30 and 60% of the premium, respectively, and the government subsidizes the rest of 10%; for the self-employed and their dependents and residents who do not fit into any of working groups, the insured pay 60% and the government subsidizes 40%; for farmers and veterans' dependents, the insured pay 30% and the government subsidizes 70%; for low-income families, the government absorbs all of the premium.

Obviously, the Taiwan government is heavily involved in financing the NHI. The government is expected to directly contribute more than one third of the total NHI budget. The poor generally receive more premium subsidies from the government. For example, the government has endorsed 70% for the farmer and 100% for low-income families. In order to discourage the employed to participate the NHI by using a status of self-employment or a status other than working group, the government has made the premium contribution to the self-employed and non-working group at 40% level. Also, the insured are of obligation to pay their dependents' premium on a per capita basis (up to four persons) in order to prevent against illegible status shifting [12].

3.2. Social affordability and macro-efficiency

One of major questions the NHI planning task force had to address was 'Can Taiwan afford a NHI?' There were concerns about the rapidly rising health care costs and the severe financial crisis of social health insurance schemes. From 1980 to 1994 per capita health spending in Taiwan increased annually by 15.7%, compared with per capita GNP by 12.1% (Table 1). Following the rapid growth of health care costs and a low-premium policy, all existing social health insurance

schemes ran into large deficits but politically were unable to raise their premium rates [13]. In response, Taiwan's NHI employs three major strategies to achieve the macro-efficiency: (1) a single-payer system; (2) a uniform fee schedule; and (3) a global budget.

Learning lessons from industrialized countries such as Germany and Canada, and following Professor Uwe Reinhardt's advice, the NHI planning task force of the Council for Economic Planning and Development recommended all payments to be made through a single-payer system with a global budget [10]. Later the NHI planning task force of the Department of Health further recommended that the global budget be divided into sub-budgets by geographic region and by type of services (i.e., outpatient, inpatient, and drugs, etc.) [14]. Also, the global budget should be decided 3 months before each fiscal year by the Negotiation Commission on Health Expenditure, which consists of representatives of providers, employers, consumers, scholars/experts, and the government.

What came into effect are single-payer and uniform fee schedules. On 1 January 1995, the government established the Bureau of National Health Insurance to operate the NHI. In order to increase administrative efficiency and to exercise the monopsony power of a single payer, the Bureau of National Health Insurance consolidated all existing social health insurance schemes and set up six regional offices to process enrollment and review claims.

The NHI Law requires the Bureau of National Health Insurance, together with the health care providers, to develop a uniform fee schedule. Because the uniform fee schedule defines what kind of services and how much is to be reimbursed by the Bureau of National Health Insurance, it should be one of the primary mechanisms for containing total health care costs in Taiwan until the implementation of the global budget system. Being heavily involved in the NHI financing and acting as the only payer, the government should have a strong incentive as well as powerful position to contain overall health spending.

3.3. Wastes control and micro-efficiency

Since the Labor Insurance, the Government Employee's Insurance and the Farmers' Health Insurance came down with severe financial deficits in the 1980s, people were greatly concerned with wastefulness in health care. As stated by Mr. Y.T. Chao, a former chairman of the Council for Economic Planning and Development, 'Medical insurance is an important part of a social welfare program. But the provision of medical services, if free, tends to result in wastefulness. It also induces an escalation of demand and brings about a deterioration in the quality of services.' [15]. Accordingly, the NHI introduced the following major strategies to achieve the micro-efficiency: (1) patient cost sharing; (2) contract-based supply arrangement; (3) a prospective payment system; and (4) profile analysis.

Cost sharing to date is a popular demand-side measure in the world. The NHI Law requires the patient to pay a basic coinsurance rate of 20% for primary care and 10% for inpatient care, compared with nothing but a registration fee of US\$2-4 prior to the introduction of the NHI. Moreover, the patient has to pay an extra

coinsurance rate of 10–30% if seeking primary care from secondary and tertiary hospitals without referral, or staying in the hospital longer than 30 days. (In Taiwan, all hospitals provide inpatient care as well as ambulatory care.) Nevertheless, learning the lessons from the RAND study [16], the Law requires a cap on out-of-pocket cost sharing in order to prevent low-income families from adverse health effects.

On the supply side, the Bureau of National Health Insurance enters into contracts with both private and public providers for two reasons. First, Taiwan's private health sector plays a major role in the delivery of health care and prefers to maintain a relationship with the Bureau of National Health Insurance on contractual basis [10]. Second, the public hospitals in Taiwan are also known for their low productivity. Health care reform in Britain as well as in Sweden suggested the importance of 'money follows the patient' in the pursuit of efficiency [17,18].

The NHI Law further requires the development of a prospective payment system. The prevalent method of paying for care in Taiwan is fee-for-service, which gives a perverse incentive for the provider to deliver more health services. Therefore, Taiwan has been active in promoting prospective payment methods, and the Department of Health has already initiated a project of developing Taiwan's DRG-payment system.

Finally, as part of its administrative responsibilities, the Bureau of National Health Insurance has to maintain a comprehensive data system. This data system would allow the development of hospital and physician profiles to be used for claim review and monitoring the quality of care. To meet the need of managing the data system, the Bureau of National Health Insurance is establishing an information network.

4. Achievements and short-term impacts

A year has passed since the inauguration of the NHI. This section presents its early achievements and short-term impacts on health care utilization and health care costs. Since the government has not established a comprehensive research program for evaluating the reform, the following discussion draws on various indicators and reports published by the government and upon the available research.

4.1. Early achievements

There have been a number of early achievements [19–21]. By the end of February 1996, the insured population had increased up to 19.2 million, or 92% of the civilian population. There remains less than 1.8 million uninsured persons, and one third of them was those caught between jobs or 'fractional disenrollees'.

On the financial status of the NHI, each month the Bureau of National Health Insurance expects to receive US\$750 million premiums and has to pay US\$680 million due benefits. In addition, the administrative costs of the Bureau of National

Health Insurance are about 3% of the benefits due. Currently the insured and the employer share 33 and 36% of the due premiums, respectively, the Bureau of National Health Insurance is able to collect more than 95% of these premiums. Therefore, the Bureau of National Health Insurance expects to have a small surplus in the inaugural year.

On the supply side, the Bureau of National Health Insurance contracts with 785 hospitals and 12 925 clinics, or 97% of the hospitals and 90% of the clinics in Taiwan.

As to realized access, the Bureau of National Health Insurance estimated that per enrollee used 12.8 visits and 1.1 inpatient days in the first year, which did not include out-of-plan use [19]. According to a telephone interview survey carried out by Chiang in June 1995 [22], the out-of-plan use of physician services was estimated at 5%.

In terms of public opinion, the proportion of adults aged 20 and over who are satisfied with the NHI increased from 30 in April 1995 to 50% in September 1995, and to 55% in January 1996 [19]. On the other hand, the proportion of adults who are unhappy with the NHI decreased from 53% in April 1995 to 37% in September 1995, and then leveled off [19].

4.2. Impact on health care utilization

With the introduction of the NHI, health care prices should no longer be an important determinant of health services utilization. To study the impact of the NHI on the use of health services, Cheng and Chiang followed a cohort sample of 1021 adult persons over a 9 month period following the implementation of the NHI [23]. The samples were divided into two groups: those who were insured in 1994 (the previously insured group) and those who were not (the newly insured group). As shown in Table 2, they found that the utilization of health services among the newly insured group increased substantially after the implementation of the NHI. The likelihood of any use for inpatient care, emergency care and physician services increased by 145, 89 and 69%, respectively. As for per capita utilization, the number of hospital admissions, the number of emergency visits and the number of physician visits increased by 175, 120 and 128%, respectively. As a result, the utilization pattern of the newly insured group became close to that of the previously insured group.

Table 2 also indicates that the previously insured group decreased the likelihood of using inpatient care and the number of hospital admissions per capita by 8% and 23%, respectively. This decrease of hospital care utilization may be due to the introduction of cost sharing. However, it could also reflect the limitation of hospital capacity to accommodate a sharp increase in demand for inpatient care as induced by the NHI. For example, the occupancy ratio of medical centers and regional hospitals did not change after the implementation of the NHI, and was maintained at a level of about 85 and 75%, respectively [24].

Unexpectedly, Cheng and Chiang found that the likelihood of using physician services and per capita physician visits among the previously insured group

Table 2
Likelihood of any use and per capita utilization of health services^a among a cohort sample of 1021 persons aged 20 and over^b before and after implementing a universal health insurance in Taiwan

Type of health services	Before		After		Percent change (%)	
	Previously insured	Newly insured	Previously insured	Newly insured	Previously insured	Newly insured
Likelihood of any use						
Inpatient care	11.6	4.0	10.6	9.8	-8.6	145.0
Emergency care	9.4	5.6	10.1	10.6	7.4	89.3
Physician services	27.3	14.7	29.5	24.9	8.1	69.4
Self-medication	16.0	19.9	18.9	19.3	18.1	-3.0
Per capita utilization						
Hospital admissions	0.13	0.04	0.10	0.11	-23.1	175.0
Emergency visits	0.11	0.05	0.11	0.11	0.0	120.0
Physician visits	0.48	0.21	0.59	0.48	22.9	128.6
Self-medication days	0.82	0.92	1.12	0.83	36.6	-9.8

Source: Before: primary data from the 1994 Taiwan Health Interview Survey (principal investigator: T.L. Chiang; survey date: October-December, 1994; survey method: face-to-face interview; response rate: 81.8%; effective sample: 11 925 persons); After: primary data from the Second National Health Insurance Impact Survey (principal investigator: S.H. Cheng and T.L. Chiang; survey date: 4-11 December, 1995; survey method: telephone interview; effective sample: 1021 adults).

^aRecall period: 1 year for hospital stay and use of emergency services; 2 weeks for use of physician services and self-medication with Western drugs.

^bSample size: 844 for those who had insurance coverage in 1994 (the previously insured group); 177 for those who did not have insurance coverage in 1994 (the newly insured group).

increased by 8 and 23%, respectively (Table 2). Thus the increased cost sharing measure did not seem helpful in decreasing the use of physician services. Since there was no epidemic taking place during the survey period, it could not be attributed to the change of people's health condition. One alternative explanation is that, after introducing the NHI, physicians were no longer able to under report their income because most of their income come from the NHI. As a result, it creates enormous incentive for physicians to provide more services in order to compensate their increased income taxes.

Why did Taiwan's physicians have a potential to meet such a vast increase in demand for health care? According to a survey carried by Chiang in 1994 [25], an average private practitioner worked 9.2 h a day and took care of 43.6 patients per day. Since the patient usually goes to the office or clinic directly without an appointment in Taiwan, a private practitioner has to attend many patients during 'rush hours' and to wait for patients in 'slack time'. Most of the physicians actually spent less than 6 h on patients per day. Thus, it was interesting that, on an average, the private practitioner wished to have 51 patients per day, which was 17% more than they presently served. Because a physician serves so many patients a day, the quality of care may be a serious problem that will need to be addressed in the near future.

Moreover, the newly insured group did not substantially reduce the use of nonprescription drugs and, to the contrary, the previously insured group unusually increased the use of nonprescription drugs (Table 2). Since the NHI did not pay for self-medication, such findings were simply out of the expectation. In addition, for minor illnesses such as common cold, the proportion of people who used the drug store as their regular source of care did not change very much after the introduction of the NHI [26]. This suggests a need to study the nature of self-medication and the substitution effect between physician services and self-medication in Taiwan.

4.3. Impact on health care costs

The NHI generated a sharp increase of health care costs. This was in part due to a tremendous growth of demand for health care as aforementioned. Also, it could be attributed to a substantial rise of the unit costs of health care. Compared with the Labor Insurance, the NHI paid 17–34% more costs per physician visit and 19–33% more costs per inpatient day (Table 3). On average, the NHI paid US\$20 per physician visit and US\$117 per inpatient day. Taking the registration fee into account, the provider then would receive more than US\$22 for each physician visit and US\$124 for each inpatient day. Nevertheless, the health care providers did not appreciate such an increase and continue to demand for a reasonable fee schedule and better payments.

The NHI not only caused one-time shift upward in expenditure, it also accelerated the growth rate of health care costs. During the first 6 months, total NHI payments increased monthly by 3.2%, and for the following 4 months by 1.5% [19]. Since the unit costs were well controlled under the Bureau of National Health Insurance, the fast growth rate was mainly resulted from the increasing quantity of

Table 3

Costs per visit and costs per inpatient day under the Labor Insurance in 1994 and under the National Health Insurance in 1995

Type of provider	Labor Insurance in 1994	NHI in 1995	Percent increase (%)
Cost US\$ per visit			
Clinic	9.6	11.7	21.9
District hospital	18.7	25.0	33.7
Regional hospital	31.3	39.8	27.1
Medical center	41.5	48.6	17.1
Cost US\$ per inpatient day			
District hospital	55.2	73.4	33.0
Regional hospital	107.2	131.0	22.2
Medical center	153.3	181.8	18.6

Source: adapted from the Department of Health, Executive Yuan, R.O.C. The first year evaluation report on the National Health Insurance. ROC Department of Health, Taipei, March 1, 1995; Table 2.7.10 and Table 2.7.24.

health services utilized. If the monthly growth rate was 1.5%, the annual growth rate would be 19.6% for total payments. By comparison, Taiwan's total national health expenditures increased annually by 15.3% from 1990 to 1994 [27].

Where did the NHI payments go? According to the briefing of the Bureau of National Health Insurance [20], the answer was 65% for ambulatory care, 34% for inpatient care, and 1% for others. The ambulatory share included 52% for Western medicine physician services, 5% for Chinese medicine physician services and 8% for dental care. Among ambulatory expenses, 33% were paid for physician consultation, 30% for drugs, and 40% for therapeutical procedures, X-ray and laboratory tests, etc. As for inpatient expenses, 19% were paid for room, 18% for drugs, 18% for operations, 15% for X-ray and laboratory tests, 9% for therapeutical procedures, 9% for special materials and devices, 4% for physician consultation, and 12% for others. However, it is very difficult at this moment to make any further analysis on how the NHI affected the composition of health spending since detailed information is not currently available.

In conclusion, the NHI has made great progress in providing equal access to health care and did not run into financial deficits in the first year. However, there is the beginning of a financial crisis because the NHI payments are rapidly increasing and expect to exceed the premiums in the coming year. Moreover, the NHI did not bring in the efficient use of health care resources and probably worsen it.

5. Lessons from Taiwan's experiences

What lessons can be learned from the Taiwan's experiences, especially for countries facing a large uninsured population and rapidly rising health care costs?

First, the major force underlying Taiwan's universal health insurance reform was economic and political rather than of health needs. In newly industrialized countries like Taiwan, the government often puts economic development before social welfare. If there are any health insurance schemes, they are residual and employment-based. From a critical perspective, it is somehow a means of social control [28]. Following the logic of industrialism, the economic growth finally will pave the way to changes in the non-economic sectors including health and social welfare [29]. However, if Taiwan's political transition from hard to soft authoritarianism had not been successful and political participation was passive, the NHI proposal would still be an objective of the year 2000. Moreover, if the Kuomintang did not hold more than 60% of seats in the Legislative Yuan and were not powerful enough to discipline party members in the early 1990s, the NHI could be very different from the present one. At this moment the Kuomintang holds only 52% of seats in the Legislative Yuan and it becomes more difficult than ever to pass a law in Taiwan.

Second, Taiwan initiated a universal health insurance at the time when the economy was rather healthy and the health expenditure was relatively modest. Taiwan's economy has somewhat slowed down since 1990 but still maintains at an annual growth rate of about 6.5% [30]. Meanwhile, Taiwan spent only 4–5% of GDP on health care [27]. In consequence, there remains some room for expanding health insurance coverage without causing too many financial problems. Besides, Taiwan does not have an oversupply of physician manpower and hospital facilities, which helps containing health care costs. By 1994, Taiwan had only 1.1 physicians and 4.5 hospital beds per 1000 people (Table 1). Overall, Taiwan was blessed with strong economy, inexpensive health expenditure and modest supply of health care resources.

Third, the response of Taiwan's health care system to the reform was much more dynamic and complicated than what might have expected. For example, the provider was able to increase their supply of health care services approximately by 20% to meet the demand induced by the NHI. Moreover, the previously insured group unexpectedly used more physician services after the introduction of cost sharing, while the newly insured group did not largely reduce self-medication that was not covered by the NHI. This suggests that continued and systematic health services research is essential for health care reform.

Finally, health care reform has an unfinished agenda [31]. Taiwan has achieved the objective of providing equal access to health care, but many other problems remain or are getting worse. For instance, Taiwan is one of a few countries that the number of physician visits per capita per year exceeds 12 and the share of pharmaceutical spending is more than 25%. What is more imperative, the NHI payments may exceed the premiums in the coming year if no further effort of cost containment such as a global budget system is undertaken. In the long run, the government has to deal with the bureaucratic inflexibility and political vulnerability of centralized administration and to meet the challenges arising from the aging of the population and the progress of medical technology.

Acknowledgements

This study was supported in part by a grant from the Department of Health, Executive Yuan, Republic of China (DOH85-HR-305). The author wishes to thank Professor Willard Manning for his valuable comments on this manuscript.

References

- [1] OECD, *New Directions in Health Care Policy*, OECD, Paris, 1995.
- [2] WHO, *Evaluation of Recent Changes in the Financing of Health Services*, WHO Technical Report Series, No. 829, WHO, Geneva, 1993.
- [3] Peabody, J.W., Yu, J.C., Wang, Y.R. and Bickel, S.R., Health system reform in the Republic of China: formulating policy in a market-based health system, *Journal of the American Medical Association*, 273 (1995) 777–781.
- [4] Chiang, T.L., Physician manpower policy in Taiwan, 1945–1994, *Chinese Journal of Public Health (Taipei)*, 14 (1995) 383–391 (in Chinese).
- [5] Chiang, T.L., Hospital policy in Taiwan, 1945–1994 (in preparation).
- [6] Winckler, E.A., Institution and participation on Taiwan: from hard to soft authoritarianism? *China Quarterly*, 99 (1984) 481–499.
- [7] Tsai, W.H. and Chang, L.Y., Politics, ideology, and social welfare program: a critical evaluation of social welfare legislation in Taiwan, *National Taiwan University Journal of Sociology*, 17 (1985) 233–262.
- [8] ROC Council for Economic Planning and Development, *An Integrated Planning Report on Social Welfare in Taiwan*, CEPD, Taipei, 1986 (in Chinese).
- [9] ROC Council for Economic Planning and Development, *Long-term Economic Perspectives in Taiwan, 1986–2000*, CEPD, Taipei, 1986 (in Chinese).
- [10] ROC Council for Economic Planning and Development, *The Report of National Health Insurance Plan (the CEPD Report)*, CEPD, Taipei, 1990 (in Chinese).
- [11] Ko, S.G., Political economy of social welfare in Taiwan (mimeo) (in Chinese).
- [12] Lo, C.C., The financial system of health insurance. In C.L. Yaung (ed.), *Health Insurance*, 2nd edition, Chu-Liu Book, Taipei, 1996, p. 42–48 (in Chinese).
- [13] Chiang, T.L., Health care financing in Taiwan: issues and directions, *Journal of National Public Health Association (ROC)*, 11 (1992) 20–31 (in Chinese).
- [14] Lee, Y.C., The payment system of health insurance. In C.L. Yaung (ed.), *Health Insurance*, 2nd edn, Chu-Liu Book, Taipei, 1996, p. 95–99 (in Chinese).
- [15] Chao, Y.T., Social Security and resource allocation, Address to the Seminar on the Limitations of the Welfare State, Taipei, 23–24 November, 1987.
- [16] Lohr, K.N., Brook, R.H., Kamberg, C.J. et al., Use of Medical Care in the Rand Health Insurance Experiment: Diagnosis- and Service-specific Analyses in a Randomized Controlled Trial, *Medical Care*, 24 (suppl.) (1986) S1–S87.
- [17] Enthoven, A., *Reflections on the management of the National Health Service*, Nuffield Provincial Hospitals Trust, London, 1985.
- [18] von Otter, C. and Saltman, R.B., Towards a Swedish health policy for the 1990s: planned markets and public firms, *Social Science and Medicine* 32 (1991) 473–481.
- [19] ROC Department of Health, *The First Year Evaluation Report on the National Health Insurance*, Department of Health, Taipei, March 1, 1996.
- [20] ROC Bureau of National Health Insurance, *A briefing on National Health Insurance in Taiwan*, March 20, 1996.
- [21] Yeh, C.C., Health care resources allocation under the National Health Insurance, Address to the Annual Meeting of the Association of Private Hospitals, Republic of China, Taipei, 4 June, 1996 (in Chinese).

- [22] Primary data from the First National Health Insurance Impact Survey (principal investigator: T.L. Chiang; survey date: 23–26 June, 1995; survey method: telephone interview; effective sample: 996 adults).
- [23] Primary data from the Second National Health Insurance Impact Survey (principal investigator: S.H. Cheng and T.L. Chiang; survey date: 4–11 December, 1995; survey method: telephone interview; effective sample: 1021 adults).
- [24] Primary data from the National Hospital Survey, the Department of Health, Executive Yuan, ROC., 1994 and 1995.
- [25] Primary data from the 1994 Private Practitioner Survey (principal investigator: T.L. Chiang; survey date: May, 1994; survey method: mail questionnaire; response rate: 21.8%; effective sample: 1793).
- [26] Yang, M.C. and Hong, Y.T., A series of polls on the National Health Insurance scheme in Taiwan, Report submitted to the Department of Health (DOH83–HI–004), 1995 (in Chinese).
- [27] ROC Department of Health, Health Statistics, Volume 1. General Statistics, 1994, DOH, Taipei, 1995, p. 48–49.
- [28] Fu, L.Y., The social insurance system in Taiwan: a social control explanation, Taiwan: Radical Quarterly of Social Studies, 15 (1993) 39–64 (in Chinese).
- [29] Wilensky, H.L. and Lebeaux, C.N., Industrial Society and Social Welfare, The Free Press, New York, 1965.
- [30] ROC Council for Economic Planning and Development, Taiwan Statistical Data Book, 1995. CEPD, Taipei, 1995.
- [31] Defever, M., Health care reforms: the unfinished agenda, Health Policy 34 (1995) 1–7.