

**NETWORK ANALYSIS OF THE
UNIVERSAL HEALTHCARE FINANCIAL
REFORM IN TAIWAN**

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*Network Analysis of the Universal Healthcare Financial
Reform in Taiwan*

by

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Abstract

Taiwan adopted its National Health Insurance (NHI) scheme in 1995. Presently, the scheme covers virtually all of the island's citizens. However, it is under the threat of a serious imbalance between expenditure and revenue. As spending has become unsustainable, everyone has realised the need for financial reform. However, the reform process itself is beset by political confrontations. There is a need to deepen the understanding of the relationships and dependencies among the policy actors. With a view to helping address this problem, this study empirically examines the multiple types of ties prevailing between the policy actors and the resulting power distribution while the DPP government was working earnestly towards reforming the NHI's financial system in the period 2000-2008. Apart from official documents, data are drawn from a network survey coupled with semi-structural interviews of 62 policy actors including government officials and related unofficial policy participants. Measures such as the in-degree centrality index and core/periphery model, betweenness centrality, structural hole index (effective size), density index, E-I index and *CONOOR* procedure (Blockmodeling and multidimensional scaling - MDS) are used to identify the major participants and network structures in the NHI domain and assess their relative

influence-powers on the basis of information transmission patterns, resource exchanges, action-set coalition relationships and reputational attributions. It is shown that, although the public sector and the medical associations were at the helm of the NHI reform, financial reform remained unfulfilled mainly because of poor communications among societal actors. We then performed a social network analysis and systematically mapped the prevailing political conflicts among diverse policy stakeholders. We confirm that SNA is an effective research tool for political feasibility evaluation; it can facilitate smoother policy adoption by enhancing better interactions within networks.

Keywords: National Health Insurance (NHI), social network analysis (SNA), policy network, the 2G-NHI financing scheme, political feasibility, Taiwan

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List of Abbreviations

2G-NHI	Second Generation of the NHI
ACF	Advocacy Coalition Framework
BNHI	Bureau of National Health Insurance
CEPD	Council For Economic Planning And Development
<i>CONCOR</i>	CONvergence of Iterated CORrelation
DPP	Democratic Progressive Party
DoH	Department of Health
FFS	Fee for Service
GBP	Global Budget Payment System
KMT	Kuomintang, or can be called Chinese Nationalist Party
MDS	Multidimensional Scaling
NHE	National Health Expenditure
NHI	National Health Insurance (universal healthcare system in Taiwan)
NHIA	National Health Insurance Administration (original is Bureau of National Health Insurance before 2010)
NHIDM	NHI Disputes Mediation Committee
NHIENC	NHI Expenditure Negotiation Committee
NHISC	NHI Supervisory Committee
NHS	National Health Service
NSC	National Science Council
OECD	Organisation for Economic Co-operation and Development
R.O. C.	Republic of China (Taiwan)
PFP	People's First Party
PPP	Public-Private Partnership
SNA	Social Network Analysis
TSU	Taiwan Solidarity Union
TWD	New Taiwan Dollar (the international standard for currency codes: ISO4217)

Chapter 1. Introductory Overview*

1-1. Nature of Politics Related to the Financial Sustainability of Welfare

A comprehensive welfare regime is an important factor facilitating social stability in politics. In many countries, expansive welfare provision systems operated by the respective governments have led to a redistribution of national income and narrowing the income gap between the rich and the poor. However, since the very notion of a welfare state is presently being questioned in much of the world, there is a need to rethink how welfare provision could be sustained in the future (Pierson, 2001, 2006). Following the profound economic, social and political changes witnessed over the last quarter of century, governments today are in the midst of the most extreme struggle ever experienced in recent history with regard to welfare provision. As Hewitt (2002) points out, the welfare state has entered a period of “crisis” since the World War II (Hewitt, 2002). Likewise, Pierson (2001, 2006) noted that social welfare spending has been widely blamed since the 1970s for the economic crises and revolutions witnessed in many countries (Pierson, 2001, 2006).

The “crisis” of welfare state has moved to the centre of political debate in most democratic countries in the current era of retrenchment. In order to maintain legitimacy

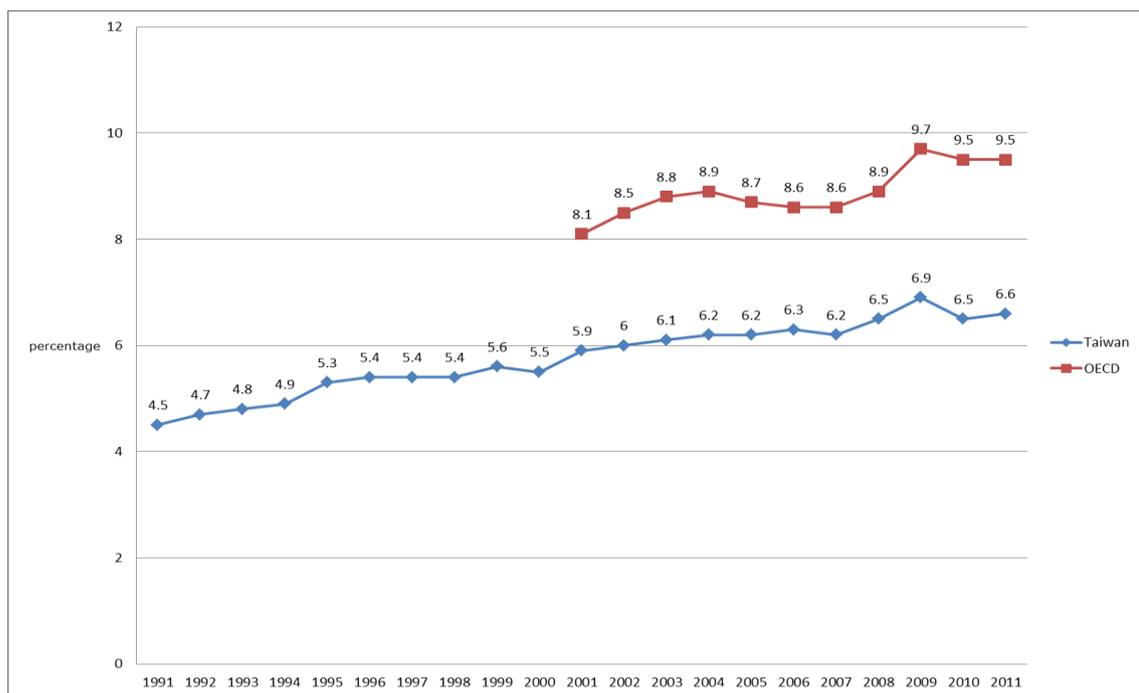
* Part of the contents contained in this chapter appeared in the author’s article - (2010). Financial Sustainability of Universal Healthcare and Its Reform: The Case of Taiwan. *Asian Social Science* (Scopus listed, peer reviewed), 6(4), 3-15.

of governance, many governments have tried to improve welfare services or even systematically dismantle the welfare regime in order to reduce excessive expenditure or contain costs (Giaino, 2001; Huber and Stephens, 2001; Jost, 1998; Manow, 2001; Rhodes, 2001; Swank, 2001). Most efforts to resolve the financial burden arising from mushrooming welfare spending are political judgements rather than economically sound solutions (Giaino, 2001; Myles and Pierson, 2001; Pierson, 2001). Experience has shown that, typically, reform proposals directed towards either increasing revenues or reducing benefits are unacceptable in view of the vested interests of people dominating the original welfare system (Chen and Wang, 2006). In addition, progress can be thwarted by conflicts among the seemingly unlimited needs of welfare provision, the capability to sustain finances and the ruling party's natural urge to consolidate its own political power.

Since it is impossible for people to totally avoid sickness, healthcare provision is a central issue faced by many welfare states (Moran, 2000: 135). A healthcare system is an organised plan for health service provision. Usually, the term refers to a system or programme by which healthcare is made available to the population while being financed by government, private enterprise, or both (Mosby's Medical Dictionary, 2015). Since healthcare is a crucial part of the welfare system in modern industrial societies, how to maintain a healthcare system efficiently and effectively is one of the most significant questions facing the makers of healthcare policy. Further, many societies are facing serious demographic shifts and social upheavals (Hewitt, 2002; Jackson, 2006; Schulz, 2006). For example, in the US, tens of millions of post war baby boomers entered retirement around 2010, thus precipitating a peak in labour shortage. The demographic restructuring is leading to a dramatic expansion of the demand for

healthcare at a time there is increased shortage of labour, which is the main tax source sustaining the government's budget. The erosion of the tax base in turn is leading to a financial deadlock and is creating a dilemma between healthcare maintenance and financial sustainability within the government. As Figure 1-1 shows, the average total expenditure on health as a percentage of GDP has been increasing steadily over the previous two decades not only in countries belonging to the Organisation for Economic Cooperation and Development (OECD) but also in Taiwan. As more and more people are becoming unable to afford healthcare, governments are being forced to take mitigating measures.

Figure 1-1. Average Expenditures on Health as Percentages of GDP in OECD Countries and Taiwan



Source: OECD Health data 2013 and DoH, 2012a

Four models of national health planning are of particular interest: the centralised and largely government-operated British National Health Service (hereafter NHS); the

employer-based, multiplayer system in Germany; U.S. Medicare, Medicaid and private health insurance systems; and Taiwan's government-run system which is similar to the single payer system of Canada. Single payer health care is a system in which the government, rather than private insurers, pays for all health care costs. Single-payer systems may contract for healthcare services from private organizations (as is the case in Canada). Thus, single-payer national health insurance is a system in which a single public or quasi-public agency organises healthcare financing, but the delivery of care remains largely in private hands (PHNP, 2015). Table 1-1 compares these four systems with particular reference to healthcare spending. Among OECD countries, the U.S. has the dubious distinction of having the highest per capita healthcare spending. In 2005, the figure was \$6,401, almost two times greater than that in prominent welfare-driven countries such as the U.K. and Germany, and six and a half times greater than that in Taiwan. Explanations for the higher level of U.S. health expenditure include excessive service use, administrative complexity, population aging, threat of malpractice litigation, defensive medicine, and a distaste for waiting lists (Anderson, Forgnier, Johns, Reinhardt, 2006; Anderson, Reinhardt, Hussey and Petrosyan, 2003; Anderson, Shea, Hussey, Keyhani and Zephyrin, 2004; Reinhardt, Hussey and Anderson, 2004). Furthermore, U. S. provides more healthcare, more doctors' appointments, more surgery, more drugs, more diagnostic tests, and longer stays in hospitals than other countries (OECD, 2011).

Table 1-1. Per Capita Health Spending in U.S., U.K., Germany and Taiwan

Total health spending	USA		UK		Germany		Taiwan	
	Percent of GDP	per capita (\$PPP)						
1985	10	1,765	5.9	694	8.8	1,409	NA	NA
1990	11.9	2,738	6.0	1,047	8.3	2,063	NA	NA
1995	13.3	3,656	7.0	1,370	10.1	3,129	5.3	681
1996	13.2	3,803	7.0	1,437	10.4	3,090	5.4	728
1997	13.1	3,951	6.8	1,559	10.2	2,682	5.4	749
1998	13.1	4,114	6.9	1,687	10.2	2,725	5.5	693
1999	13.1	4,317	7.1	1,779	10.3	2,688	5.7	770
2000	13.2	4,569	7.3	1,782	10.3	2,372	5.7	822
2001	13.9	4,917	7.5	1,835	10.4	2,395	6.0	780
2002	14.7	5,306	7.7	2,028	10.6	2,610	5.9	788
2003	15.2	5,648	7.8	2,382	10.8	3,183	6.1	824
2004	15.2	6,037	8.1	2,880	10.6	3,499	6.0	879
2005	15.3	6,401	8.3	3,064	10.7	3,628	6.0	940
2006	15.9	7,107	8.5	3,711	10.6	3,733	6.3	1,033
2007	16.2	7,482	8.5	3,909	10.5	4,415	6.2	1,057
2008	16.6	7,760	8.8	4,091	10.7	4,600	6.5	1,129
2009	17.7	7,990	9.8	3,684	11.7	4,856	6.9	1,132
2010	17.6	8,233	9.6	3,771	11.6	4,391	6.5	1,211

Source: summarised from OECD, 2013 (Health data) and DoH, 2012a

In the UK, the healthcare system is dominated by the government, which means it is easier to control the growth rate of spending via regulations and authorised power. Although health spending there has been rising continuously (Le Grand and Vizard, 1998), healthcare in the UK has always been more affordable. In comparison with other OECD countries, the total spending of GDP on healthcare, including private, in the UK is 9.6% in 2010, considerably less than comparable economies such as France (11.6%), Germany (11.6%), Netherlands (11.9%), Canada (11.2%) and the USA (17.6%) (OECD, 2013). The main feature of Germany's healthcare system is its statutory health insurance system (hereafter GHI), which is a collaborative self-governance mechanism between the employer and employee, subject to certain national rules. GHI is run on extractions

from employer profits and worker's wages and salaries. Many such systems have failed to keep pace with the growth rate of healthcare spending (Brown and Amelung, 1999: 79). Healthcare systems are indeed a part of the welfare system in a modern, industrialised society (Moran, 1999: 1). All this reminds us that new efforts are needed to ensure that health provision remains sustainable into the future.

In order to sustain their healthcare systems, many governments have been trying to cope with the gridlock between unlimited needs and limited financial capabilities (Anderson *et al.*, 2006; Brown and Amelung, 1999; Chen and Kwon, 2006, 2008; Giaimo, 2001). However, there is more to healthcare politics than healthcare policy formulation (Moran, 1999: 4). Since issues concerning healthcare touch everyone's life, they lead many politicians to get involved at the policy level in order to attract people's votes. In democratic societies, the legitimacy and stability of the ruling party has to be maintained by continually seeking support from citizens on socially sensitive issues like healthcare operation and maintenance. In the U.S., numerous healthcare reform proposals have been debated and funded since 1912 in an attempt to develop, modify or provide a more sustainable and universal healthcare system for the people. Some of these proposals did look very good on paper; but almost all of them have been rejected. Despite such "well-laid" plans; universal coverage has consistently been felled across the world by one opponent: political infeasibility (Oberlander, 2003: 392). For instance, in the UK, Thatcher's Conservative government launched a major campaign to contain expenditure on the NHS and minimise its expansion on a priority basis in the 1980s. In the event, the campaign absorbed much of the political energy available (Webster, 1994: 60). In the early 1990s, the same government promoted aggressive attempts to privatise and introduce an internal market mechanism into the NHS in order to increase

efficiency via competition. The real significance of Thatcher's NHS reforms lay not in what they achieved, but in putting in place key systemic changes that positioned the NHS for subsequent developments under New Labour (1997-2010) and under the coalition government formed later in 2010 (Scott-Samuel, Bamba, Collins, Hunter, McCartney and Smith, 2014: 63). With regard to Germany, several strategies such as curtailing benefits, broadening cost sharing and new types of payroll tax revenue were proposed to partially alleviate the prevailing financial imbalance. However, each of these reform proposals ended up in a political impasse as many of the policy stakeholders found it politically unpalatable or, even, offensive (Brown and Amelung, 1999; Jost, 1998). As a consequence, government policies towards healthcare sustainability have become central to political controversies impinging on the welfare state (Moran, 1999), with politicians vying with one another to reassure the electorate that the healthcare system is "safe" in their hands.

These lessons on healthcare reform demonstrate that getting reform issues onto national policy agenda and consensus that a problem exists implies no agreement on solutions. Thus, although rising health spending has put the issue of financial sustainability on the agenda, the more likelihood of a reform proposal restraining costs or increasing revenues, the less the likelihood of it being politically viable (Moran, 2000; Pierson, 1994, 2001, 2006). The reasons include the following. First, no single stakeholder wants to be asked to take on the thankless job of curbing excess health spending. Second, fragmented institutions and an unbalanced political arena lead to difficulties during actual reform. Third, any reform poses a threat to scores of people interested in maintaining the medical status quo, e.g. physicians, hospitals, the insurer, the insured, the employer, pharmaceutical companies, suppliers of medicals technology

and other possible interest groups and politicians. Every change is associated with certain potential victims who will do everything within the law to thwart implementation.

Building an affordable healthcare system and promoting a healthcare reform are not easy tasks. This is perhaps the central political theme in nearly all industrialised countries operating a universal healthcare system. To an economist, the most significant worry concerns finding an optimal solution. But what is the best way? How much money is enough? Assuring the financial sustainability of healthcare spending may be a problem, but is the government able to intervene easily to set a limit to restrain the long-term growth of spending? Controlling healthcare spending and increasing revenues are the most serious problems to be overcome in all countries running a universal healthcare system. Experience indicates that, in many industrialised countries, fundamental changes in healthcare policy usually suffer from political stalemates (Pierson, 2001). As with healthcare systems in many other countries, Taiwan's healthcare system, National Health Insurance (hereafter NHI), has had its share of problems - this observation does not negate the country's considerable accomplishment in universal healthcare system - and the actions notionally aimed at financial sustainability have been facing similar difficulties (Lu and Hsiao, 2003). For all these reasons, more attention will be paid in this thesis to understanding political challenges rather than economic feasibility.

1-2. Background to the Universal Healthcare Regime in Taiwan

1-2-1. Historical Legacy: The Rationale behind Taiwan's NHI

Taiwan is an island off the southeast coast of Mainland China. Its total territory is 35,961 km². The population in 2013 was about 23.3 million (BBC, 2014). In the same year, the GDP per capita was \$ 21,902 which ranked 39th in the world. The GDP growth rate was 2.23%, as a result of gradual deterioration during the Great Recession (Knoema, 2013). The sophisticated and profitable industrial structure of Taiwan helped it to achieve an economic miracle in the 1980s, which transformed every socioeconomic feature. From a socio-political perspective, Taiwan's high economic growth rate was the most important factor in turning it into a middle class society. This led to the replacement of the previous authoritarian regime by a democratic one by the early 1990s (Hsiao, 1993). The high economic growth and the rise of middle class society caused the Kuomintang (hereafter KMT) government to benefit from more stable financial revenues to build and operate the universal healthcare system adopted in 1995.

Following its defeat in the civil war with communist forces in 1949, the KMT government was on the retreat within Mainland China and brought the entire Nationalist Government of the Republic of China (R.O.C.) to Taiwan, with Taipei as the temporary capital. In order to avoid a similar failure in its competition with the Communist Party of China in Mainland China, the KMT government launched a series of land reform policies (the 375 Rent Reduction Act, and an act to redistribute land among small farmers and compensate large landowners with commodities certificates and stocks in state-owned industries) with a view to maintaining a stable political and social order.

These reforms had a huge influence on Taiwan's economic and political development over the next several decades. After realising by the early 1960s that there was little likelihood of the communist regime being displaced in Mainland China, the KMT government shifted its attention to the development of basic infrastructure with the help of U. S. aid (Hsiao, 1993). The blue-print was generated by Premier Ching-kuo Chiang and the most important project was the "Ten Major Construction Projects" which underpinned the establishment of the basic infrastructure and upgrading the industrial structure from agriculture to heavy industry by the early 1970s.

Once the industrial structure got transformed successfully by the 1980s, Taiwan's small and medium enterprises and its abundance of cheap labour started to facilitate rapid economic growth. The KMT government then adopted policies for building a strong export-driven trade economy to develop a further transformation to a high technology and service-oriented economy. In the meantime, Taiwan's high stable economic growth rates and significant export expansion elevated the country into the position as one of the Four Asian Tigers (Hong Kong, South Korea, Singapore and Taiwan) which were in a relatively poor situation in the 1960s. According to official statistical report, the Taiwan's economic growth rates were over 10% per year on average during the economic progressive period since 1980s (CEPD, 1990). Taiwan's foreign exchange reserves were the sixth highest of any country in the world in 2013 (Central Bank, 2014). Furthermore, the tremendous prosperity on the island was not only accompanied by economic and social stability but also resulted in the democratic reform and the establishment of a more universal healthcare network since the late 1980s. By the 1990s, Taiwan transited into an era characterised via a middle class, ongoing political democratisation and welfare consolidation (Hsiao, 1993).

As the spectacular economic growth witnessed in the 1980s and early 1990s was making the Taiwanese wealthier than ever, the trend towards democratisation in East Asia was becoming a “tsunami” undercutting the authoritarian ethos pervading governments. Soon after the KMT government retreated to Taiwan, martial law was promulgated with a view to maintaining social and political order as well as to keep the ruling party in power through two dominating instruments. The first was to build a patron-client relationship with Taiwanese political elites so as to sustain resource-exchange interdependence on the basis of mutual reciprocity. Under the analytical framework of clientelism, the maintenance of relationships of exchange depends on the satisfaction of the actors toward each other and toward the expected return. If the expected return is not satisfied, the relationship will be terminated (Kaufman, 1974: 285). The clientelism relationship in the authoritarian era in Taiwan was achieved through the manipulation of the party-state system of the KMT government (Yu and Wang, 2007).

The other was paternalistic leadership which sought to create a highly efficient policy-making system and a technically competent bureaucratic system. The paternalistic leadership is a normal governance style in East Asian countries underscored a Confucian culture emphasising virtue, filial piety and ethics. The leadership style emphasised three principles of leadership: authoritarianism, benevolence and morality (Redding, 1990). These principles meant that, whatever be the business or an administrative sector, a leader should have paternalistic authority, high self-discipline and good morals so as to be able to maintain absolute power and decrease the decision making cost. In Taiwan, almost all the leaders of the KMT government, including Kai-chek Chiang, Ching-kuo Chiang and Teng-hui Lee, excelled

at paternalistic leadership.

By the late 1970s and early 1980s - long before the fall of martial law in 1987 - the opposition movement developed into a quasi-party venture that started to challenge the ruling party. In consequence, the Taiwan government announced the termination of the martial law which led to the establishment of the Democratic Progressive Party (hereafter DPP) and the dissolution of newspaper-regulations. All this resulted in a quick transformation of Taiwan into a fully fledged democracy (Aspalter, 2002: 4). 1996 was the first time that Taiwanese could vote directly in presidential elections. In 2000, the KMT lost the presidential election and yielded a great amount of administrative power in the field of finance, policy administration, business and social affairs, to the DPP (Aspalter, 2002: 4). However, as the KMT still held a majority in the Congress, Taiwan entered an era of politically divided governance. In 2008, when Ying-jeou Ma was elected, the KMT not only retook the office of the president but also retained majority control over the legislature.

As for social factors, official statistics show an increase in Taiwan's 65-and-over population; this indicates that the nation is on course to move on from being an aging society to an aged society (BNHI, 2007b). The working population in Taiwan peaked during the 1990s and the proportion of those aged over 65 exceeded 7% of the country's total population in 1993. Because of the increasing numbers of the elderly, affordable healthcare services became more crucial for the inhabitants in Taiwan. Building a more fair and comprehensive welfare system started to dominate political appeals by the opposition party. All this meant that social welfare policies had become pivotal issues in Taiwan's internal politics.

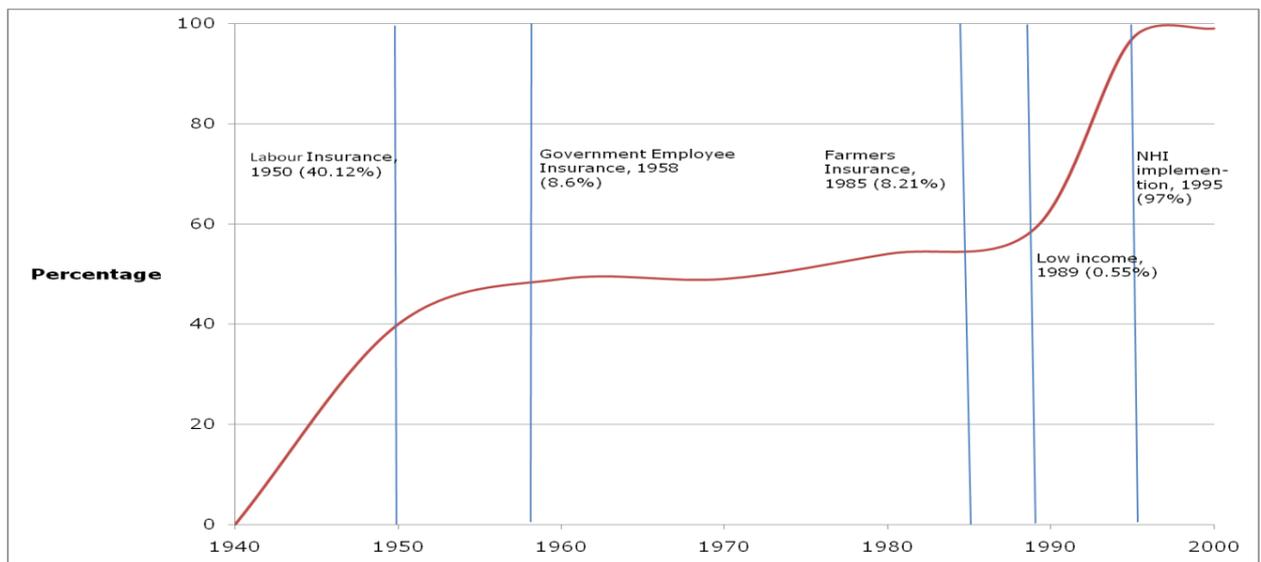
In addition to such political and social factors related to Taiwan's social welfare development, democratic transitions are now drawing greater attention to social policy debates concerning healthcare and social security systems and education among both policymakers and citizens. Though the politics of democratic consolidation in Taiwan had centred primarily on issues related to national identity, sovereignty and cross-straits relations (with Mainland China), social welfare policies and constitutional reform have nonetheless remained the core features of electoral competition (Wong, 2004). Thus, beginning in the 1990s, social welfare reforms have been emerging front-and-centre in mainstream public policy agendas in Taiwan. In order to win more identification and support from the public, the DPP, an opposition party, started in the early 1990s to strengthen the welfare policy discourse with a view to challenging the ruling party. For instance, the DPP advocated building a more comprehensive social welfare system for the people by including universal healthcare, an expansion of the universities, and a national pension insurance scheme.

In order to cope with the challenges posed by the opposition party and consolidate its governance legitimacy during the late 1980s and early 1990s, the KMT started to shift its attention to the construction of an universal welfare system by integrating the original four insurance systems to expand the coverage from 59% to universal¹ (BNHI, 2007a: 6; Cheng, 2003: 73; Kwon, 2007: 12; Lu and Hsiao, 2003: 83). Before 1995, just 8 million were covered by one of the insurance systems, which meant that almost 11.52 million citizens were not covered by the protective umbrella of the insurance systems (Chen, 2005; Chen and Wang, 2006). Before the NHI, Taiwan had a multiplayer system

¹ Although 100% coverage is the aim of NHI programme, the coverage rate of NHI was 98% in 1995 and 99% in 2007 (BNHI, 2007b). The 1% of the population excluded consisted of citizens residing abroad.

consisting of four major social insurance programmes complemented by direct out-of-pocket payments by patients. By the mid-1980s, on the one hand, rapid economic development started to fan public demand for better health insurance coverage. On the other hand, to pre-empt the political challenge, the KMT government, attempted to launch the NHI which sought to include the previously uninsured 8.62 million. The increase comprised 41 percent of the population; the majority were adults older than age sixty-five, whose needs for healthcare were the greatest. More details concerning the four insurance systems are provided in Figure 1-2. The figure highlights five major developmental episodes. Firstly, labour insurance was introduced in 1950 with the coverage reaching 40.12% population. Secondly, Government Employee Insurance was set up in 1958 with the coverage of 8.6% of the population. Thirdly, farmer insurance was introduced by 1985 with coverage of 8.21% population. Finally, Low Income Householder insurance was launched in 1990 and soon covered 0.55% of the population (Lu and Hsiao, 2003: 79). These health insurance systems were being run by multiple public sectors on the basis of an ecological distribution of 88% private health and 12% public health markets on average in the 1980s (CEPD, 1990). In response, the Department of Health (hereafter DoH) launched the “integrated regional health network programme” to develop a more comprehensive healthcare industry and integrate private and public healthcare resources to promote the policy target of “healthy Taiwan”.

Figure 1-2. Insurance Coverage Expansion in Taiwan, Insured People as % of Population



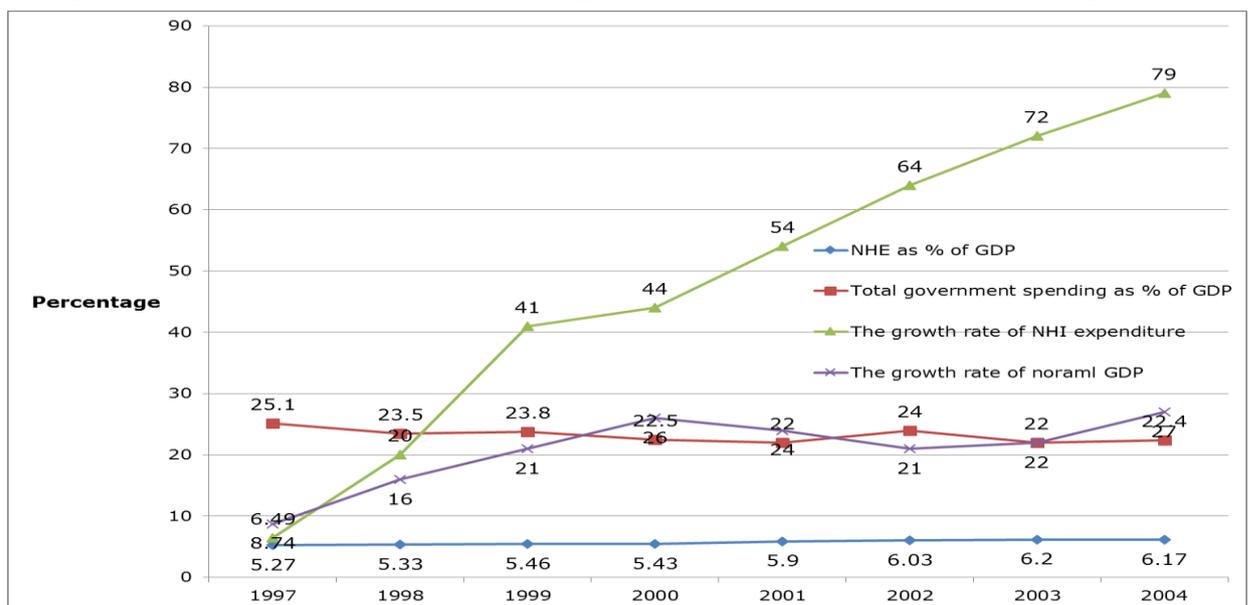
Source: for 1940-1995, Lu and Hsiao (2003: 79); for data after 1995, BNHI, 2007b

As far as the political development and its influence on the development of Taiwan's welfare policy are concerned, the ongoing process of democratisation also attracted attention from academics' worldwide. Some international scholars conducted research aimed at explaining the causal relationships between the development of Taiwan's welfare provision and political democratisation (Aspalter, 2001, 2002; Wong, 2004). During the early 1990s, Taiwan government denied the trend of global government retrenchment revolution (Osborne and Gaebler, 1993), which led to increased public expenses. The most important reason is the development of party politics in Taiwan. For example, between 1983 and 1988, total government expenditure averaged 22.1 % of the GDP. After the introduction of supplementary elections for Taiwan's central legislature in 1989 and with the continued expansion of national and presidential elections, government spending jumped to an average figure of 28.9 % between 1989 and 1998. The general upward trend in public spending also reflected the redistribution of social welfare. Planning for the NHI programme was initiated in 1988

and the Prime Minister declared that it would be introduced by the year 2000.

Moreover, after the martial law was lifted, electoral competition between candidates and parties witnessed a significant increase in contributory social insurance systems and escalated pressure on the ruling party to change the target year to 1995. As Figure 1-3 shows, after the adoption of the NHI programme, the national health expenditure (NHE)² started to exhibit a significantly upward trend (faster than the GDP growth rate in the period 1997-2004. This, however, led to a subsequent financial crisis related to NHI maintenance.

Figure 1-3. Health and Government Expenditures Relative to GDP Percentage



Source: DoH, 2006

To sum up, the development of Taiwan’s welfare policy, especially the NHI represents an interactive confluence among the socioeconomic powers of capitalism,

² Health expenditure is the total expenditure on health as a percentage of GDP. In Taiwan, national health expenditure refers to the expenditure on healthcare incurred by public funds at national and local levels. Health expenditures are broadly defined as activities performed either by institutions or individuals through the application of medical, paramedical, and/or nursing knowledge and technology, the primary purpose of which is to promote, restore, or maintain health (OECD, 2014).

democratisation and essential welfare starting in the 1980s. The development triggered several international research publications on East Asian welfare (Ku, 1997; Kwon, 2007; Lee and Ku, 2003) and, thus, the emergence of social welfare as an important field of comparative social policy. However, almost all these studies followed Gosta Esping-Andersen's (1990) concept of three welfare regimes and examined whether the welfare regime in East Asia differed from social democratic, conservative, or liberal models. The development and characteristics of Taiwan's welfare regimes do not fit into any of the Esping-Anderson's welfare regime models. Hence, a new regime category, "developmental welfare state", had to be invented (Ku, 1997; Lee and Ku, 2003, 2007). The present study endeavours to go beyond the existing categories of welfare regime study and explore the governance mechanism of Taiwan's universal healthcare system which has not become adequately familiar to the Western academic community (Lee and Ku, 2007).

Based on the above discussion and the notion of developmental state along with the success of the rapid economic development in Taiwan and other East Asian countries (Japan, South Korea) was due largely to the developmental state, which played a strategic role in the process of industrialisation (Woo-Cumings, 1999). However, it represented not just an economic but also a social policy that was institutionalised so as to be able to play a part in the overall strategy for economic development. Hort and Kuhnle (2000: 167-168) showed that the above mentioned East Asian countries had introduced the first social security programmes as policy instruments for economic development and political stability with a view to maintaining social order and governmental legitimacy. Based on this view, over the past thirty years or so, Taiwan and other East Asian countries including Japan and South Korea have

been following a new social policy trajectory. Known most for their high growth capacities, these East Asian developmental states have begun to shed their reputations as “welfare laggards”. With the implementation of universal healthcare, pensions and new social policy innovations in long term care for the elderly and in family care, the notion that developmental strategies in East Asia are primarily grounded in a “growth at all costs” ethos seems less and less appropriate in today’s industrialised East Asia (Peng and Wong, 2004). Although it is still far from reaching the benchmark of the European welfare state, the direction of reform in Taiwan and other East Asian countries started to tilt decidedly towards the welfare state in the 1990s. Social policies in East Asia are now being understood increasingly in universalistic terms. They have become much more inclusive within social welfare being legitimate via language of social rights. As a result, the provision of social protection is being seen as a responsibility of the state, and less so of the family and individuals.

Comparing with other social policy issues, the NHI was an important part of democratisation politics in Taiwan in 1990s. Universalising the healthcare system by piecing together the previous insurance systems was a major social policy achievement directed towards meeting the healthcare needs of the people in Taiwan in the 1990s. However, in spite of the fact that the universal healthcare system has achieved a unique record of social welfare movement (Chen and Wang, 2006), rising imbalance between revenues and expenditures is pointing to the need for further reforms on the political and financial fronts. This thesis focuses on financial issues related to the NHI.

1-2-2. Current Status of Taiwan's NHI

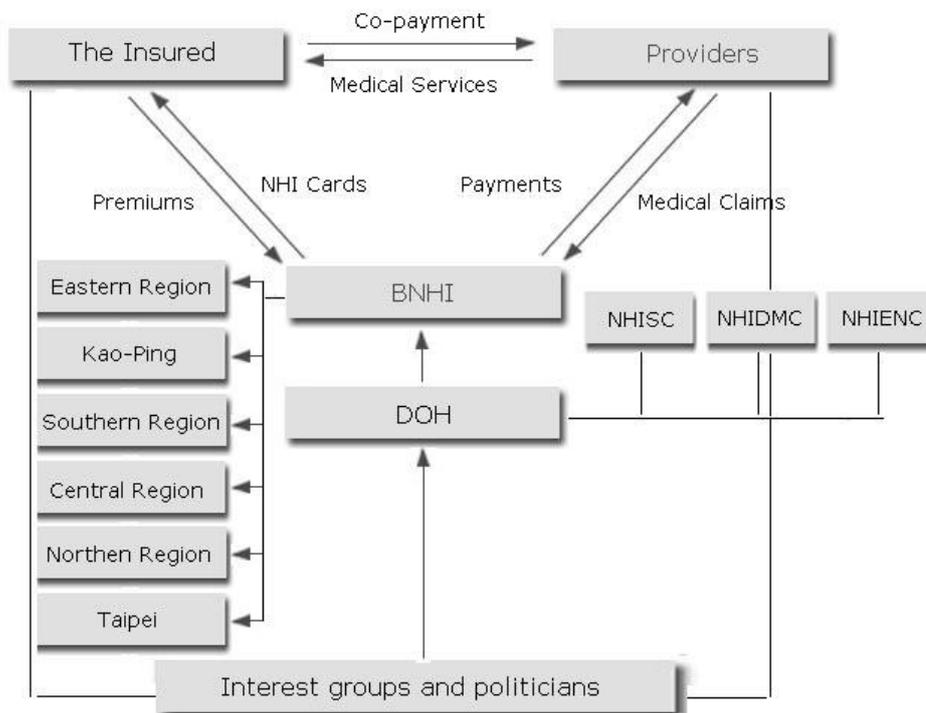
Some two decades after the economic miracle and the political democratisation, Taiwan established its universal healthcare system with compulsory enrolment, single public payer (Bureau of National Health Insurance, hereafter BNHI), and contributions shared by the employer, the employee and the government. The NHI programme is perhaps the most important scheme impacting the lives of Taiwan's people since 1949. It integrates previous healthcare systems and public-private participation to achieve a universal service provisional system operated through administrative power (Wu, Majeed and Kuo, 2010). The desire for such a transformation arose in 1987 when the former authoritarian regime was replaced by a democratic one and, consequently, the KMT government realised the political advantages that lie in extending existing welfare state arrangements to farmers, the poor, the handicapped, and the rest of the population. The NHI was seen as the panacea to mitigate the ominous political situation of the KMT government was in. In turn, the political situation was a product of the political competition in Taiwan Island which existed during the early 1990s (Kwon, 2007).

Taiwan's NHI, is a government-run, single-player national health insurance scheme created under the regulations of the NHI ACT. It is financed through a mix of premiums and taxes that compensate a mix of public-private delivery systems operating predominantly on a global budget system basis (BNHI, 2015). The principle of single public payer and its relationship with the insured and providers is an important feature of the system. Single payer health insurance is a system by which the healthcare expenditures incurred on behalf of the entire population is paid for through a single source using tax revenues collected from individuals and employers. As the single

public payer of the NHI, the BNHI has not only reduced administrative overheads but also increased the negotiation power needed to maintain a vast universal healthcare system effectively (Cheng, 2003: 64). For instance, the programme's administrative burden was 1.7 percent of the NHI's total budget in 2007 (BNHI, 2007b), although the NHI Act allows the BNHI to spend as much as 3.5 percent of its annual budget on administration.

NHI can be seen as a triangular governance regime between the BNHI, the insured and the providers (see Figure 1-4). As for the role of the single public payer and its responsibilities, the BNHI is the only body authorised to levy premiums and negotiate payments with providers in the NHI. It is an intermediary between the insured and providers and has the legitimacy to facilitate good communications between them. In addition, the BNHI is responsible for system planning, promotion, implementation, supervision, research and development, manpower development, information management and auditing (BNHI, 2007a: 6). To effectively manage the work of the BNHI and improve operating efficiency, six branches have been set up to directly handle underwriting operations: insurance premium collection, review and payment of medical claims and management of NHI-contracted medical care institutions. This is also the reason that the BNHI always receives close attention from the stakeholders in the operations carried out under the NHI programme.

Figure 1-4. Flow of Healthcare System under the NHI



Source: modified from BNHI, 2014

Second, in order to sustain its operations, NHI not only levies premiums but also requests each insured patient to pay a co-payment when visiting a doctor (BNHI, 2015). For instance, the NHI co-payment requirement is that clinics and hospitals in Taiwan charge a registration fee ranging from 50 TWD (New Taiwan Dollar; 50 TWD=1 GBP; Great Britain Sterling Pound) to 250 TWD (5 GBP) each visit. Co-payment seeks to reduce unnecessary use of outpatient care as well as to encourage the use of physician services from primary clinics rather than big hospital outpatient departments. Adequate risk pooling and a broad-based collection of funds to finance the NHI are ensured by stipulating mandatory enrolment for every Taiwanese citizen with official residency and foreign national living in Taiwan with an Alien Resident Certificate (ARC). The benefits provided by the NHI are comprehensive to the extent of taking care of the essential

health needs of the people enrolled. The benefit package includes inpatient care, outpatient care, emergency care, dental care, Chinese medicine care, pharmaceutical care, home healthcare, psychiatric care, corrective surgery for congenital mal-formation, peritoneoscopic examination, cholecystectomy, knife, physio therapy, MRI, child delivery, pap smear, physical examination, pre-and post-natal examination and baby examination (BNHI, internet homepage, accessed date: 22/02/2015).

Third, the providers have the responsibility to provide high quality healthcare service to the insured under the contracts with the BNHI. The medical behaviour, expenditure and ways of estimating payments are constrained by the contracts. This is perhaps the BNHI's most powerful tool in negotiating with these providers, especially with regard to maintaining the service quality and restraining the medical costs. However, providers also have professional medical knowledge which leads them to enjoy a dominant position in an informationally asymmetric negotiation game. Finally, the insured and providers usually mobilise and organise in order to influence policy outcomes. Such interest groups and lobbyist-politicians frequently precipitate political conflicts or deadlocks in the policy-making or reform processes.

Although the BNHI is the only public single payer, the BNHI is not the only administrative organisation involved in the operation of the NHI. The DoH of the Executive Yuan is the leader dominating the health policy formation and supervising the performance of the BNHI. Under Executive Yuan's framework, the DoH has more decision-making power than the BNHI, so the DoH is compelled to take on more political responsibilities in the NHI. The DoH itself is made up of many components, e.g., the NHI Supervisory Committee (NHISC), the NHI Disputes Mediation

Committee (NHIDM) and the NHI Expenditure Negotiation Committee (NHIENC) and the NHI Task Force. The NHISC is the most important intermediary which permits social associations. Employers and providers have the chance to communicate with each other in public sectors under the NHI Act. The NHIDM is a neutral, quasi-public sector setup mediating disputes between the insured and the providers. With a view to facilitating negotiations concerning payments to providers under the Global Budget Payment (GBP) system, NHIENC is composed of delegates identified by providers and the BNHI (since 1999).

In order to provide the public convenient and comprehensive medical care, the NHI permits practice of Western medicine as well as, traditional Chinese medicine while providing dental care, hospital care, preventive healthcare, and child delivery services. In 2012, there were 20,058 NHI-contracted medical care institutions (91.23% of all medical care institutions), which has meant that just 8.77% medical care institutions in Taiwan have no NHI contracts with the BNHI (see Table 1-2). The comprehensive benefits package of the NHI and the broadly distributed facilities have helped equalise people's financial access to health services. However, this has not meant necessarily that providers are physically available within a reasonable distance to everyone. For instance, 59 percent of residents in mountainous areas reported having to travel for more than thirty minutes (one way) to their primary doctor (National Health Research Institute, 2001). The BNHI has taken actions to ameliorate this problem through a multifaceted scheme. As for the supply side, the scheme encourages the provider to practice in remote areas. On the demand side, the BNHI encourages cost sharing not only for the disadvantaged minority but also for people living in remote areas.

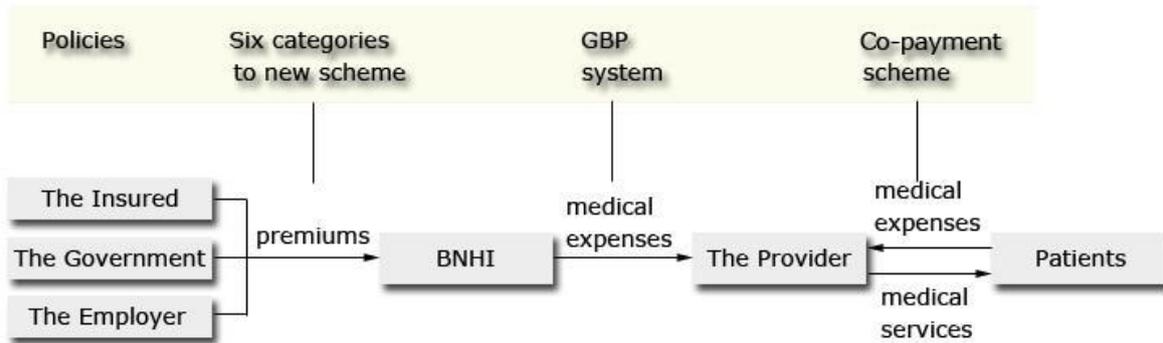
Table 1-2. Number of NHI Contracted Hospitals and Clinics

	Total	Hospital	Clinics	Chinese Medicine Hospitals	Chinese Medicine Clinics	Dental Clinics
Total Medical care institutions	21,437	488	10,997	14	3,462	6,476
NHI-contracted medical care institutions	20,058	478	10,026	13	3,192	6,349
Proportions contracted	93.57%	97.95%	91.17%	92.86%	92.20%	98.04%

Source: DoH, 2012b

Because running a huge universal healthcare system is not easy, it needs to be supported through sustained financial resources. Thus, although it is acknowledged that the NHI has made healthcare more affordable at the point of service for patients, issues about how much it has increased total national health spending and how to adopt suitable premium and payment systems to contain spending are getting more and more attention. As Figure 1-5 demonstrates, the financial flow of the NHI can be separated in three parts: premiums, medical expenses and co-payments (BNHI, 2015). The six-categories premium scheme is run by the BNHI to levy premiums from the insured, and the employer and the government have responsibilities to share the contributions. Also, the BNHI evaluates the performances of the providers with regard to healthcare provisions and negotiates payments with provider sectors including dental care, traditional Chinese medicine, Western medicine, outpatient care, and hospital care in accordance with the regulations of the GBP system. In addition, the co-payment system seeks to contain costs.

Figure 1-5. Financial Flow in the NHI



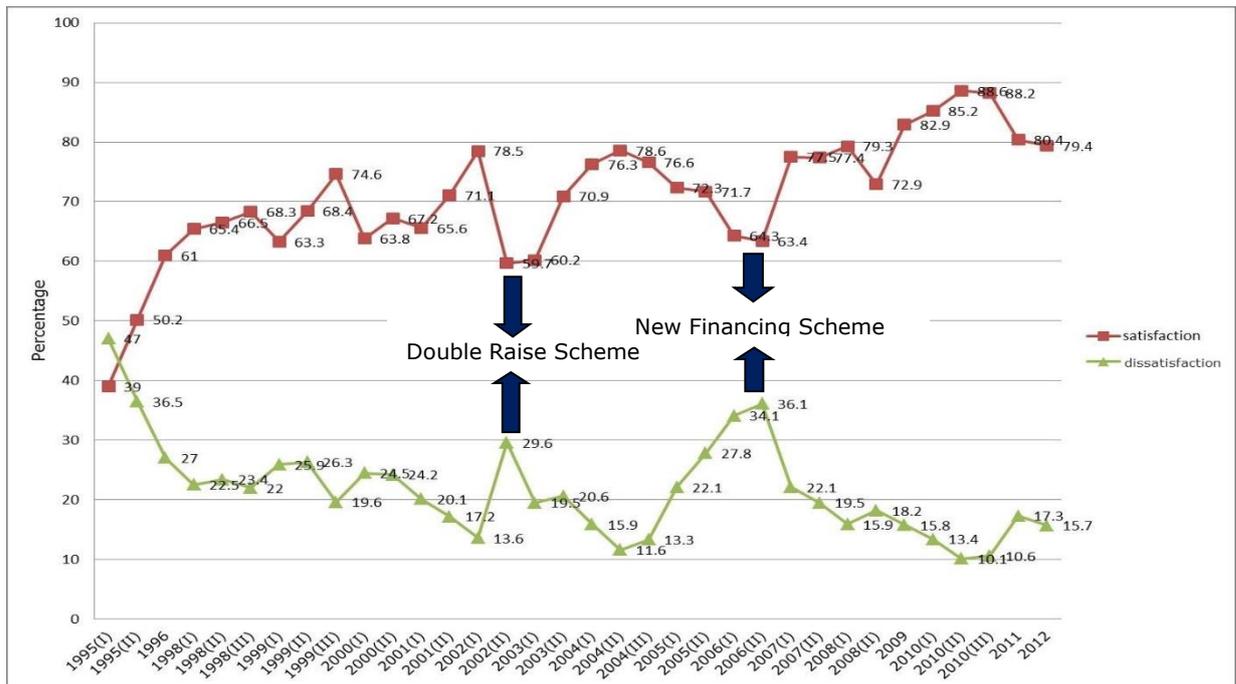
Source: the author

To sum up, Taiwan has established a compulsory healthcare system that provides universal coverage and a comprehensive benefit package to all of its inhabitants. The single public actor, the BNHI, also controls the administrative costs to a very low level and provides tools to manage health spending increases effectively. Although Taiwan's legislature has described the feature of the NHI as a car "designed and produced, but with many components imported from over ten other countries", the NHI has demonstrated high performance as evidenced by a high satisfaction rate. It is playing an important role in supplying the essential demands for all residents in Taiwan since 1995 (Cheng, 2003: 61). The NHI has become one of Taiwan's crown jewels (BNHI, 2007a: 48).

1-2-3. Emerging Issues: a Crown Jewel or Hot Potato?

Although the NHI is a product of political competition, in no way was it conceived hastily. While planning the NHI, the KMT government employed or consulted with numerous leading domestic and international experts for about half decade (Chen, 2005). The KMT government designed its new NHI to achieve two essential objectives: provide equal access to healthcare for all citizens and contain the total health expenditure to be within a reasonably acceptable level (CEPD, 1990). This goal has been vindicated by the fact that Taiwan's NHI has indeed demonstrated a low-cost, high-efficiency performance, with a satisfaction rate as high as 70% on average (see Figure 1-6). For the performance of low-cost, as previous indicated, the administrative cost was only 1.7% of all the expenditure in 2007 (BNHI, 2007b). Moreover, based on over 91% contracting rate with healthcare providers in Taiwan (91.75%, 18,450 healthcare providers in total in 2007; BNHI, 2007b), it offers free choice of service provider and practice modes followed by the providers. That the system has remained workable at least up to now is attested by the fact that waiting lists are absent and administrative costs have remained stable and low. As a result, Taiwan's NHI has been attracting notable, word-wide attention. For instance, in 2000, the Economist (2000) ranked Taiwan's NHI as the No. 2 intelligence unit in world health ranking, the Journal of Health Affairs published a specific issue in 2003 on the performance of Taiwan's NHI, and Professor Paul Krugman (2005) wrote a commentary "Pride, Prejudice, Insurance" extolling it in New York Times on 7th November, 2005.

Figure 1-6. Public Satisfaction Rate with NHI between 1995 and 2012



Source: extracted from BNHI (2013)

Since the NHI has become the most important and essential safeguard for the health of Taiwan’s inhabitants, the ruling party has the responsibility now to maintain the operation of the NHI. This is particularly true in view of the single public payer mechanism it has adopted. In Taiwan’s traditional society characterised by the logic of patriarchal governance, people look up to the government as they would do to a parent. They hope that the government could effectively provide their essential needs. Since the NHI is concerned with the welfare of all inhabitants of Taiwan, it has become an important indicator of the legitimacy of the nation’s government. Therefore, since 1995, the issue of the NHI has remained one of the most important political themes in every presidential election. Whatever be the ruling party, the policy target of the NHI has been to enable people to pay the least possible money and receive the most possible benefits under a comprehensive benefit package (Aspalter, 2002; Chen and Wang, 2006; Wong,

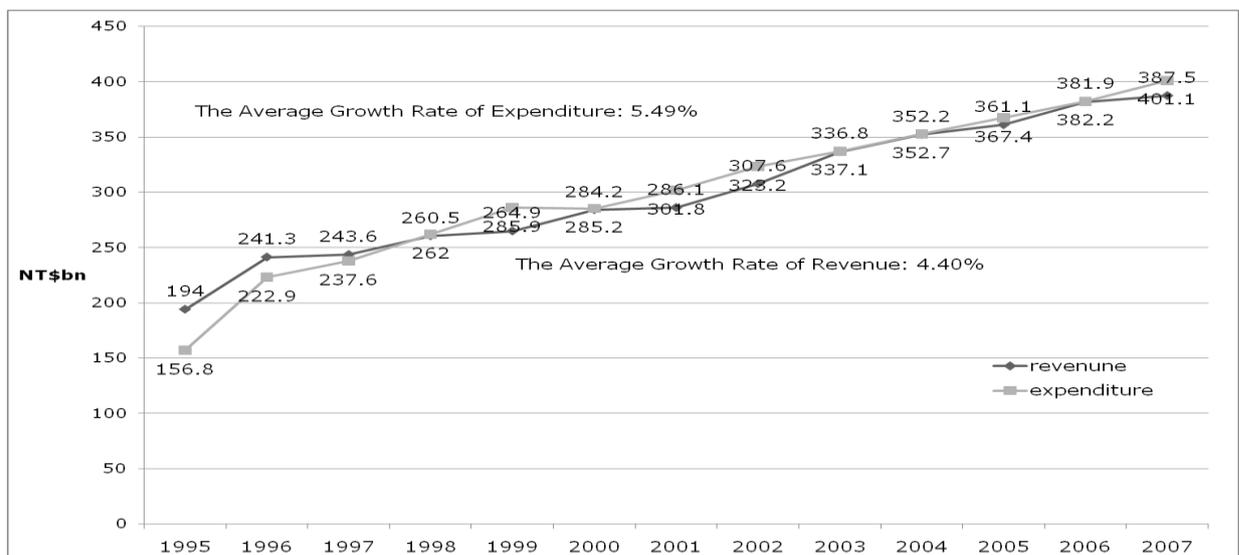
2004). However, since the “Asian Financial Crisis” of 1997, sluggish economic growth has led to heavy financial burdens on East Asian societies partly as a result of progressively aging population. In Taiwan, the aging population (percent population over 65) was 4 % in 1980, 6% in 1990, 9% in 2000 and 10% in 2007 (BNHI, 2014). The upwards trend is still accelerating. This has led to serious escalation in health expenditure. In maintaining a national healthcare system, one often faces financial crises and often the financial adjustments imposed lead to political problems. There may be little doubt that the domain of health remains within social welfare policy, but it must be acknowledged that it remains highly influenced by politics (Weissert and Weissert, 1996).

In fact, the government’s ability to fund the NHI has gradually worsened from 1998 (see Figure 1-7). It is the first time that the expenditure of the NHI had exceeded revenue. The total deficit has presently reached TWDbn 20 (GBP 4 hundred million). This reveals the contradictions that arise when the government tries to support the NHI by utilising two independent financial systems: (i) a revenue system of the “six categorical premium system” with the premium rate of 4.55% which is the main source of income and (ii) an expenditure system based on “fee for service” (hereafter FFS). With regard to more details about the NHI’s income, the premium revenues collected from the insured, insuring agencies and government subsidies stood at 38%, 37% and 26% respectively. The total amount was TWD 370 billion (GBP 7.4 billion or US\$ 11.2 billion) in 2007 (BNHI, 2007b: 9). In order to contain expenditure, the payment system was changed from “fee for service” to “global budget” by the DoH and instituted a co-governance mechanism between the government and the healthcare organisations from 1998 to 2002 (Chen and Wang, 2006). The global budget system puts cap on the

expenses incurred by each medical field (e.g. hospitals, Western Medicine, Chinese Medicine, etc.). If the total services performed exceed the field's cap, the FFS reimbursement ratio would start to deflate, which would shrink payment for each service provided.

However, although the global budget payment system (hereafter GBP) controls the NHI's expenditure under the policy environment of common-property resources (Hurley and Card, 1996; Ostrom, 1990), the deficit of the NHI has been worsening since 1998. The problem is yet to be resolved (BNHI, 2015). Besides reforming the payment system, in order to financially sustain the NHI, consideration is being given to replacing income generation through the "six categorical premium system" by a new financing scheme and increasing the co-payment rate. However, as Figure 1-6 clearly shows, the people in Taiwan were not happy with the reform proposals of the new financing scheme and the double raise scheme. These issues reflect the difficulties associated with formulating the policy agenda of an institution such as the NHI.

Figure 1-7. Tendency of NHI Financial Status between 1995 and 2007



Source: extracted from BNHI (2007b)

With a view to avoiding a similar financial crisis in the future, the DPP government launched a “comprehensive physical examination” of the NHI between 2000 and 2001. The reasons for the increased spending on the NHI can be discussed by referring to three levels (see Table 1-3). First, at the macro level, Taiwan’s population is growing ever faster and, hence, there is an increasing demand for new and more costly technological treatments.

Table 1-3. Factors Leading to High Healthcare Spending by the NHI

Dimensions	Factors	Influences
Macro-level	Changes in Taiwan’s demographic distribution	The ever growing proportion of aging population has led to decreasing premium distributions and an increasing rate of healthcare utilisation.
	Development of new medical technologies	Following developments in new and costly medical technologies, e.g. heart, liver, and bone marrow transplants and gamma radiation, have resulted in higher spending on treatments.
Meso-level	Institutional design of the premium system	The current premium system does not reflect the real national and family income, and the six categories premium system has led to an unfair load on contributions.
	Institutional design of the payment system	Containment of the cost of the FFS system is the most important factor lead to the financial burden.
	Institutional design of comprehensive coverage	Comprehensive coverage consumes an unduly high proportion of the revenues of the NHI.
	Institutional design of how subsidies are shared between the central and local governments	The local governments, in particular Taipei and Kaohsiung city, do not want to share the subsidy of governmental contributions of the NHI premium and have accumulated a lot of debts.
Micro-level	Utilisation rates of the health services by patients	Hospital-shopping or so-called moral hazard behaviour of the insured has resulted in high healthcare use rates.
	The behaviours of doctors during practice	Under the FFS system, the provider responds by expanding services, reducing resources for each unit of service, and profiting from the sale of products and services not covered by the NHI.
	The gap in the prices of drugs	The drug price black hole has led to a drug price gap and serious overmedication of patients, including excessive use of antibiotics.

Source: summarised from DoH, 2001

Second, at the meso-level, the most important problem concerns the institutional design underpinning the management of the NHI. In coping with the public’s essential healthcare needs, the most important problem concerns the imbalance between revenue

and expenditure. There are three institutional factors behind this imbalance. The first is that the prevailing premium system does not reflect the national and family income and worsens the gap between the poor and rich. In other words, levying a premium on the basis of salary leads to an unfair distribution of premium rates across the six categories by ignoring the difference between salary income and total income. The insurance premium ratio rate of the insured in the NHI is based on salary. To be fair, different occupations have different contribution rates under plausible sext for redistribution effect. However, many occupations in Taiwan have grey income which is not easily traced by the National Tax Administration. Thus, the premium based on payroll is usually inaccurate and this is unfair that some insured just contribute very low rates (Chen and Wang, 2006).

Also, the institutional design of comprehensive coverage has put financial sustainability in jeopardy while universal coverage has exacerbated the need for cost containment. Likewise, the premium system has precipitated a conflict on the issue of sharing governmental subsidy between central and local governments. By 2001, the two largest cities in Taiwan, Taipei and Kaohsiung, had accumulated numerous debts related to premium contributions. Also, the payment system of FFS resulted in excessive services and resource wastage (Chang and Hung, 2008: 107; Cheng, 2003: 61-67).

Third, at the level of the individual, the NHI has changed the behaviours of patients, doctors and drug industries. Specifically, the comprehensive coverage and compulsory enrolment mechanism of the NHI has resulted in high healthcare utilisation rates (BNHI, 2015). It has provided more opportunities for hospitals and drug industries to collaborate in pursuit of exorbitant profits and damaged service quality. For instance,

the hospitals can maximise their profits by denying proper care or reporting over-billing to the BNHI (Chen and Wang, 2006). With regard to the problem of drug price gap, the main reason is that pharmaceutical firms are paying outrageous amounts for drug rights and then passing these extra costs onto the BNHI through much higher drug prices, while tacking on exorbitant profits (Hsu, 2010). To keep total medical expense within the fixed budget, hospitals might limit the volumes or level of services, replacing high-quality drugs with lower-priced or more profitable substitutes and further increase the possibility of compromising the quality of care (Hsu, 2010). To sum up, the major reason for the negative financial situation is that both cost containment and financing mechanism of the current NHI have become incapable of breaking out of the vicious circle.

Financial sustainability requires adequate revenues coupled with cost containment. With a view to sustaining the finance of the NHI, the DPP government launched another huge reform between 2001 and 2004. In 2001, the director of the DoH invited several international and domestic scholars to get involved in a “second generation of NHI reform programme” (hereafter 2G-NHI). The project aimed to apply more systematic methods to evaluate the operation of the current NHI in financial sustainability at that time and constructed a more advanced NHI incorporating feasible but reasonable solutions. The project sought to enhance co-governance and civil participations in NHI affairs. The possible strategies for improving financial sustainability by combining past policies with new ones can be categorised along three dimensions (see Table 1-4). The first is to change the structure of contribution rates and increase the revenue. The second endeavours to reduce the healthcare spending on the expenditure side. The third aims to reduce the comprehensive coverage side. The government has been unwilling to apply

the third strategy because such a policy would compromise benefits to the poor; the poor will not accept that.

Table 1-4. Major Proposals for Improving the Financial Sustainability of the NHI (1998 to 2008)

Strategies	Proposals	Policy Targets	Beneficiary	Victim	Level
Increasing income	2G-NHI financing scheme, announced in 2004	Reconstructing the premium and contribution rate and increase the financing capability.	The BNHI, the poor, and people whose main income is salary	The rich, and people with multiple income sources	Amendment
	The double raise scheme, announced in 2002	Cost containment and increasing the premiums, especially by restraining the over-utilisation rate of healthcare resources	The BNHI	The insured	Executive command
Cost containment	Strengthening the global budget payment system, adopted since 1998 and fully implemented by 2002	Cost containment, especially as a way of restructuring the FFS	The BNHI	The providers	Executive command
	Administrative litigation with local governments, 2004	Clarifying the responsibility and pursuing the payments	The BNHI	Local governments	NA
	Regular medicine price survey and new drug price policy, announced in 2001	Reducing the drug price gap and decreasing the expenditure	The BNHI	The drug industries and hospitals	Executive command
Reducing coverage	No suitable proposal	NA	NA	NA	NA

Source: summarised from DoH, 2004

In order to avoid social upheavals, the DoH has applied three ways of reducing the costs of health services. First, the DoH asked the two local governments to reimburse the accumulated debts and the administrative court adjudicated a compulsory execution

ruling in which the local governments were asked to pay off the accumulated debts in 2004. Second, since the expenditure on drugs accounted for an unduly large proportion of healthcare spending, the DoH and the BNHI took actions to resolve the drug price gap (since 2003) by systematically checking and re-negotiating drug prices with drug companies. These initiatives have had a positive impact as far as cost containment is concerned. Third, it has generally been acknowledged that the adoption of GBP system has been an effective policy in the control of healthcare expenditure in many OECD and Asian countries (Chang and Hung, 2008; Chu, 1992; Hsueh, Lee and Huang, 2004; Wolfe and Moran, 1993).

Healthcare reform is more a political issue than a purely technical one. A financially burdensome universal healthcare system damages governmental legitimacy (Chen and Wang, 2006). It is expected that Taiwan's NHI will maintain historical legacies by efficiently allocating healthcare resources through a comprehensive service delivery network. In addition, in the opinion of the public and mass media, the healthcare organisations are one of the most important and powerful stakeholders in the NHI policy domain (Wang, 2012, 2013). Moreover, Taiwan's healthcare organisations make up a vast enterprise straddling varied interests. There are four medical systems included in Taiwan's NHI: Western medicine system, the Chinese medical system, the dental care system and the hospital care system, and a range of professional associations. Although well-organised, it exhibits information asymmetry between the state and the citizens with regard to health service delivery. The government's capability with respect to health insurance service and delivery is influenced by its financial condition, political structure, information asymmetry in health service, as well as the interests of healthcare associations. Besides, a reform of financial management involves

changing the original allocation of resources among healthcare organisations and the contribution rates of the insured and employee. Efforts to enhance financial sustainability invariably result in numerous victims and beneficiaries, so there is pressure to balance the interests of different stakeholders. For instance, the 2G-NHI financing scheme and the double raise scheme (the reform proposal for the co-payment scheme) all resulted in serious political conflicts (Chen and Wang, 2006; Wong, 2004). The 2G-NHI financing scheme has not been passed in the Congress so far and the 2G-NHI financing scheme and the double raise scheme not only caused protests the opposition parties; they also led to a lowest satisfaction rate (under 60%) with the NHI (please see Figure 1-6). Although the implementation of GBP system may retard the worse trend of financial imbalance, the NHI operation is still unstable (Chen and Wang, 2006).

Starting by the turn of the millennium, Taiwan's NHI has been facing the challenge of huge debt in the 2000s, the debt of the NHI reached TWD 500 hundred millions (10 hundred million British pounds) by the end of 2008 (China Times, 2008). Thus, the issue of effective maintenance has become a hot potato rather than a crown jewel. In order to collect public opinion on this issue, four NHI citizen forums were organised in 2005. The conclusion was in favour of "no premiums raise, no benefits reduce and the government has duty to sustain the NHI" (DoH, 2005). The public gave an absolute answer rejecting any possible proposals involving premium increases or coverage reductions. They liked eating a "king-size burger" at the price of a "basic burger"! This means that financial sustainability of health coverage and quality is a trade-off issue. Because it touches everyone's life, a reform must mobilise public support. Although numerous attempts have already been made to find a reasonable way to resolve the

financial crisis, ultimately, any decisions involving thresholds on the expenditure or the revenue will be matters of political judgment. Pressure to spend more will continue. The aim is not to define a rational end point but rather one that can be implemented within the given, complex political environment.

1-3. Research Questions

Policy-making and implementation systems relating to healthcare are large and important components in the governance of a modern state. Governing a healthcare system has become an especially dominant theme in recent years. Financially sustaining a healthcare system is highly complicated. According to Michael Moran (1999: 4), healthcare policy is more about healthcare than about personal service. The governance of a healthcare system is a large-scale activity involving reallocation of the society's resources. Allocation of national resources is essentially a political process. Since the decisions concerned involve multiple interests of numerous stakeholders, sustaining the healthcare system is always a central issue in a modern society (Moran, 1999: 4; 2000: 136). One should therefore dwell more on healthcare politics than healthcare policy.

It is essential to have a comprehensive understanding of the policy domain if one is to confront the political challenges associated with health reform. This thesis includes an analysis of Taiwan's NHI financial reform as a policy network and examines the extent to which the NHI policy actors function as a coherent community. Because of its context-dependent character, the study of policy networks will be carried out using the policy domain approach (Knoke, 1994a, 2011; Laumann and Knoke, 1987, 1989). A policy domain delineates a bounded system whose members are interconnected by

multiple policy networks (Knoke, 2011: 211). From this viewpoint, this research includes a systematic analysis examination of the financial reform in the NHI policy domain, with particular reference to the DPP government (2000-2008). Looking through the lens of social network analysis (hereafter SNA), we seek to find out who actually has been governing the NHI's financial reform. Thereby, we hope to arrive at policy recommendations for managing the NHI better. Furthermore, we inquire how previous reform proposals, embedded in a complex information transmission, resource-exchange and collective action structure of interdependencies, have been affected by interactions among the government bureaus, healthcare associations, employers, mass media, pharmaceutical associations, labour unions, congressional committees, academia, and so forth. In particular, we examine how policy networks form, work and affect policy outcomes. Using SNA, this study mainly seeks answers to the following questions:

1. Who are the key players and what are their interests in the NHI policy domain? If any, what kind of policy network structure has it formed?
2. Who rules the health policy domain and what difference does it make?
3. What is the role of the government and what are the political obstacles in healthcare reform?
4. What are the factors impacting the power distribution and policy outcomes in promoting the 2G-NHI financing scheme?
5. What are the implications of these patterns of interdependency among key players for managing the NHI policy domain?
6. What are the implications of the application of SNA in the current research addressing policy networks and network management in the NHI policy domain?

To sum up, as for researchers of politics, public administration, and sociology, the questions of interest concern who contributes to policy formation and implementation and why it is a perennial and unavoidable issue in the study of policy processes. This study seeks to provide a deeper understanding of official and unofficial stakeholders who are involved in the political system, the ways they influence reform proposals related to the NHI, and implementations through the network perspective.

1-4. Organisation of the Thesis

Through the lens of SNA, this study aims to explore who governs the NHI policy domain by focusing on the politics behind financial sustainability in Taiwan. Firstly, it identifies the nature of the financial sustainability of welfare systems in the West and attempts to apply the same to Taiwan's NHI programme. Also, as a background task, it analyses the development of the universal healthcare system in Taiwan since 1949 and explores why and how the NHI could be established successfully in 1995. Based on the analysis, this study explores the financial problems associated with the maintenance of the NHI's. It also identifies what the political difficulties associated with these financial reforms are. Based on these considerations, Chapter 1 outlines the purpose of this study.

Chapter 2 develops an analytical framework which gives a better sense of how policy is made and implemented in the context of fragmented authorities in a modern society. To support this effort, this chapter reviews relevant literature clarifying decision making in the nation — including Marxism, pluralism, elitism, and corporatism. Also, this chapter introduces the author's own theoretical perspective on the central empirical issues addressed in literature. Here the NHI policy process is looked at as a policy

network which directs attention to the policy actors, both public and private sectors, and their relations with each another as the key features in national policy making and implementation processes. In addition, this chapter discusses the advantages and disadvantages of policy network studies, justifies the use of SNA, and points out that a policy network study can go well beyond being just a metaphor.

Chapter 3 focuses on the institutional environment underpinning the policy processes in Taiwan under the NHI Act and the constitution. The chapter presents a detailed description of the decisions on 2G-NHI proposals, and explains the three policy events that form the focus of this thesis.

Chapter 4 describes a research design identifying the core policy actors in the NHI policy domain during the period of the DPP government between 2000 and 2008. Each important sector or organisation is specified and interviewed for 40-120 minutes about his/her organisation's interests and participations in the three representative policy events associated with the issue of NHI financial sustainability. The three policy events are the 2G-NHI financing scheme, the global budget payment system and the double raise scheme. This chapter also discusses several other methodological issues, e.g. other relevant data collection methods, data analysis methods and ethical issues.

Having described the institutional environment and methodology, Chapter 5 discusses the global structure level, or the positional perspective, of SNA by examining the structure and the role of relationships among policy actors. In this chapter, the diverse goals and interests of the policy actors in the NHI policy domain are addressed first. Next, the four social networks among the policy actors are merged into a multi-dimensional network to examine the actors' positions and roles in the overall social

network structure among the policy actors in the NHI policy domain. The global structure level of analysis helps examine how positions in the social relationship restrict information/resource flow such that it may shape actor participation and effectiveness in particular policy events. In addition, the centrality/peripherality and interest differentiation is reorganised to understand the characteristics of the policy actors in the same position or play the same role.

Chapter 6 focuses on the analysis of the policy network in the NHI policy domain. It focuses on the discussion of influence power at the individual level, or the relational perspective, in the policy making process via an analytical index of centrality and structural holes, which are related to one another through exchange relations among the three social networks (information transmission, resource exchange and action-set coalition networks). This chapter also examines how the connected social structure of the policy actors impacts their influence in the NHI policy domain. The analysis should be helpful in figuring out which social relationship among policy actors is the most significant factor clarifying the power distribution in the policy process.

Chapter 7 examines the relationship between social networks and policy outcomes associated with the 2G-NHI financing scheme. Based on previous analytical results, this chapter uses more specific materials from a face-to-face structural questionnaire survey to identify policy actors' policy preferences on the promotion of the 2G-NHI financing scheme. In addition, this chapter examines why the promotion of the 2G-NHI financing scheme could not be adopted so far. The thrust of this chapter is on illustrating the findings and discussing the relationship between social networks and policy outcomes by applying the indexes of in-degree centrality and structural holes.

Finally, Chapter 8 presents the conclusions. This final chapter reviews the findings and insights gleaned along with their relevance and utility. The findings and policy recommendations are summarised with particular reference to the politics of financial sustainability in the NHI policy domain. In addition, this chapter discusses how policy network research might be reshaped and raises certain issues that need to be addressed so that the analysis can catch up to and ultimately inform world practice.

Chapter 2. Literature Review*

Healthcare maintenance is at the centre of political discussion and social conflict in almost all affluent democracies. There is a broad consensus that, everywhere, the notion of welfare is in trouble (Pierson, 2001, 2006). Progress in untangling the factors that might be generating the difficulty has been limited. This is particularly true with regard to processes through which the factors exert pressures on national welfare state, or determining their relative significance (Pierson, 2001). To address this problem, some have focused on broad claims to link the relationship between welfare reform and structural factors including globalisation, economic changes, demographic challenges (Coleman, 2006; Hay, 2006; Huber and Stephens, 2001; Iversen, 2001; Jackson, 2006; Rhodes, 2001; Schulz, 2006; Schwartz, 2001). Others have examined political challenges of retrenchment (Pierson, 1994, 2001, 2006). However, all these attempts have been unable to offer reasonably complete insights into how reform processes, or evidence that only support an assessment of modest impact. This research seeks to shift attention on the level of policy domain in order to arrive at a more comprehensive understanding of why previous reforms have been successful or otherwise and how reforms work.

This chapter reviews relevant previous works and come up with a framework suitable for the study of policy-making and implementation processes associated. A specific issue discussed concerns how to accurately measure “the path of power”, or

* Part of the contents of this chapter appeared in the author’s article - (2010). A Theoretical Debate and Strategy to Link Structure and Agency in Policy Process Studies: A Network Perspective. *Journal of Politics and Law* (peer reviewed), 3(2), 101-109.

more specifically, “the path of influence” in a policy process. Numerous significant works have been published to illustrate the themes such as “who governs” (Dahl, 1961), “who gets what, when and how” (Lasswell, 1990) and “political feasibility of policy formation” (Galston, 2006). These works attempted to demonstrate the nature of policy formation and examined how interdependent relationships of power can impact policy outcomes from their own perspectives: methodological structuralism or individualism. To be persuasive, however, accounts of institutional change or policy formation should combine microscopic and macroscopic analyses. Stakeholders in a policy domain, on the one hand, are embedded in the specific institutional and political environments that constrain their abilities and opportunities to advocate their interests; on the other hand, these stakeholders have their strategies and tricks to change the rules of the game and pursue their own policy interests. The interests and interactions of the political actors, the institutional rules of game, the distribution of political resources and power construct of their choices should be considered in a research framework.

I divide my discussion into six sections. First, major theories and definitions of policy process will be discussed briefly. The second consists of an analytical examination of shifting conceptions of power. The third dwells on traditional policy process theories, focusing in particular, on the role of state, power distribution and exercise. It also explains the reasons why the policy network perspective is chosen in our work. The fourth section is devoted to a comprehensive discussion of the theory of policy networks. The fifth examines other relevant supplemental theories with a view to expanding the explanatory powers of policy network studies and why SNA is a useful research tool in the study of complicated policy networks. The final section discusses the use of social network as a way of linking structure with agency in policy studies.

2-1. Policy Process Theories

Issues plague a political system; information feeds into decision-making; policies emerge and are implemented and evaluated. How can such fragmentary events be linked? Is there an inherent and consistent logic associated with the way that policy is made in a political system? To engage oneself with this problem is to conceptualise the policy process. Applying this presupposition to the field of policy process studies, Sabatier (2007) distinguishes between the notions of conceptual framework, theory and model, which operate on a continuum from broadly applicable to any situation, to (preferably mathematical) modelling for highly specific situations. A “good” theory of the political process should be able to explain the goals, perceptions, actions and events among potentially hundreds of stakeholders, and lead to specific policy outcomes.

The traditional perspective of the policy process is that of the “stages heuristic” according to which, a policy process follows certain steps that are clearly distinguishable from problem definition through a different specification, resource allocation and implementation method (Sabatier, 2007: 6). Specifically, a policy process in the NHI domain can be defined as a set of activities related to policy formation, implementation and outcomes of previously discussed policy events. Policy outcomes achieved by a particular policy is administratively assessed in terms of efficient and effective use of inputs to generate outputs which serve to achieve a desired outcome. The approach used in this research borrows from Castles’ (1998: 9-10) definition, where the term policy outcome is “a shorthand way of referring to both the outputs of government programme and the real outcomes of policies in the sense of what actually happens to people”. Thus, policy outcomes can be seen as consequences intended or unintended resulting from political action or inaction (Jenkins, 1997: 31). For instance,

the policy outcome from the promotion of the 2G-NHI financing scheme was a failure despite the involvement and intervention by the policy stakeholders; the actual outcome was the 1.5G-NHI financing scheme. As for the promotion and implementation of the GBP system, the policy outcome is usually stated in terms of the effectiveness and impact of cost containment in the NHI by running the GBP system.

Although the “stages heuristic” conceptual framework seems to have served a purpose since Lasswell (Lasswell, 1990) originally proposed it (De Leeuw, 1989; De Leeuw and Polman, 1995), it has since drawn devastating criticism that the framework had failed to take into account the dynamics of multiple, interacting, iterative and incremental cycles of action at many different levels of mutual and reciprocal actions at the same time (deLeon, 2007). Sabatier (2007: 8) established the following parameters to assess whether a theoretical framework is appropriate to a policy process:

1. It must do a reasonably good job of meeting the criteria of a scientific theory, i.e., its concepts and propositions must be relatively clear and internally consistent; it must identify clear causal drivers; it must give rise to falsifiable hypotheses; and it must be fairly broad in scope, i.e., it should be applicable to most of the policy processes in a variety of political systems.
2. It must be the subject of a fair amount of recent conceptual development and/or empirical testing. A number of currently active policy scholars must view it as a viable way of understanding the policy process;
3. It must be a positive theory seeking to explain much of the policy process. The theoretical framework may also contain some explicitly normative elements, but these are not required.

4. It must address the broad sets of factors that political scientists usually looking at different aspects of public policymaking have traditionally deemed important: conflicting values and interests, information flows, institutional arrangements and variation in the socioeconomic environment.

Four such frameworks pertinent to healthcare policy process have been identified by Sabatier as meeting these parameters: the event-driven multiple streams theory empirically developed by Kingdon (Kingdon, 2003), the punctuated equilibrium framework by Baumgartner and Jones (Baumgartner and Jones, 1993) in which long periods of policy stability are alternated by general shifts in policy perspectives and ambitions, the advocacy coalition framework (Sabatier, 1988; Sabatier and Jenkins-Smith, 1993) that emphasizes the importance of coalition formation of camps of proponents and opponents to new policy directions, and the policy domain/network approach developed from different perspectives on network governance (Laumann and Knoke, 1987, 1989; Knoke, Pappi, Broadment and Tsujinaka, 1996). A policy domain framework is a rather complex set of concepts for guiding network analysis. It is based on the argument that, within a given policy domain/subsystem, organisations with an interest in a given policy area develop patterns of resource exchange and seek to influence policy events.

Lewin (1945) said that “Nothing is quite as practical as a good theory”. We certainly believe that good theories for healthcare policy processes can be very practical. Following the principles of the theory-based evaluation framework developed by Birckmayer and Weiss (2000), a rigorous application of theory to the analysis of development and outcomes of policy processes would not just highlight whether the

policy has achieved its intended objectives, but also how this has happened. A good theory is especially important for the further refinement of evidence-based policy research: it would identify processes, issues, events and actors that have facilitated or compromised the effectiveness of policy. Or, again in the words of Lewin, “If you try to understand something, try to change it” (Lewin, 1945).

2-2. Nature of Power in Policy Process

Questions of policy formation are often translated into the language of power, an assertion theorists have debated for centuries. Undoubtedly, a policy process is a complex political game and is inhabited by some exchange of power. However, how to measure who has power to manipulate a policy outcome is always a puzzle in policy process studies. Furthermore, for researchers of politics, sociology and public administration or related disciplines, any discussion of a policy process needs to be grounded in an extensive consideration of the nature of power in the policy domain, especially with regard to the roles of state and other interest groups (Hill, 2009; Wildavsky, 1979). Any consideration of how the process works involves propositions about who dominates (Hill, 2009). The study of a policy process is essentially the study of the exercise of power in the formation and implementation of the process (Forester, 1989). Therefore, it cannot disregard underlying questions about the sources and nature of that power.

A policy process does not run in a vacuum, so it is difficult to identify what power is and how it may be exercised among the policy stakeholders. Lukes’s (1974) influential book “Power: A Radical View”, which explains the nature of power in a

policy process using three-dimensional model (see Table 2-1), is the most influential work in understanding the nature of political power. The first dimension, the base for other dimensions of power, is summarised by the phrases “the decision approach” or “pluralist approach of decision-making” (Ham and Hill, 1984: 61-63). According to Dahl (1957: 203), the first face of power may be characterised as follows: “A has power over B to the extent that he can get B to do something that B would not otherwise do”. This draws attention to the fact that power involves a relationship between multiple political actors (Hill, 2009: 30) and who has more right to speak and advocate his interest in policy process. Moreover, classical pluralists based on the idea of “decision power” have carried out a series of researches in order to understand individuals’ influence on policy results. Thus, the decision approach of power treats policy making process a political game to understand the distribution of different interests and resources in a real political scenario.

Table 2-1. Three Dimension of Power in a Policy Process

Theorist	Conception of Power	Approach
Dahl (1961)	A has power over B to the extent that he can get B to do something that B would not otherwise do.	The decision approach
Bachrach and Baratz (1963)	Of course power is exercised when A participates in the making of decisions that affect B. Power is also exercised when A devotes his/her energies to creating or reinforcing social and political values and institutional practices that limit the scope of the political process for public consideration only those issues that are comparatively innocuous to A.	The non-decision approach
Lukes (1974)	A may exercise power over B by getting him/her to do what he does not want to do, but he also exercises power by influencing, shaping or determining his/her wants.	The ideological level of power

Source: Hudson and Lowe, 2009: Ch. 6

The second dimension deals with the concept that many interests are in reality excluded from the decision-making process by the power of “non-decision”. Although it

is a common situation that a policy process can have the aura of “the decision approach”, sometimes power becomes an instrument of political actors to inhibit other stakeholders’ interests in order to maintain their own vested interest and legitimacy. Bachrach and Baratz (1962) emphasises the idea of “non-decision making” to illustrate the manipulation of agenda-setting power which policy actors attempt to keep these issues under wraps rather than respond to them. Thus, the second face of power in a policy process is an intention to limit the policy agenda within a “safe” scope of vested interest groups.

Finally, the third dimension of power in policy process considers a range of “deep theories” which go beyond the decision and non-decision approaches while coping with the schools of social science which consider how people are conditioned by the very language they speak to obey political elites (Hudson and Lowe, 2009: 114). In other words, the third face of power shows the ideological level of power. Lukes (1974) argues that power exists and is exercised “hiddenly” and people may be subject to power without being aware of this. As Italian Marxist Gramsci points out, the ruling class can utilise every possibility to construct a position of total control of one social class over another (cited by Dunleavy and O’Leary, 1987: 221). Based on more socio-economic resource and political influence, it is possible for ruling class to shape the people’s intention and create a false consensus of policy formation.

With regard to the methodological perspectives involved in empirical studies of power, it is possible to identify three dominant research traditions in the field of political sociology: reputational, structural and decision-making approaches (Scott, 2001). As can be seen in Table 2-2, the reputational approach concerns those reputed to be

powerful in a policy domain. In Hunter’s work about community power structure in Atlanta city, he attempted to identify powerful individuals in four areas of power: business, government, civic affairs, and society leaders and leaders of wealth (Hunter, 1953). Hunter created a list of informants in four policy domains and let these informants identify who the most important person was in each public and social association. He followed this method to reduce the list of influential stakeholders to the top ten elites (those getting the most votes for inclusion in the list). Hunter’s thesis claims that the evidence of who owns power can be ascertained via general opinion in a community. However, critics argue that, at best, the evidence here is composed of little more than a blurred impression or image of power (Scott, 2001: 86).

Table 2-2. Research Traditions and Methods of Power Study

Preferred Research Methods				
Research Tradition	Paradigmatic study	Data collection	Data Analysis	Object of analysis
Reputational approach	Hunter (1953)	Experts’ judgment, interviews	Voting, ranking and rating reputational scores	Images of power
Structural approach	Mills (1965)	Documents	The frequency distribution, SNA	Positions of power in a structure
Decision-making approach	Dahl (1961)	Observation, interviews	Policy outcomes	Agencies of power

Source: Scott, 2001: 83

In a similar vein, Dahl (1961) used a parallel method to measure power in a decision-making process; the difference is that he focused more on the study of the activities of the elites involved in the policy-making process rather than on the members of the associations. He examined a number of “issue areas” such as urban regeneration, local schooling and nominations to political offices. Within each, he looked at specific decisions such as the formation of a Citizen’s Action Commission, changes to education budget, nominations for election as the mayor and proposals for a new city charter. Dahl

and his researchers used interviews, observations and documents to identify who could involve in policy process, who could speak during discussions, who voted for each proposal when a financial decision was arrived at. This approach illustrates that power exists in the actors' positions of the economic and social institutions. As with Hunter's work, Dahl's work also just demonstrates the potential for power, and addressed the gap between the position holders and the influence on policy process. However, as already mentioned, a problem associated with Dahl's approach is that it is difficult for researchers to access the participants who actually involve in the decision-making processes and most policy outcomes is a result of "non-decision making". Moreover, the other question related to Dahl's ideas is that any exercise of power is not only a unidirectional path but also involves complex mutual bargaining and independent relationships among multiple actors.

Max Weber's (1947: 152) definition of power as "the probability that one actor within a social relationship will be in a position to carry out his own will despite resistance, regardless of the basis on which this probability rests" represents an interactive and reciprocal stance on the exercise of power. This definition provides the exercise of power in a more structural viewpoint than others. Also, the structural approach (see Table 2-2) concerns the characteristics of strategic positions of institutional environment among the stakeholders in a policy domain. Also, the approach is concerned more with ideas of small groups and cliques in the policy network. Mills (1956) explored the same issue with the publication of "The Power Elites" where he names, identifies positions, and reveals what he sees as a system of interlocking institutions. It is important for these policy actors to occupy important strategic positions within the relevant policy networks and institutional environments.

These can be important political resources while exchanging and bargaining with others engaged in the policy process. Without taking up such positions, individuals enjoy little significant power. The structural approach also provides a more institutional perspective than other approaches to measuring the exercise structure of power in policy domains.

To sum up, the nature of power in a policy process is an exercise in cause and effect that could be observed, measured and predicted in the language of the political science of the 1950s (Parsons, 1999: 284). The most relevant understanding of power in a policy process is as power over others. Besides the discussion of power after 1950, some philosophers such as Dewey, Foucault and Habermas had also discussed, debated, theorised and interpreted the question of “what is power?” Such philosophical works can be traced back to Hobbes, Locke, and Hume (Parsons, 1999). However, as mentioned before, policy processes take place in a power-exchange scenario rather than a coercion scenario in a democratic society. In reality, despite the fact that society involves power-based transactions among asymmetrical agents, policy stakeholders in a policy domain have their own interests and strategies to pursue their own interests. By collecting and mobilising political resources from other participants, participants can bargain for a consensus under the relationship of reciprocal power-exchange or achieve their desired policy output and outcome. It makes sense to claim that the nature of power in a policy process is “A has more power over B than B has over A” (Dahl, 1961). These definitions of power have been applied by a large number of policy theorists to illustrate the distribution of power in a policy process. In the process, many policy process approaches underpinning the base of power have been created.

2-3. Traditional State Policy Process Approaches

The basic approach adopted in this research departs in important ways from other research approaches and empirical works to state and elite policy process. The use of power in policy process is subtle and complex. Many researchers stand on their own points in order to understand how power exercise in policy process under a complicated political environment (Hill, 2009: Ch. 2). We have already alluded to four related theorists so as to explain or interpret the relationship between power and policy actors and the challenges associated with these approaches.

The first relevant approach is Marxist theory. Marxist approaches to power and the exercise of power in state policy process are distinctive in focusing on their relations to economics, politics and ideologies (Jessop, 2001: 7). According to classical Marxist theory, the social structure of a capitalist society is essentially a class structure and the policy outcome of a state just reflects and maintains the interests of the capitalist class (the bourgeoisie; the owners of the means of production) (Hill, 2009: 40). Furthermore, Marxists have always claimed that state policy is determined by the class interests of capitalists and their agents. The policy-making process can be depicted as reflecting the outcome of struggles between capitalist and working classes or partially determined by social and political forces operating with state structure itself (Laumann and Knoke, 1987: 6). With regard to the methodological perspective, Marxist theory's explanation that the state sees "economic imperatives" as constituting a crucial factor influencing the state policy process - it claims, roughly, that the nature of economic structure is an essential foundational feature of a state including its legal and political structure. Marxist theory adopts a structural perspective and sees the structure as a constraint on causal mechanisms whereby the role of state in policy domain can be explained by the

requirements and rationality of the economic system. For instance, O'Connor (1973) classifies state intervention and its expenditure servicing the interest of monopoly capital, and that the state is run by a class-conscious political directorate acting on behalf of the class interests of monopoly capital.

Marxists have conducted empirical works from the perspectives mentioned above with a view to explain policy outputs. Most of them addressed only at the macro level associated with some historical case studies (Domhoff, 1983; Skocpol, 1979). These works are significant because they clarify the historical and structural forces shaping the prevailing patterns of institutional change and policy outputs with respect to the dominant economic institutions of the time. However, none of these analyses tracked state policy-making at the level of policy stakeholders laying claims to governmental authority on behalf of their own interests. Marxist theory tends to take a stance which treats state action as to a considerable extent constrained and determined by economic institutions (Hill, 2009: 43). However, the policy process in modern society is complicated and of varied domain and the role of the state does not just simply serve the interests of the capitalist class. It also means that the simple proposition of policy outcome cannot echo all the phenomenon impinging on the policy process. This research does not attempt to elucidate the class basis of policy process. Rather, it attempts to throw light on the complex set of interacting official and unofficial stakeholders in order to peek into the black box of the policy process.

The second traditional state policy approach related to this research is pluralism or the so-called pluralist theory. Pluralist accounts are liberal or radical alternatives to Marxism (Bellamy, 2001: 17). Most such accounts have been concerned with the

origins, prevalence, policy interests, resource endowments, and strategies of those associations and corporate actors as they seek to influence federal policy decisions in the U.S. (Laumann and Knoke, 1987: 7). The policy process in national domain is seen as a wide and complex interaction between interests, actors and institutions rather than on the institutions themselves. The pluralist school of thought in political science includes a theorem in which policies are developed in negotiation between public agencies and pressure groups organised into policy communities. The role of state has to be understood in the negotiation process among multiple stakeholders in policy domains. With regard to empirical work, Dahl (1958) argues that power in many Western industrialised countries is distributed widely among different groups and this assumption has been verified in Dahl's significant work, *New Heaven* (Dahl, 1961). It also means that no group is without power to influence decision making; accordingly, no group is dominant. To extend and modify this point, Dahl and his followers explain more about their standpoint which agrees with the fact that all groups and interests do not have the same degree of influence in a policy domain; no one is completely powerless or totally dominant.

Pluralists have been criticized for having an overly optimistic view of the diverse distribution of power (Bachrach and Baratz, 1962; Lukes, 1974). Although political power is fragmented and dispersed, the sources of power are unequal, though widely distributed among individuals and groups within society (Hill, 2009: 29). Pluralists overestimate the ability of interest groups outside traditional elite spheres to actually influence political processes and outcomes. In fact, the perfect environment of equal power distribution has little prospect of existing in a real political process. Most policy outcomes are manipulated by a few powerful policy actors (Hill, 2009: 38-39).

Moreover, the pluralist explanation ignores not only the role of the state in the policy process but also the power of the institutions which let the state have the authority to regulate the behaviours of policy stakeholders. In spite of the fact that pluralist theory reflects some social and political phenomena within a democratic country such as the U.S., the emphasis on interest and group interaction just provides a limited research tool for examining policy processes in a modern society. It also provides an ambiguous, causal explanation of policy outcomes and the actions of interest groups. This research is designed in a similar manner so as to develop a more reasonable and workable framework to policy stakeholder behaviour. The structure of policy network will be stressed by using a more systematic research tool capable of identifying coalition-formation, influence-mobilisation and bargaining-negotiation which ultimately create state policies.

The third traditional state policy approach is an elitist approach arising from similar dissatisfactions with liberal democracies according to the pluralist theory. Comparing to pluralist theory, the elite perspective assumes that the power is based on the unequal distribution of resources and general public has little influence on policy outcome. In a classical elitist perspective, the political elites maintain and exercise their power in the policy process by holding a crucially formal position through revolutionary overthrow, military conquest, control of resources, or the command of economic resources (Hill, 2009: 37). But with regard to the modern concept of political elites, the meaning of political elite is not only limited to the scopes of the actors holding formal political positions, but also hold a position in large-scale organisations in many areas of life. As has been mentioned above, Mills (1956) draws attention to institutional position as a source of power, and concludes that the elites occupying key positions in the

government, business corporations and military assume dominant roles in policy processes arising in American political system. Mills' takes the individual as the unit of analysis and suggests that the exercise of power is revealed in the overlap and connection between the leaders of these organisations (Laumann and Knoke, 1987: 6). Thus, compared to Marxist and Pluralist theories, the elitist approach provides one more alternative to identify who has power and how power is exercised in a policy domain via an analysis of the interactions among political elites occupying key positions in important organisations.

In spite of the fact that elitist theory resolves the analytical problem of pluralist theory, it must be noted that it creates yet another bias in the exercise of power in the context a policy process. First, according to Hill, there are difficulties in specifying the mechanisms by which power is seized and the techniques used to hold on it (Hill, 2009: 38). Second, most researches examining the elitist theory focus just on an analysis of powerful individuals in important organisations while ignoring the fact that the nature of power exercise is also revealed in inter-organisational exchanges and the influence of interest groups should be one of important factors determining policy outcomes (Laumann and Knoke, 1987: 7). Third, the distinction between elites and masses is oversimplified. In order to cope with these criticisms, some researchers have made efforts to reconcile elitism and pluralist democracy to consider at once the influence of both individual and organisational levels in policy domains. This research adopts a more comprehensive, elitist stance while mapping the structures of policy networks and takes into account both individual and organisational actors involved in policy processes via the research tool of SNA.

Finally, the fourth traditional state policy approach of relevance to this research is corporatist theory or the so-called corporatism. Like other traditional approaches, corporatist theory is seen as a system of interest representation. Schmitter stressed “intermediation” that groups play in societal corporatist system in which the constituent units are organised into “a limited number of singular, compulsory, non-competitive, hierarchically ordered and functionally differentiated categories” (Schmitter, 1974: 93, 1979). The second important definition focuses on the particular process through which public policy was formed. Corporatism is more than a peculiar pattern of articulation of interests. Rather, it is an institutionalised pattern of policy formation in which large-interest organisations cooperate with each other and with public authorities not only in the articulation (or even “intermediation”) of interests, but in the “authoritative allocation of values” and in the implementation of such policies (Lehmbruch, 1979: 150). In the context of a modern democratic society, corporatism originated in the decay of pluralism in Western European and North American political systems and shows a governance regime between the public sectors and labour associations in democratic countries (Hill, 2009: 64). Corporatism refers to a set of institutional arrangements related to policy making and economic governance. It involves a model of political decision making characterised by a negotiated approach to key economic strategies by the major economic agents representing labour and capital (Baccaro, 2003). For instance, the healthcare funding system is operated by a committee in which the employees and employers are involved to govern the fund together; corporations cooperate with the government to maintain healthcare. Thus, corporatist mechanism has been seen as a kind of effective participation of labour organisations in policy formulation and implementation and regulation of economic activity in Europe. But in

the United States, most scholars agree that the political ethos there lacks corporatist attributes (Wilson, 1982).

To sum up, the traditional approaches examined above are all relevant to the discussion of policy stakeholders and the role of state in policy domains. These approaches are either structural or individual perspectives and stand on certain biases while explaining the nature of the policy process in a modern society. In order not to rely exclusively on a pluralistic, individualistic or Marxist class structuralism approach, this research sees policies as resulting from conflicts and contradictions among multiple policy stakeholders embedded in the institutional and political environments. This helps reflect the prevailing class interests while clarifying the limited bargaining-negotiation system. Moreover, the role of state in policy process is an autonomous social formation whose strategies emerge from the basic organisational imperatives of coping with environment uncertainties, resource scarcities, and socio-legal constraints. Policy processes in a modern society involve complicated political scenarios. This also means that a more suitable and flexible perspective, policy network approach, is needed while understanding the nature of power-exchange and bargaining-negotiation relationship between official and unofficial stakeholders in policy domains.

2-4. Network Perspective in Policy Process and Governance

To understand the network perspective underlying the patterns of policy processes and governance, it is essential to grasp the basics of its historical development and context, main concept, critique and relevant empirical works. Bovaird and Löffler (2009) and Stoker (2004) have observed that “from hierarchal dominance to decentralised

collaborative management with other agencies” is perhaps the most appropriate description of the institutional transformation of the environment of policy process since 1980s.

2-4-1. Governance under a Fragmented State

The role of government in advanced countries has experienced major changes over the past 30 years. This is especially due to the government’s fiscal crises and other flaws of inefficiency and low entrepreneurship motives in the public sector (Larbi, 1999). More public services, more requests for civil participation, and more daily necessities originally belonging to the government are now relying on the private sector or some third party sector to fulfil the needs of the citizens. Moreover, numerous international non-governmental organizations, such as the World Bank and the OECD, have promoted the ideas of decentralisation and network governance (both in developed or developing countries) to render public processes more efficient and effective and to improve social service provision. They also bring together citizens and their authorities, to increase civil society participation in decision-making, and to reduce expenses (OECD, 1999, 2001, 2002).

Every government apparatus around the world has been challenged while pursuing development in the face of the new political and economic realities. For example, decisions on the use of biotechnology, the location of an airport or an incinerator, or the restricting of public sector services such as healthcare services, can become subjects of intensive conflict and debate (Koppenjan and Klijn, 2004). What was formally a system of government by Westminster and Whitehall has been transformed “into a system of governance involving complex sets of organisations drawn from the public and private

sectors” (Rhodes, 2007: 6). Thus, rather than being a top-down decision-making process executed by hierarchical organisations, the policy process has become a web of multiple-interest conflicts among various stakeholders. As is widely agreed, following the preponderance of financial deficits and demands for governmental reform, the Thatcher government in the UK and the Reagan government in the U.S. were two of the pioneers around the world daring to launch a series of new-right policies to break the old model of governance while restraining the powers of government in favour of those of the market. One of the key themes is a new public management approach which has led to a more fragmental authority of the governance mechanism emphasising competitive tendering. In practice, the guideline is that “goods and services should be acquired by competition unless there are convincing reasons to the contrary” (HM Treasury, 1998). Through this policy, it is argued, government can avoid accusations of favouritism and fraud, and the openness of the system will encourage more suppliers to participate, thus increasing competition, which will in turn reduce prices, improve quality and lead to greater innovation among suppliers. As a result, governments are getting increasingly dependent upon the knowledge, authority and resources of other parties (suppliers) - inside and outside government - for the achievement of their policy goals (Hanf and Scharpf, 1978; Koppenjan and Klijn, 2004; Marin and Mayntz, 1991; Marsh and Rhodes, 1992; Rhodes, 1997).

The UK is a pioneer not just in facilitating the changes in governance mechanisms as a part of a world-wide reform trend, but the trend has also created a range of new concepts and theories aiming to solve a variety of new governance problems emerging since the 1980s. In the UK, the change from traditional government to a more complex and diverse network of agencies involved in “new governance” is more than a theory

(Goss, 2001; John, 2001; Stoker, 2004; Wilson and Game, 2006). By 1997, the incoming Labour government integrated the Conservative Government's policy and the idea of new governance which was concerned more about the inter-agency working or partnerships at both national and local levels (John, 2001; Goss, 2001; Skelcher, 2004). The cross-boundary governance regime in vogue relies on horizontal networks which replace hierarchies in policy-making and service provision (Sullivan and Skelcher, 2002). Based on these developments, government, private enterprises and non-profit organisations in the UK have built a coalition or so-called "public-private partnerships" and "cross-boundary work" in terms of the currently popular theory of governance³. Furthermore, problems cannot be solved by organisations on their own. The phenomenon of fragmental policy making and implementation has resulted in certain challenges related to coordination and accountability. In response, many researchers have made efforts to create new theories such as the policy network analysis (Kickert, Klijn and Koppenjan, 1997a, b; Marsh, 1998; Rhodes, 1997), hollowing-out state (Rhodes, 1994) and quasi (Hudson and Lowe, 2009) or joined-up government (Bogdanor, 2005).

While numerous attempts have been made in recent years to show the positive attributes of the multiple governance mechanisms underlying the formation or implementation of the policy process (Goss, 2001; Stoker, 2004; Sullivan and Skelcher, 2002; Wilson and Game, 2006), more and more attentions have been given to their negative impacts. Goss (2001: 23) says that the emergence of relationships of complex

³ Actually, the concept "public private partnerships" was originally rooted in public management theory which indicates that private sectors are more effective and efficient than public sectors in public services. The new governance theory follows the concept and adjusts the meaning of public private partnerships. This theory emphasises more on the collaborative relationship than competition among stakeholders in policy domains and service delivery network.

governance makes it clearer that we are in an era of multi-legitimacies which will bring in new governing problems. Sorenson and Torfing (2004: 22) point out that the transformation tendency of decentralisation in policy process and service provision will face the challenge of imbalanced responsibilities and power among the stakeholders. It will undermine political competition and increase problems relating to how actors can be regulated through processes of network governance. How such a coalition among public, private sectors and citizens influences the structure of governance, besides solving the problems of the government's failure and the enterprise's externalities, needs further analysis.

Stoker (1998: 26) points out that the new governance theory helps to provide a map or guide to the world of the fragmented state. However, the world seems to be more complex than suggested. Besides producing advantages, such as higher efficiency and higher potency, the role change among service deliverers has also brought problems never faced before under past bureaucratic systems of service delivery. Under the pressure to improve the government's performance, the public agencies, especially the elected politicians, are keen to demonstrate their partnership credentials without the partnership failure. This also means that problem-solving takes place in complex games and networks in which stakeholders behave strategically, guided by diverging or, even, conflicting perceptions and rules (Kickert, Koppenjan and Klijn, 1997a; Koppenjan and Klijn, 2004).

To sum up, within the modern government, policy-making is becoming increasingly pluralistic as the policy process fragments and an increasing number of groups are admitted into the policy arena (Hecl, 1978). Policy-making is the result of

interactions between many actors. Since all these actors have their own goals and strategies, policy-making can best be conceptualised as a complex process that cannot be controlled by one single actor. The presence of interconnectional linkages represents a defining characteristic of service delivery and policy process. The term “network” is used to describe the several interdependent actors involved in delivering services and policy processes (Rhodes, 2007: 6). These networks are made up of policy stakeholders who need to exchange resources (for example, money, information, expertise) to achieve their objectives. They seek to maximise their influence over policy outcomes, and avoid becoming dependent on other policy actors in policy process. Based on these observations, governance appears to be entangled with the natures of networks and the capacity of network management on the part of the government. New theoretical works such as policy network analysis are now available to redress the insufficiencies of traditional state policy approaches and clarify the nature of the policy process in a modern society.

2-4-2. Policy Network Analysis: Concepts and Critiques

Governments today are facing more fragmented governance environments. Traditional methods of dealing with problems are no longer enough. It is often found that they spawn complex issues related, for instance, to the intellectual design and approach them in a manner according to research and science playing the central roles. As mentioned earlier, the nature of welfare politics in healthcare sustainability is entangled with multiple formal or informal policy stakeholders and interest-exchange relationships among them. Without such interactions, nothing would happen and the policy process would come to a standstill. However, it must be recognised that decisions

by policy makers to exploit the increasingly complex and interdependent environment via stakeholders is variable. As a result, the network is a portable concept that can be applied to any public arena. The application of policy networks is likely to offer a host of insights into how policy is made and implemented different from traditional policy process approaches. The technique can be expected to provide a more flexible explanation. It is a significant alternative to understanding the complex nature of policy process in a modern society.

A network exists when none of the actors has the power to determine the strategies of the other actors (Kickert *et al.*, 1997a). Networks are structures of independence characterised by some degree of structural stability as well as formal and informal links. Networking commonly refers to people making connections with each other (Alter and Hage, 1993) while the network occurs when the links among a number of organisations and individuals become formalised (Keast, Mandell, Brown and Woolcock, 2004: 364). In a public policy domain, it has become clear in recent times that no public organisation has sufficient power or resources to act alone (Kickert *et al.*, 1997a: 6). Therefore, some form of networked relationship appears in most public work.

The concept of networks in the analysis of public policy processes appeared first in the mid-1970s and early 1980s (John, 2004: 140; Klijn, 1997: 16). In the past three decades, a considerable amount of effort has been put in by political scientists and researchers in the field of public administration to understand the structure of stakeholders' interaction in policy domains and its impact on policy outcomes and policy changes in the U.S. (Hecl, 1974, 1978; Laumann and Knoke, 1987, 1989), European countries (Jordan and Schubert, 1992; Kickert *et al.*, 1997a, b; Richardson

and Jordan, 1979) and the UK (Marsh and Rhodes, 1992; Marsh, 1998; Rhodes, 1990). These investigations have demonstrated that a range of groups/government relationships exist in different policy arenas; these determine whether the policies determined succeed or fail (Peterson and Bomberg, 1999: 8). The concept of network is an appropriate metaphor describing the strategic interactions, for instance, between the Congress, the bureaucrats, the president, the courts, the people, the media, interest groups, and all other possible actors playing important roles in policy domains. In the U.S., many researchers used the metaphors like “iron triangle”, “whirlpool” or “private government” to consider sub-government systems as important political decision-making mechanisms in the earlier U.S. government (John, 2004: 142). Moreover, Hecl’s (1978) popular work on “issue network” provides more fluid and changeable form of political relationships in the U.S. government. This work also led to many efforts focusing on the issue of the fragmental governance mechanism in the U.S. In Britain, network concepts dominated British policy studies for much of the 1980s and 1990s. Various significant efforts had been made for understanding multiple policy domains such as agriculture (Smith, 1991, 1992); water (Richardson, Maloney and Rüdiger, 1992); subnational government (Gray, 1994); community care (Hunter and Wistow, 1987), government-industry relations (Wilks and Wright, 1987) and inter-governmental relationship (Rhodes and Marsh, 1992). In related EU studies, the concept of policy network was seen as a new form of governance (Kenis and Schneider, 1991; Kooiman, 1993). Leading EU works used the idea of policy network to facilitate coordination and co-governance relationships among multiple agents at cross-national as well as domestic levels.

Policy network have been used to identify patterns of relations between

interdependent actors involved in processes of public policy making (Kickert *et al.*, 1997a: 6). A network arises when there is an exchange of information between groups and government and the exchange leads to the recognition that a group has an interest in a certain policy area (Smith, 1997: 76). Independence relationship is one of the most important characteristic of a policy network and many theoretical approaches such as the “power/resource dependence” approach (Benson, 1975; Rhodes, 1986, 1988) and “idea” approach (Sabatier and Jenkins-Smith, 1993; Zafonte and Sabatier, 1998). The former indicates that all actors in a policy domain cannot achieve their own interests and goals without others assistance; they need others’ resources and support, A similar situation arises when languages and ideas are shared. It also means that the policy problem nowadays is frequently non-hierarchical and has been become more complex in democratic countries. Complicated problems require a combination of resources and ideas owned by different actors. Interaction games involving policy actors get created when actors recognise that they have to depend on others for the realisation of their objectives and the mutual dependencies that are not equally divided across all policy stakeholders (Smith, 1997: 78-79). In order to achieve goals, resources have to be exchanged amongst stakeholders. The resources exchanged can be valuable for information transmission, political support such as voting, acquiring other material resources like money or manpower, and collaborative action aimed at similar outcome preferences (Laumann and Knoke, 1987, 1989; Knoke *et al.*, 1996; Weishaar, Amos and Collin, 2015). If the government wants to achieve a particular policy goal with the minimum of conflict, it needs the assistance of groups in the development and implementation of policy. It can exchange access to the policy process for collaboration and establish a policy network (Smith, 1997: 78). The capability to mobilise resources

and consolidate policy coalitions is one of the most important means to manipulate policy processes in policy networks.

As a practical phenomenon, policy networks can be found in almost every policy domain at both national and local levels. Policy network theory aims to avoid excessive bias inherent in a state- or society-centred. This facilitates an understanding of the complexity of the policy making process, which is embedded in the institutional and network structure (Kickert *et al.*, 1997a; Marsh, 1998; Rhodes, 1997). One of the most significant developments in policy network studies concerns the typologies and characteristics of network structure (Marsh, 1998; Marsh and Rhodes, 1992). Such developments have imputed causal power to networks (John, 2004: 144). Marsh and Rhodes distinguished between different types of policy networks. Among these, the most well-known is the typological concepts of “policy community” and “issue network” (Marsh and Rhodes, 1992).

As can be seen in Table 2-3, policy community and issue networks can be seen as two poles between a tightly integrated network with dense interactions at one end and loose members and interactions at the other. The internal structure of a policy network is usually considered an independent variable to the extent that understanding the structure of a policy network will help determine policy outcomes (Peterson, 2003: 5). The notion of policy communities has a greater capacity than issue networks in steering or manipulating the policy agenda and outcomes. The limited number of actors in a policy community means that the participants tend to be stable over a long period of time. The group members do not change frequently. In a policy community, certain government agencies and key interests are always involved and so interaction is of high quality. As a

consequence, issues within a policy community are often depoliticised. They are seen as technical issues to be resolved by the insiders because no conflicts are perceived over the potential policy options conflict (Smith, 1997: 82).

Table 2-3. Types of Policy Network

Dimension	Policy Community	Issue Network
Membership 1. Participants 2. Type of interest	Very limited number; some groups consciously excluded. Economic and/or professional interests dominate.	Large number. Encompasses a large range of affected interests.
Integration 1. Frequency of interaction 2. Continuity 3. Consensus	Frequent, high quality, interactions among all groups on all matters related to policy issues. Membership, values, and outcomes remain relatively stable over time. All participants share basic values and accept the legitimacy of the outcome.	Contacts fluctuate in intensity and quality. Access fluctuates over time A measure of agreement exists; but conflict is ever present.
Resources 1. Distribution of resources- within the network 2. Distribution of resources- within the participating organisations	All participants have resources; basic relationship is an exchange relationship. Hierarchical; leaders can deliver members.	Some participants may have resources, but they are limited, and basic relationship is consultative. Varied and variable distribution and capacity to regulate members.
Power	There is a balance of power among members. Although one group may dominate, it must be a positive-sum game if the community is to exist.	Unique powers, reflects unequal resources and unequal access. It is a zero-sum game.

Source: Marsh and Rhodes (1992: 251)

Moreover, the network community can be seen as a dominant coalition retaining discretion, which determines the rules of the game and regulates the process of exchange (Smith, 1997: 78-79). There is a set of “rules of the game” which actors have to abide by in order to gain entry into the policy community. A characteristic feature of a game in a policy network is that the result is driven by interactions between the strategies of all the actors involved (Klijn and Teisman, 1997: 99). The rules of game govern how participants have to behave if they are to gain access to the network, e.g.,

they shall act constitutionally, they shall accept the final decision of the government, they can be trusted, the demands they make must be reasonable (Rhodes, 1986). If a group wants to have access to a policy community, it must desist from high profile campaigns and become an insider developing policies in private (Richardson and Jordan, 1979).

Policy communities also have institutional bases that provide further means of exclusion (Smith, 1997: 81). Within most policy communities, there are particular institutions which are central to the policy process, membership of which institutions ensures access to the policy community. Consequently, it is easy for a policy community to exclude radical groups. In Laumann and Knoke's (1987) work on certain U.S. health and energy policy domains, it is shown that certain degrees of exclusion usually exist within policy communities. The U. S. health policy domain contains a few central positions occupied by actors who maintain close ties with many others, and a large number of peripheral positions by actors with lower visibility, fewer ties and generally tenuous involvement with the system. A policy community involves a conscious and unconscious exclusion of particular groups.

Whilst membership in a policy community is limited, it is extremely large in an issue network. The network contains a large number of actors with relatively limited resources. Heclo (1978: 102) believes that, in many areas of policy-making in the U. S., there are a large number of participants with quite variable degrees of mutual commitment. This means that it is all but impossible to identify clearly who the dominant actors are. From the perspective of interactive quality, interaction is erratic in an issue network. The degree and importance of interaction changes constantly and who

has contact with whom will vary. Issue networks generally lack formally institutionalised contacts between groups and the government (Smith, 1997: 84). There is little exchange of resources, and almost no exclusion. As a result, groups move constantly in and out of the policy domain. This also means that it is unlikely that there will be a consensus. Often, there is conflict between the various government agencies and departments.

Hence, from an analytical perspective, to check which actor is at the centre of a policy network and who has been relegated to a marginal position is an important step in understanding the nature of interdependent relationships and information communication in policy networks. Furthermore, understanding the exchange relationship and the relative position is basic to checking who has influence or power in a policy process.

Despite the fact that policy network studies have become one of the main themes in policy process studies, it has also faced many critics who are highly pessimistic whether it indeed represents a more useful approach than those suggested in traditional policy process studies. First, although policy network analysis has been a research approach in the public process domain for many years and has offered a description of how policy decision processes are organised, it has not come up with an explanation of why it is organized in that way (Hill, 2009: 74). Due to difficulties in measuring networks, policy network analysis has often been treated more as a metaphor, a conceptual scheme, or just a management technique (networking) (Dowding, 1995, 2001; König, 1998; Milward and Provan, 1998; Rabb, 2001; Thatcher, 1998). In addition, policy network theory does not have a well-developed research technique to

identify the network's boundary and stakeholders within policy domains. With regard to empirical application, these shortcomings can lead to not only ambiguous causal relationships between policy participation, policy network and policy outcomes; it can also be criticised for "including everything and denoting nothing".

To sum up, policy networks and issue networks are important concepts, which have been useful in developing a better understanding of the role and interaction of official and unofficial stakeholders in the policy process. Although policy network theory has been subjected to numerous criticisms, considerable efforts have already been made to increase its explanatory power. In this research, we adopt the measuring technique of SNA as sociologists have suggested that it helps understand the distribution of power across multiple organizations.

2-4-3. Role and Strategies of the State While Managing Policy Networks

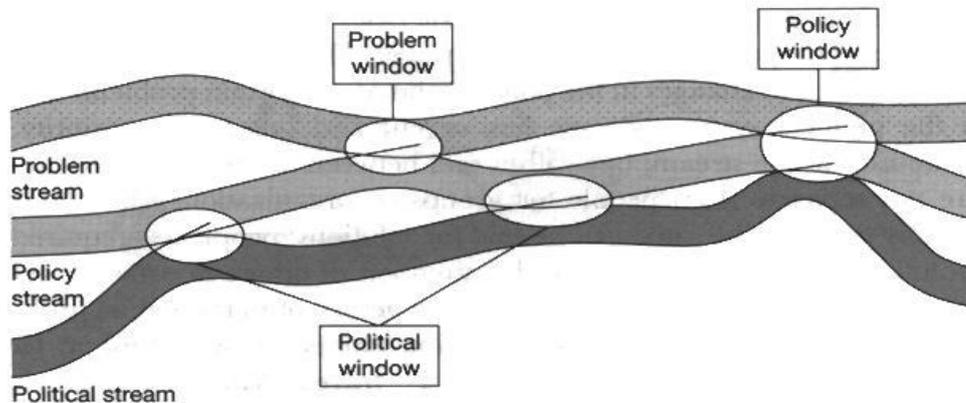
Activities associated with governance and public management take place frequently in network-like scenarios. Most policy processes in modern society nowadays are open for a range of participants and stakeholders. Openness facilitates democratic participation and flexibility. Numerous attempts have been made (Goss, 2001; Stoker, 2004; Sullivan and Skelcher, 2002; Wilson and Game, 2006) to demonstrate the positive performance of the network governance mechanism in recent years. At the same time, it should be acknowledged that little attention has been given to the negative impacts of network governance regimes (Goss, 2001). As discussed above, policy processes frequently cross agency lines and reach beyond the public sector into private and nongovernmental entities related to the policy domains. The challenge for

public managers in a complex policy network is how to create efficient and effective partnership which can help public managers in combining the resources of other agents and assist in setting up a communicative platform (Kickert *et al.*, 1997b). Thus, numerous network-like governance mechanisms such as public-private partnership (PPP), BOT (Build-operate-transfer), joint government, co-governance, collaboration regimes, local governance or multiple level governance have been proposed in recent years in order to cope with the prevailing social tendency towards decentralisation.

In the age of network governance, the elected government is just one of a number of bodies involved in public policy formation and service delivery. Under the pressure for improving government performance, many public agencies, especially the elected politicians, have been keen to demonstrate their partnership credentials without adversely affecting the network. The network governing mechanism mirrors the governance which has been used to depend on the patterns of relations between interdependent actors who cannot attain their goals by themselves but need the resources from other actors (Kickert *et al.*, 1997a: 6). This also means that the public sector has insufficient power or resources to manipulate policy outcomes and implementation in the policy process (Smith, 1997). Further, the nature of network management is to deal with the uncertainties resulting from the interactions between different actors' strategies. Network management can be defined as a form of coordination of strategies of actors with different goals with regard to a certain problem or policy measure within an existing framework of inter-organisational relations (Kickert *at al.*, 1997b: 167). For public sectors, more network management strategies are needed to help manage the complicated and dynamic network environment.

The image of the role of governmental organisations in this discussion on network management is quite different from the notion of a retreating government popular in practice and theory. The role of public manager means that public agencies will be actively involved in the interaction processes between actors. However, this description is inconsistent with the image of a strategically withdrawing public authority (Smith, 1997). In order to minimise governance cost and increase the governance effectiveness, the public sector has sufficient ability to be a good network manager. In fact, by assuming the initiative for the arrangement and course of interaction processes, governments can take the initiative by promoting and helping to affect substantive policy outcomes. Thus, the public sector has more advantages than other stakeholders in managing the policy networks. First, as far as the institutional perspective is concerned, although the environment of governance has been decentralizing, the only statutory organization is the authority which controls the crucial points in the collaborative partnership's operational and policy process. As can be seen in Figure 2-1, the Kingdon's policy agenda setting model shows that there are three main streams which can lead to the opening of "policy window" (Kingdon, 2003). Many stakeholders can identify what the policy problem is and come up with related policy proposals, but the public sector has continued to be in the dominant position in policy planning and launch the proposals. People in general accepts this to be a part of the process of formal policy formation from legal and constitutional perspectives.

Figure 2-1. Policy Window Model of Agenda Setting



Source: Koppenjan and Klijn, 2004: 54

Second, interactions within a policy network can be treated as a game with the actors operating strategically (Klijn and Teisman, 1997; Smith, 1997). Different actors have different goals and perceptions, so a network lacking a central steering point can be accompanied by tricky management problems. As already mentioned, the public sector is the only party with legitimate power to maintain operations within a policy process. Kingdon (2003) argues that a unified policy community is generally better able to control agenda than a fragmented issue network. Stakeholders with joint interests and similar values and positions often form alliances and jointly influence policy-making within a given area (Sabatier, 1988; Sabatier and Jenkins-Smith, 1993). From the perspective of network management, governments usually seek to develop closed communities so as to end up with effective policy outcomes (Smith, 1997: 79). It is the government that creates the network, controls access to it, sets up the rules of the game (Rhodes, 1988: 82) and, most importantly, selects the main stakeholders into the network community so, enhance the democratic legitimacy of the policy process. For example, public sector can be the network activator and orchestrates interactions to solve the particular problem or to achieve certain goals (Kickert and Koppenjan, 1997:

47). Also, public organisations can mediate as network managers by acting as policy brokers to facilitate communications and resource exchanges and integrate disparate values and interests. According to Kingdon's (2003) agenda setting model, policy process is a fragmented structure made up of entrepreneurs who act as policy brokers in specific policy domains by not only raising problems and suggesting solutions but also mediating the policy process.

Hindmoor (2009: 80) asks why governments establish policy communities with specific groups but not others. He suggests that governments usually work closely with groups controlling valuable resources which may increase the democratic legitimacy of policymaking and implementation. In addition to valuable information, political or other material resources, one of the most important elements to be selected in a policy community is representativeness of the groups. Daugbjerg (1998: 22) argues in a similar vein when he says that perhaps the most important reason why some actors are excluded from a network is that they lack such resources, especially representativeness. Few organisations "willingly include others" (Daaugbjerg, 1998: 22). As Rhodes puts it (1981: 122), organisations are primarily driven by a desire to avoid each other. In a policy community, there is constantly an unspoken feeling that certain groups are being excluded consciously (Bevir and Richards, 2009: 4). In a landmark study, Hecló (1978) played down the restricted nature of access to policy making. He was perhaps the first to conceptualise the idea of relatively open "issue networks" made up of a wider array of participants replacing closed circles of control. As Daugbjerg (1998, 50) states, access to an issue network may be relatively open but there are always some restrictions, e.g., the chosen actors must have "legitimate" interests in the issues being addressed.

Third, in situations loaded with interdependent relationships, the multiple stakeholders should have the ability to define, monitor and evaluate policy outcomes. The public sector has the most power and legitimacy to implement these functions. The public sector has the regulatory power needed to keep an eye on procedures and make procedural and, on occasion, substantive proposals (Kickert and Koppenjan, 1997: 50; Susskind and Cruikshank, 1987: 162-165). This follows Kingdon's line of thinking about why governments address certain policies and ignore others (Hill, 2009). Moreover, the public sector also commands more resources while evaluating the performance of policy-making and implementing the policies apart. It is also capable of ensuring that positive outcomes and good network interactions are maintained. In short, public sectors possess more regulatory instruments than private sectors (Smith, 1997: 81) and networked government can be an useful tool in maintaining positive policy processes and improve network interactions effectively and efficiently (Goldsmith and Eggers, 2004: 20-21).

Although a fragmented policy environment improves the operational dynamics of the public sector and managers, a network-like mechanism obviously facilitates the interaction between multiple agencies that should be independent of each other (Sullivan and Skelcher, 2002: 26). The hallmark of effective governance in policy networks is openness and transparency in decision-making and a willingness not only to share information and resources but also to take up responsibilities via thematic, cross-agency working groups. Thus, effective governance activities in a policy network can guarantee positive policy outcomes. The capacity of the government's to manage networks is one of the most important factors impinging on democratic legitimacy. Authorities are required to show that the people support their proposals and the relevant

stakeholders in the policy domain in question, they also need to work with other partners to deliver upon policy targets through the agency of policy networks. Policy networks can thus be seen as an attempt to institute “collaboration or co-governance” arrangements and attempt to open up the policy process to a wider range of interests, which better reflect the public sectors’ priorities and needs.

To sum up, a network-like policy environment creates new management challenges. One way of meeting this challenge is to utilize strategic network management. Network management assumes a flexible government that is able to communicate with other actors and mobilise the innovative resources needed in making joint solutions possible (Kickert *et al.*, 1997b: 181). Comparing with other actors, governmental organisations have more policy instruments to manage network interactions and improve the network’s structure. The best strategy is to facilitate win-win situations and limit interaction cost in policy domains. In this work, the interaction between the participants in the NHI policy domain is treated as “network” in the policy processes. This approach allows us to consider and apply methodologies of policy network theories with a view to identifying how organizations are positioned within a network and to evaluate the quality and impact of the exchanges among them.

2-5. Proposals for Enhancing the Explanatory Power of Policy Network Studies

As has mentioned earlier, the most serious theoretical critique of policy network studies is the lack of explanatory power, especially with regard to the links between the policy network and policy outcomes or changes. There are several ways to push policy

network studies beyond a metaphor in methodological terms. This section will discuss a range of alternatives and explains why SNA was adopted for this research.

2-5-1. Other Network Approaches to Improving the Policy Network Model

According to Rhodes (2006: 436), “policy network analysis” is doing well in terms of how networks limit participation in the policy process, decide which issues will be included and excluded from the policy agenda, shape the behaviour of actors through the rules of game, privilege certain interests, and substitute private government for public accountability. The work was basically about stability, privilege, and continuity. However, an associated analytical problem is that it does not, or cannot, explain policy outcomes or changes (Dowding, 1995, 2001). There have been several attempts to analyse policy outcomes or changes and networks but two preliminary points should be made clear. First, it is a formidable task to describe and explain continuity and stability in a policy process. Second, the analysis of policy changes or outcomes can be a recurring problem but it is not specific to policy network studies. In other words, debates in the policy network literature mirror the large epistemological and ontological debates in social sciences. In facing such theoretical problems, three features are usually inspected: the advocacy coalition framework, the dialectical model, and the strategic relational theory.

The advocacy coalition framework (hereafter ACF), developed by Paul Sabatier, is generally considered to be one of the most promising theories on policy processes (Fenger and Klok, 2001: 157). In the ACF, a policy change or outcome is viewed as a result of a learning process within and between advocacy coalitions. Coalitions consist

of actors who share basic policy beliefs and collaborate over time in a subsystem. Thus, ACFs in policy-making process can also be seen essentially as interactions among different policy actors within the policy network. According to Sabatier and Jenkins-Smith (1993: 16), the ACF is based at least on four basic premises: (1) understanding the process of policy change - and the role of policy-oriented learning therein - requires a time perspective covering a decade or more; (2) the most useful way of thinking about policy change over such a time span is through a focus on “policy subsystems,” i.e., the interaction of actors from different institutions who follow and seek to influence governmental decisions in the policy area; (3) the concerned subsystems must include intra-governmental dimensions, i.e., they must involve all relevant levels of government; and (4) public policies (or programmes) can be conceptualised in the same manner as belief systems, i.e., as sets of value priorities and causal assumptions about how to realise them. Sabatier argues that coalitions try to translate their beliefs and the corresponding belief systems determine the direction of the policy outcome and that the coalitions’ resources determine their overall capability to influence government policies. The ACF deals with a multiplicity of actors in a policy subsystem as aggregates into various advocacy coalitions, where the coalition members share the same policy core beliefs and together hold a set of coalition resources (Sabatier and Weible, 2007: 9). However, as Parsons (1995: 201) points out, the model works well for the federal and fragmented government of the U.S., but there is little evidence that it travels well.

The dialectical model proposed by Marsh and Smith (2000) attempts to resolve the criticisms of the policy network approach made by Dowding (1995, 2001) and other rationalists (Rabb, 2001). They emphasise that the relationship between networks and outcomes is not a simple, unidimensional one; it involves highly complicated,

interactive activities among the factors in different levels. Moreover, they argue that policy outcomes and changes are functions of the interaction between (1) the structure of the network and the participants in the network, (2) the network and its political and socio-economic context, and (3) the policy network and the policy outcomes. Their argument is that, in order to understand and explain the relationship between policy networks and policy outcomes, each of these dialectical relationships should be examined. They see networks as structures that can constrain or facilitate action but do not determine actions because actors interpret and negotiate constraints. Also, exogenous factors often prompt network changes but actors mediate the change. Hence, compared with traditional policy network studies, this idea involves recognising the way in which actors change networks. This is the reason why Marsh and Smith (2000) emphasise that structures, rules and interpersonal relationships should be examined together. They applied a model of mutually causal and feedback relations to explain transformative changes in the U.K.'s agricultural policies since the 1930s. Marsh also applied a dialectical model to explain changes in the U.K.'s policies on genetically modified (GM) corn, disclosing the power of "outsider" environmental groups in compelling GM foods to disappear from supermarket shelves (Toke and Marsh, 2003).

Although Marsh and Smith (2000) attempt to provide a powerful explanatory model linking the notions of policy networks and policy outcomes, the model seems to be somewhat misleading. The trickiest problem of this model lies in the contention that at every independent variable there can be a dependent variable. It is therefore confusing to determine which variable is dependent or independent. This attempt not only confuses the causal relationship but also makes policy outcome harder to test and falsify.

The third way of analysing the policy-making process is through Hay and Richard's (2000) strategic relational theory of networks. This is a sophisticated variation on the dialectical theme mentioned above. This theory also aims to push policy network studies beyond a metaphor and avoids the ambiguities and controversies associated with the term "dialectical". They argue that individuals seeking to realise certain objectives and outcomes make a strategic assessment of the situation where they find themselves in. They also argue that the context is not neutral. Networks are viewed here as highly flexible, volatile, adaptive, and strategically innovative, while networking is understood to be an intentional political action taken by individuals or composite actors in the pursuit of certain strategic objectives (Hay and Richards, 2000: 2). It locates network players, or rather the strategic actions in which they engage, within the broader, strategically selective context favouring certain strategies over others as a means to realise strategic intentions. Compared with previous two policy network approaches, the framework recognises that strategic actions produce direct effects upon the structured context within which it takes place rather than viewing players as passive agents constrained by structures. The idea is to facilitate strategic learning on the part of players and enhance their awareness of the constraints and opportunities afforded by the wider context (Hay, 1998: 43). Players utilise this knowledge in an attempt to reshape and reconfigure the network in order to promote their strategic interests and policy preferences. The above idea is very similar to Granovetter's (1985) concept of "embeddedness" proposed with the intention of linking structural constraints and individual actions in their explanatory model.

However, that selective context is not neutral. Rather, it is too strategically selective in the sense that it privileges certain strategies over others. Individuals learn

from their actions and adjust their strategies. The context is changed by their actions, so individuals have to adjust to a different context. So a networking is a practice. It is “an accomplishment on the part of strategic actors ... which takes place within a strategic (and strategically selective context)” which is itself constantly evolving through the consequences (both intended and unintended) of strategic action (Hay and Richards, 2000: 14).

The above ideas related to policy network studies and policy outcomes are indeed significant achievements within the field of policy process studies. However, these models and theories have their own faults. The most important and common problem is that they do not throw light on the causal relationships between network structures and policy outcomes. In addition, they also did not develop a solid and scientific analytical tool for verifying their model. In particular, they did not provide any clear way to identify the network boundary and participants. According to John (2004), there are still two possible ways to improve the explanatory power of the policy network approach. The first one is by using the rational choice theory from economics to view policy networks as a stable institution which can reduce the transaction costs between multiple actors in the policy domain (Dowding, 1995, 2001). However, this approach treats policy networks as a dependent variable and merely explains why this kind of policy networks can be formed by actors rather than policy outcomes or changes. The second one is to use quantitative SNA from a structural perspective to improve the techniques to measure the power pathways in policy processes in a formal method (Carpenter, Esterling and Lazer, 1998; König, 1998; König and Bräuninger, 1998; Thatcher, 1998). SNA is a formal analytical tool for examining and describing a network's structure and the associated, interconnected relationships between the actors in a bounded network.

The second way is adopted in this research to enhance the explanatory power of the policy network we examine and arrive at more systematic and scientific measures beyond metaphors.

2-5-2. Social Network as a Way of Understanding a Policy Network

Sociologists analyse social networks to find who the dominant actors are and how networks differ. They also try to figure out stable relationships between actors and their respective positions rather than their attributes via the perspective of “social structure”. The perspective has been applied in various disciplines such as sociology, politics, public administration, anthropology, communication, education, organizational sociology and infection studies. Almost all social network analysts are structuralists, because they always see their research issues in relational terms (Knoke, 2011). For instance, disease transmission networks mainly deal with questions such as “who infects whom”. By contrast, in the context of a policy network, one investigates resource exchanges between interest groups (Rhodes, 1986, 1988). As far as education is concerned, it is hypothesised that students who have stable friendship networks exhibit high learning performances. Researchers in organizational sociology are interested in finding out who forms the core of an informal organisation in a formal organisation and what the positive and negative influences of these informal groups are on the operation of an organisation. The meanings and contents of the relations can be technical or scientific information, political or strategic information exchange, resource exchange, influence reputations and the similarities of briefing systems and ideologies, friendship, trust and so on. They depend on what kind of research it is and what question the research wants to explore. Researchers applying SNA generally take the methodological

position that stable interactions among multiple actors can create an environment charged with social meaning. Social meaning can identify the relationships and roles of these actors under the network structure. They can also support collective actions in the future (Stokowski, 1994).

Like any social network, a policy network consists of a bounded set of actors and one or more sets of relations connecting them. Smith (1997: 76) defines a policy network as a means of categorising the relationships that exist between groups and the government. Policy networks demonstrate that relationships between groups and governments are segmented, and that relationships vary from one policy sector to another. The boundaries of a closed concept, the policy domain, are socially constructed by mutual recognition that the preferences and actions of the actors on policy events must be taken into account by other domain participants (Knoke, 2011: 211; Laumann and Knoke, 1987: 10). The twin concepts of policy network and policy domain can be reconciled by recognising that a policy domain delineates a bounded system whose members are interconnected by multiple policy networks.

SNA assumes that the primary unit of analysis is a social relation (a specific type of tie) connecting the members of a social system. The pattern of present and absent ties among a network's actors constitutes its social structure. Furthermore, the perceptions, attitudes, and actions of organisational actors are shaped by the larger structure networks within which they are embedded, and in turn their behaviours can change these network structures (Knoke, 2011: 211). These assumptions focus analyst's attention on the multiple types of inter-organisational ties that may be important for explaining a policy domain's social structure. They are also useful in understanding

consequential actions at the individual action level as well as at the level of the policy domain as a whole. As mentioned previously, a policy network can be seen as a set of political actors who engage in resource exchanges over policy outcomes as a consequence of their resource interdependencies. Relationships based on resource exchanges such as valuable information transmission or political support among policy actors is the analytical unit while applying SNA to a policy network (Weishaar *et al.*, 2015).

As mentioned in the previous section, there are two important characteristics of the policy process in a policy network environment. The first is that no stakeholders can achieve their goals without help in the form of information and resource exchange from others. The second is that the exercise of power is a basic element in the policy process. As noted above, the exercise of power or the influential pathways in policy processes are clearly identified by the network relationships between two or more policy makers rather than by the properties or attributes inherent in the individual or group. This means that power relationships are asymmetrical with respect to actual or potential interactions in which one social actor exerts greater control over another. More specifically, if we are concerned more about communication and information exchange in a policy process, we must recognise that influence occurs when one actor intentionally transmits information to another and alters the latter's actions from what would have occurred without the information (Knoke, 1994a: 3; Parsons, 1963). This also means that the influence is possible only when communication occurs among social actors. One actor must transmit a message to another, and the second actor must receive, decode, interpret, and react to that message. Dahl's definition of power, on the other hand, states that power is a relationship between social actors under a specific situation. Because a communication

channel must exist between the influencer and the influence, influence can also be seen as a relational dimension of power. The basic units of any complex policy network system are not individuals, but positions or roles occupied by the social actors and the relations or connections among these positions (Knoke, 1994a: 3).

Following the proposal of structural properties in the mathematical subfield of graph theory and sociometry (Berge, 1964; Moreno, 1941), the study of interactions and their structures in social research has moved towards a more consistent theoretical framework and methodological toolbox (Wasserman and Faust, 1994). SNA provides scientific, quantitative means and indicators to measure the pattern and structure of interactions among actors. Fortunately, the technique of SNA also provides useful tools for measuring the influence mechanisms or power pathways in an interactive structure. Furthermore, SNA is also concerned with the idea of power between multiple actors via mapping the structure of relationship. In particular, it is concerned with measurements of “centrality” and “prestige” (Knoke, 1994a; Knoke and Yang, 2008; Scott, 2002). Some research achievements which focus on the influence mechanisms underlying policy domains have been carried out at both community and national levels (Aldrich and Whetten, 1981; Galaskiewicz, 1979; Laumann and Knoke, 1987, 1989; Laumann and Pappi, 1976; Wang, 2012, 2013; Weishaar *et al.* 2015).

The network approach to power requires that the analyst assesses a position’s prominence by taking into account not only its direct but also its indirect connections to arrive at the complete network (Knoke, 1994a: 10). The network structure of multiple actors in policy domains can classify the actors’ abilities to influence others by classifying positions such as core (star), margin and broker provided the networks are

complete. The concept of centrality does not differentiate sending relations from the receiving type, but simply treats all connections as symmetrical. Centrality also means that a prominent actor has high involvement in many relations, regardless of whether he is sending or receiving ties (Knoke and Yang, 2008). Network stars (cores) acquire power because they are close to many other network actors, in effect, by lying between positions that must use them to transmit messages and goods (Freeman, 1979). On the other hand, prestige concepts preserve the asymmetry of ties among positions so that prominence increases with the extent to which a position has many relations but does not reciprocate (Knoke, 1994a: 10). The concept is useful in analysing the powers of positions in networks where commands and resources are not reciprocally exchanged. In a general situation, these two measures of prominence often prove useful for analysing power pathways. However, the choice among the alternative measures depends on both the conceptualisation to be implemented and the types of social network data available (Knoke and Yang, 2008: 62).

Some political sociologists have applied the policy domain approach to the study of national policy-making processes and collective outcomes by using SNA (Knoke *et al.*, 1996; Laumann and Knoke, 1987, 1989). This research is primarily influenced by Laumann and Knoke's book, "*The Organisational State: Social Choice in National Policy Domain*" (1987), on organisational state governance structure. Their study utilised measures of SNA and applied the perspective of action systems to understand the power relationships among policy actors in the context of both health and energy policies. The results have shown that the state is not totally a product limited by the social class or the macro historical force structure. The state's concrete policymaking characteristics get exhibited through the socio-political processes underlying national

policy formation. The collective decision is formed by all actors participating in the policy events, who act together for collective interests. While using SNA is relatively new to the field of health policy network research, some previous investigations have successful experiences in employing these approaches (Laumann and Knoke, 1987, 1989; Lewis, 2006; Wang, 2012, 2013; Weishaar *et al.*, 2015). In this study, three policy events associated with financial stability of the NHI are examined through the viewpoint of the associated action systems. By using the analytical capabilities of SNA, complicated political economic forces are depicted in social network structures related to interest alignment and resource exchange.

As for the analysis of governance structure and policy formation, we cannot ignore the fact that they are embedded within the wider political and institutional legacies. Inevitably, any action has to consider the characteristics of the political and institutional system, especially the state power of policy formation. After the implementation of the NHI, the change in the premium system, the reform of the co-payment system or the implementation of the global budget payment system will all affect stakeholders as well as the governance structure hugely. According to Campbell and Lindberg (1991), the state intentionally provides and manipulates property rights to achieve some policy effects. By releasing resources to create different motivations for the various actors to comply with, a new governance mechanism can be formed easily. This study simulates the network structure by adopting the action system perspective used in Laumann and Knoke (1987). It also includes institutional structure as a variable to understand the role and regulatory power of the state.

As mentioned above, the interaction between the participants in the NHI policy

domain can be treated as “network” in the policy processes. The technique of SNA applied to the studies of policy network can help governmental organisations to identify their relative positions within the policy network and make more precise judgements to adopt more suitable strategies to manage the network (Laumann and Knoke, 1987; 1989; Knoke *et al.*, 1996). Policy networks can be seen as social networks to go beyond the metaphors and understand how participants in a policy domain become involved in policy influence activities (Knoke, 1994a: 167; Weishaar *et al.*, 2015: 90). Both issue interests and influence reputation significantly affect communication network positions. Stakeholders with broader policy interests and higher influence reputations are usually located in more prominent positions in the network. People and organisations that are more central in a policy network are not only seen by the other actors as more influential in policy domains. They are also more likely to achieve their desired outcomes for policy events. From the viewpoint of SNA, positional centrality gives persons and organisations access to resources because the position connects actors in a given resource exchange relationship. Thus, SNA provides a reasonable and scientific method to explore social structures. This point has to be taken account while trying to understand how a policy network structure operates.

2-5-3. Two Approaches Involved in the Application of SNA in Policy Network Studies

Generally, the conceptualisation of power in a network context can take at least two different paths in relational analytical logic. The first, the reputational approach of SNA, search for power structures in which the content of the relations linking network actors can be interpreted as a power measure. This approach concentrates on a relational analysis across network members and ends up mapping power images. The other, called

the positional approach, conceptualises power as a dimension latent in all networks, or at least in those with asymmetric or directed relations (Laumann and Knoke, 1987, 1989). A good example of the first approach is to use the notion of reputational measure where all network participants identify those whom they believe to be especially powerful and or influential in the network system or whom they believe to be exceptional intermediate agencies for political brokerage. Note that the emphasis is not on the most influential actors but on those who control the information and resource flows in policy processes. Another example is a resource dependency network that can be interpreted as the reverse view of a power network according to resource dependency theory (Rhodes, 1986, 1988) and power dependence theory (Cook and Emerson, 1978).

Second to the study of power structures, the contents of the relation are less important than certain formal properties that indicate “one social actor exerts greater control over another’s behaviour” (Knoke, 1994a: 3). A classic example is Homans’s discussion of small group interactions where “the more popular members tended to receive most interaction” (Homans, 1974: 180). Homans insisted that the volume of received interactions is not a simple consequence of the actor’s popularity or esteem, but measures his/her power based on the ability to bestow scarce rewards. That is, power is the “fundamental variable determining the rank order of the members of the group in the number of interactions they received” (Homans, 1974: 182). By analysing relations between network members at a policy domain level, one can better understand how the overall configuration facilitates or constrains the actions of policy actors. Thus, whether one uses power measures or approval paths, the relational approach can interpret the power distribution among network members by capturing the participant’s reputation or resource access and mobilisation ability.

Besides reputational or access network matrices, there is a core cluster of the NHI policy domain actors that all system participants perceive to be especially influential. These policy participants jointly occupy the centre of the confirmed information transmission, resource exchange and action-set coalition networks, in the sense that they send and receive valuable information and resources from other actors or are in collaboration with others for pursuing similar policy goals. These analytical elements point to the importance of measuring policy network structure using the relational approach. They are also helpful in answering some significant questions such as “which actors have better access to timely information about policy events?” “What limits the mobilisation of resources for use in collective influence efforts?” “Why are some interest groups more successful than the others in affecting the outcomes of policy events?”

However, Laumann and Knoke (1987: 226) have argued that new phenomena often emerge through interactions among diverse participants in a network social structure. The idea of the brokerage position in a network system, or the so-called policy brokers in a policy domain, can cope with this issue from the relational perspective as well. Some policy actors play a critical bridging role in allowing communication and resources to flow from smaller to larger cliques, usually in a two-step path, rather than a direct one-step path. The existence of many indirect linkages (paths consisting of two or more steps) among the network members is a common feature of large, sparse networks. Because they permit the first and second participants to reach one another, third-party actors are critical. By not taking into account the larger domain network structure, we may reach inaccurate conclusions about the ways in which participants’ relations condition the actions of their participation (Knoke and Kuklinski, 1982; Knoke and

Yang, 2008; Lauamnn and Pappi, 1976: 201-205; Marsden and Laumann, 1984).

The analysis of network linkages may be useful in accounting for certain features of those involved, but it is quite difficult to capture the nature of the global power structure with just a few important direct and indirect connections or cohesive, small and influential groups. Global features may not be consciously visible to the participants, as they involve hundreds or thousands of connections, about which the network actors remain unaware. Furthermore, the healthcare policy domains of large nation states are not simply enlarged versions of small groups or sets of strong direct connections among a few active policy actors, even if we sometimes hear of cosy triangles forming parts of them. Thus, one can seriously question whether the findings about the status and power of small groups can be extrapolated to large systems consisting of multiple actors with different backgrounds. This is also the reason why the reputational approach to power investigation (Hunter, 1959, 1980) has been criticised by academia. To make the analytical view more comprehensive in this research, the attention must focus on individual stars (reputational approach) and whole clusters or even the global network system (positional approach) simultaneously.

The relationships among positions jointly define the structures and different roles through which power is generated and distributed among actors (Knoke, 1981: 275). Regarding the positional approach to SNA, structurally equivalent actors are typically two or more actors having identical or very similar relations with others in the network while maintaining a competitive, rather than a cohesive, relation (Knoke and Yang, 2008: 76). In other words, the positional approach to SNA is based on identifying similar positions and should be contrasted with the relational or cohesive approach

discussed in the next chapter. Furthermore, structure equivalence is placed in the same position as those actors that maintain identical patterns of direct linkages with all other domain actors. Thus, from the perspective of structural equivalence, their social roles or positions are defined by regularities in the pattern among the actions, and not the attributes of the actors themselves (Hanneman and Riddle, 2005: Ch. 12). In contrast to traditional statistical techniques, SNA empirically defines social roles and positions among actors using network data rather than attributes of individual actors. As for empirical analyses, statistical techniques of SNA such as the *CONCOR* (short for CONvergence of iterated CORrelation) algorithm, Blockmodel analysis, and multidimensional scaling (hereafter MDS) are frequently used to define social roles and positions and generate images of entire power structures in network systems.

Comparing the relational approach with the positional approach, the latter seeks answers to two basic questions. Firstly, which policy actors have structurally similar relations in these four networks, so that they can be clustered together into common positions? Secondly, what do the connections among those positions reveal about the power structures underlying the policy domain? Defining a power structure as patterned relations generating and distributing power among actors (Knoke, 1981: 275) only narrowly captures the notion of power in a network. Such a definition may fail to tap the symbolic aspects of power networks reflected in policy actors' reputations. This research included the positional, analytical dimension as a precaution against the misspecification of power models, because we assume that insider perceptions of power and influence are important components of power structures. The two approaches of SNA will be explored together in subsequent empirical chapters examining the power relations and structure among policy actors in a policy domain.

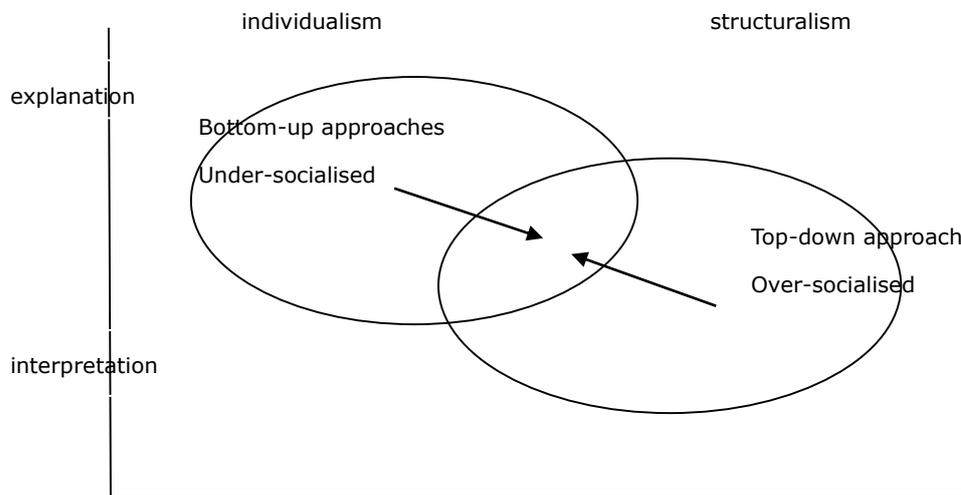
2-6. Social Network as a Way of Linking Structure and Agency

The use of power in a policy process is subtle and complex, so many researchers stand by their own viewpoints (Hill, 2009; Smith, 1997). We have already alluded briefly to four related state policy process theorists and their works on how one may explain or interpret relationships between power and policy actors and the methodological challenges associated with these approaches. In this section, an old puzzle, “is the policy process a product of individuals’ actions or a social structure restriction” will be revisited. This question has remained controversial and unsolvable to this day. In the social sciences, agency is the capacity of individuals to act independently and to make their own free choices (Barker, 2005: 448). Thus, it means that policy outcomes are products of individuals’ strategical actions under the perspective of agency. By contrast, structure is those factors of influence (such as social class, religion, gender, ethnicity, customs, etc.) that determine or limit an agent and his or her decisions (Barker, 2005: 448). For policy stakeholders to decide upon policy outcomes, there has to be a political system, an institutional arrangement and so on, but they also have to be located in that system. This is the sort of stance that a structuralist might take (Hill, 2009). However, it is also true that, without individual stakeholders and their activities, there could be no such things as policy proposals, politicians, interest groups and political systems. This is the sort of stance that a methodological individualist might take (Scott, 2000). These two approaches demonstrate two different kinds of explanatory strategies in social science - one from structure to action, the other from action to structure.

There is no doubt that the studies of policy process also have to use similar

explanatory strategies for understanding complicated policy domains which can be shaped by either individual action or structural pressure. Let us look in more detail at the structure-agency debate in policy process studies. If we borrow the categorical idea from Hollis (1994), the methodological problem of this issue in the studies of policy processes can be expressed as the problem of “level-of-analysis” (see Figure 2-2). As has been mentioned in the previous section, the top-down approach can be applied to an explanatory strategy in the block of “structuralism/interpretation” shown in Figure 2-2. The causal relationship can be identified as demonstrating that structure (institutional and political context) shapes policy outcomes. For example, the Marxist theory concerning the policy outcome is the product of structural pressure and every stakeholder in policy domains has to follow the rules of capitalists. Despite the fact that structural pressure can shape a scenario by constraining the actors’ behaviours, this approach ignores the individuals’ recognition of the political context and institutional arrangement. The approach has also been criticised for being over-socialised (Granovetter, 1985). Individuals have their own preferences and individual actions might not just be determined by structure. Moreover, we have to consider the possibility that individuals under an environmental constraint can change the game rules.

Figure 2-2. Approaches in Policy Process Studies



Source: Hollis, 1994: 19

Therefore, at the individual level, the policy process, like the bottom-up approach, is seen as a product of individuals' actions and is one of the main tendencies regarding the interest group approach such as pluralism, elitist theory and corporatism. The presently dominant trend is the approach being followed in democratic countries such as the U.S., UK and certain other Western countries (Scott, 2000). Theorists from these countries are concerned with the fact that the political phenomena associated with the policy processes in these countries are essentially interactive games with multiple stakeholders. Jon Elster (1989: 19) suggests that the elementary unit of social life is the individual human action. From this standpoint, the main unit of policy process analysis should be the individual who is self-interested and can act without limits. However, this stance ignores the influence of the political environment or institutional context which can shape the aspirations and strategies of actors under the specific game rules. More specifically, policy process is embedded in distinct institutional and political contexts. Different policy domains have distinct game rules and stakeholders. It will become an

under-socialised approach if it is concerned too much with individuals' functions and influences on the policy process.

The traditional approaches examined above are all relevant to interactions between policy stakeholders and the structure and the role of the state in policy domains. These approaches, whether structural or individual in perspective, are based on a biased understanding of the nature of policy processes in a modern society. In order to sidestep both pluralistic individualism and Marxist class structuralism, this research sees policies as resulting from conflicts and contradictions among multiple policy stakeholders embedded in the institutional and political environments (rather than only reflecting the class interests in limited bargaining-negotiation systems). In terms of methodological stance, this thesis lies in the overlapping area in Figure 2-2. The policy process in a modern society is a complicated political scenario. This means that a more suitable and flexible perspective should be applied while seeking to understand the nature of the power-exchange and the bargaining-negotiation relationships between official and unofficial stakeholders in the policy domain. Such a complicated scenario is exactly what the policy network/domain approach seeks to explore.

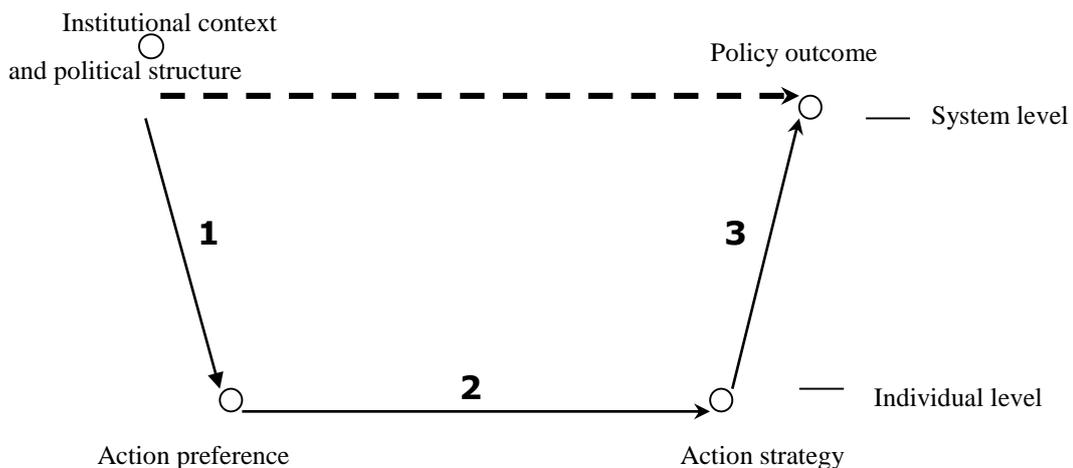
It is possible to argue that the network approach discussed in the previous section is a portable concept that can be applied to any public arena and that the study of policy networks offers more insights into how policy is made and implemented than traditional policy process approaches. Over the past three decades, a considerable amount of effort has been put in by political scientists or researchers of public administration to understand the structures of stakeholders' interactions in policy domains and the reasons behind policy failures in the U.S., European countries and the UK. Moreover, in

implementation studies, especially in what has become known as the “bottom-up approach” in intergovernmental or inter-sector relations literature (Scharpf and Hanf, 1978), the concept has been used in mapping the relation patterns between actors and assess the influences of these patterns on the policy process. Also, many efforts have been made to use the research tool of SNA in the study of policy networks/domains (John, 2004; Knoke *et al.*, 1996; Laumann and Knoke, 1987, 1989; Wang, 2005, 2012). It can be concluded that the network approach offers a more realistic and methodologically comprehensive alternative than other traditional policy process approaches.

Why is the social network approach a strategy for linking methodological individualism and structuralism in studies of the policy process? A four-pathway model can be adopted from James Coleman to demonstrate the causal relationship. Originally, James Coleman (1990) used this framework to illustrate the methodological defect in Weber’s approach to explaining the causal relationship between capitalist development and the Protestant ethic. In Coleman’s opinion, Weber’s approach lacks individual-based evidence while seeking to explain capitalist development. As can be seen in Figure 2-3, the causal relationship in the structural perspective in policy process studies can be identified by following the fourth pathway. By contrast, the individualistic perspective can be adopted by following the third pathway in which individuals’ action strategies influence policy outcomes. The structural approach ignores the individual base of explanation in the policy process whereas the agent approach neglects the structural factors which can shape the individuals’ behaviour. To be persuasive, however, accounts of policy formation should combine both structural and individual perspectives. This is because the stakeholders in policy domains are embedded in the political and

institutional contexts. Before the causal relationship between the action strategy and the policy outcome can be identified, institutional and political structures influence actor preferences and promote changes and boundaries to identify their interests and strategies. But how can we understand the context before analysing? We suggest that adopting the network perspective, which emphasises structural relationships as the key orienting principle (Knocke and Yang, 2008: 8), is a useful strategy linking pathways one, two and three. In fact, the policy network approach also sees networks as structures and actors as agents and recognises that agents' strategies and network structures influence one another (Hill, 2009: 70).

Figure 2-3. Strategy to Link Structure and Agency



Source: modified from Coleman, 1990: 8

As Granovetter (1985) points out, under- and over-socialised accounts are paradoxically similar in their neglect of ongoing structures of social relation - a sophisticated account of individual action must consider its embeddedness in such structures. The social network approach is capable of building a bridge between structural constraints and individual actions in social science and, depending not only on

their own relations but also on the way other actors are related, can provide a measure of the structural constraints of actors. Embedding actors within the set of their interactions can lead to insights into the distribution of power and the effective influence of social and political actions. With regard to the methodological stance of the network perspective, two features are important. First, the methodological level of the network approach can be identified at the meso-level (Marsh, 1998; Rhodes, 1997; Wang, 2012) and the unit of analysis is not an individual but a tie. The specification of the role of networks for different participants represents an attempt to show that this affects individual preference. Second, the concept of a network presents a powerful conceptual tool for linking the structural locations of actors, their individual preferences, and their actions while seeking to bridge the micro/macro gap by connecting structure and agency (Emirbayer and Goodwin, 1994; Tilly, 1997; Wang, 2012). The reason is that the network approach describes underlying patterns of social structure, and explains the impacts of such patterns on behaviours and attitudes (Wellman, 1999: 44).

To sum up, social scientists study power relations among people, organisations and nations. This is also the most important characteristic of policy process studies in modern societies. Policy network analysis has been the favoured research approach in public processes for many years as it offers a description of how policy decision processes are organised. However, it does not explain why they are organised in that way (Hill, 2009: 74). Due to the difficulties in measuring networks, policy network analysis has been often treated as a mere metaphor, a conceptual scheme, or a management technique (Milward and Provan, 1998: 397). On the other hand, particularly in SNA and the policy domain approach, network perspective provides a

useful alternative to understanding the policy processes in modern societies (Knoke, 2011: 211) . It also provides a strategy to bridge the structural and agent perspectives (Granovetter, 1985).

2-7. Conclusion

In studies of policy processes, structuralists tended to ignore the possibility that actors' attributes, cognitions or personalities could shape the game rules; however, so do individualists. Structural theories such as Marxism argue that state policies are determined by the class interests of capitalists and their agents. However, the reality is that not all modern, capitalist countries are manipulated and controlled by capitalists. Moreover, in many democratic countries, interest groups and their actions play an important role on policy outcomes in policy processes. Likewise, in approaches such as those based on the pluralist theory, elitist theory or corporatism neglect the structural and institutional contexts in which the stakeholders are embedded. It can be concluded that the policy processes and outcomes should not be so determined by a simple causal explanation of either top-down or bottom-up logic.

As far as the practical side is considered, it should be recognized that policy processes in a modern society are complex, dynamic and varied. Policy process theories should not dwell merely on the technical functions of governments. Rather, they should treat them as complex and diverse interactive processes influenced by the diverse socio-political and other environmental factors. This means that researchers should recognise that they operate in a dynamic environment comprising a range of stakeholders who may have very different interests and unbalanced influences in diverse policy domains.

To avoid bias in explanation, a research tool which can link microscopic and macroscopic analysis is necessary in studies of policy process in modern society. The policy network approach is an uncertain structure shaped by resource exchange and communicative relationships among multiple elites. The network concept in policy processes concerns not only more structural factors than pluralism, elitist theory and corporatism but also more individual factors than the Marxist theory.

Although Downing (1995, 2001) asserts that, as used by most of its proponents, the concept of policy networks has no theoretical basis or explanatory value. In this view, the concept has been used merely as a heuristic device, a metaphor. Network structures *per se* have no influence on policy outcomes. Rather, networks reflect patterns of interaction and resource exchange between policy participants and it is those resource exchanges that determine the outcomes (Downing, 1995: 142). Thus, the SNA, which can systematically measure the group/government relationships in policy processes, is useful in improving the explanatory power of the policy network approach.

In conclusion, the old puzzle of structure-agency dualism is still ongoing and an effort to solve the problem is more likely to be futile. Therefore, this research does not attempt to solve this puzzle. Rather, it is an exploratory effort in search of an alternative way of replacing traditional policy process approaches in policy process studies and identifying a plausible way to link top-down and bottom-up perspectives. The network perspective yields a more flexible way of understanding the complicated and dynamic policy processes. When analysed via the social network techniques, it clarifies the power-relationship structures in which policy stakeholders in policy domains are embedded. This work can act as a foundation-element in future efforts directed towards

getting a better understanding of the subject through more refined applications of network approaches in policy process studies.

Chapter 3. Institutional Context of Policy-making in Taiwan's NHI

Before entering the analysis of policy networks, it is important to explore the formal political and institutional contexts of policy formation in Taiwan. The aim of this chapter is to provide a brief description of formal policy planning and legislative procedures under multiple jural levels of institutional contexts in Taiwan's constitution. This can serve as a guide to the roles of key players and the basic procedures by which proposed bills become law or get legitimised. From the perspective of institutionalism, the political and institutional contexts, and even the structure of policy networks, can be seen as sets of rule arrangement (Bonoli, 2001; Hall, 1992; Immergut, 1992). It is not unusual that these constrain action strategies and behaviours or provide veto opportunities for policy participants in the policy process. In any democratic country, every policy promotion or advocacy activity is expected to conform to the constitution and other relevant laws to ensure its legality and legitimacy. Engaging several formal institutions in a policy process can disperse power, thereby reducing the risk of arbitrary or capricious government action and enabling a stable policy environment and a robust policy network in which the government can make policy commitments that remain credible into the future. Thus, in order to explain differences in the abilities of policy participants in securing policy outcomes favourable to themselves and in the ability of the executive government to enact its own legislative or adjustment programmes, this chapter analyses the prevailing institutional dynamics that the institutional positions the policy actors are engaged in political decision-making in Taiwan.

This chapter is divided into three sections excluding this introductory section. Section 3-1 explores the policy formation procedure with particular reference to constitutional rules, legislative procedures, and the relationship between the executive government and legislation in Taiwan. Section 3-2 focuses on resource flow within the NHI financial system. The chapter starts with an analysis of formal institutional contexts of policy-making within the NHI policy domain for providing more background information before going through the main theme of this research. Section 3-3 summarises the major conclusions drawn from the previous two sections.

3-1. Formal Rules: Policy Formation Procedure in Taiwan

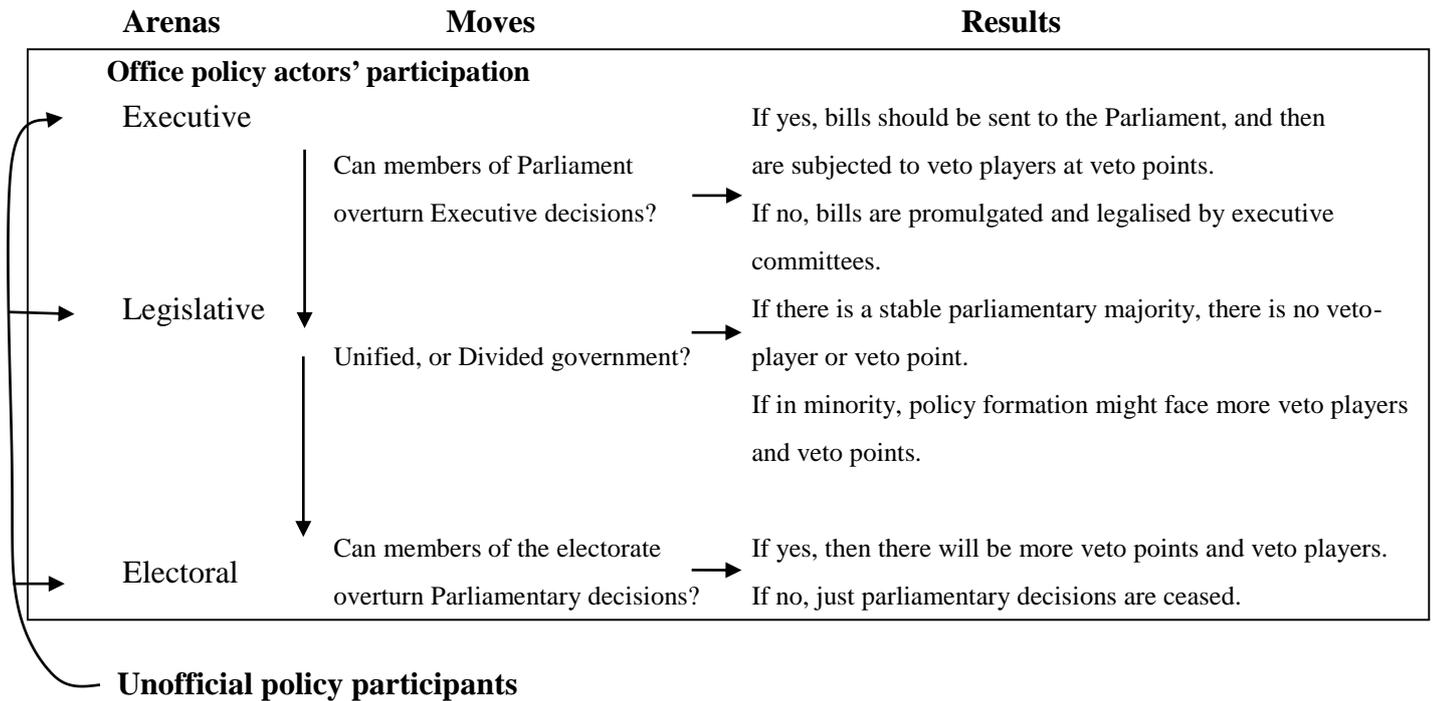
Political decisions are not single, individual decisions made at one point in time. Often, they build upon or take positions based upon one or more previous policy decisions (perhaps representing vested interests). Decisions are often embedded in a complicated policy network with high uncertainty (Koppenjan and Klijn, 2004). Major political decisions require agreement at several points along a chain of decisions made by representatives of different political arenas. The fate of a reform proposal such as one with potential impact on national health insurance depends upon the number and locations of opportunities for veto along this chain. In most countries, including Taiwan, decisions are composed of sequences of decisions made by different actors in different institutional locations at different veto points. Moreover, in light of policy proposals at the jural level, different levels of proposals also face different veto points and players in the decision-making process (Bonoli, 2000; 2001). Veto points, players in different institutional positions and the jural characteristics of reform proposals should be

considered together.

Institutional frameworks resolve conflicts by constraining actors' behaviours and limiting the number of veto players (an individual or collective actor that has the institutionalised power to defeat a proposed law by withholding formal approval) and veto points - political power and multiple points of influence on the making and implementation of policy under the constitution (Bonoli, 2000, 2001) - where the policy proposals can be considered. Numerous works have demonstrated that institutional mechanisms lead to predictable outcomes by restricting interests and choices (Bonoli, 2001; Hall, 1992; Immergut, 1992; MacIntyre, 2003). The policy formation and legislative procedure in Taiwan is similar to those in other democratic countries where either official or unofficial participants can advocate or lobby for a policy subject to the regulatory stipulations of the nation's constitution (Wang and Chen, 2010).

Figure 3-1 clarifies the impact of constitutional rules and electoral results on political decision-making in Taiwan. The ability of an executive government, especially the DoH and the BNHI, to introduce a policy depends on its capacity for unilateral action, i.e., on the probability that the executive decision will be confirmed at subsequent points of decision-making. If the executive is constitutionally independent from the Parliament or the jural levels of the proposals are no more than administrative orders - that is, if the decisions do not require parliamentary approval - the executive may take direct action inside the administrative procedure without involving the Parliament. For this reason, under the regulations of Taiwan's constitution, the administrative orders or commands of the executive decision are the final decisions. The Parliament is neither a veto player nor has veto power during policy formation.

Figure 3-1. Formal Policy Formation Procedure under the Constitution



Source: modified from Immergut, 1992: 66

Under the NHI Act, the NHI is a government-run, single-payer national health insurance scheme financed through a mix of premiums and taxes that compensates a mixed public-private delivery system predominantly operating on a global budget system (BNHI, 2015). In the case of the NHI policy formation in Taiwan, most of the administrative orders and commands can be adhered to or decided upon within the structure of the NHI Act. As can be seen in Figure 1-4, the NHI has a triangular governance regime made up of the BNHI, the insured and the providers. Under the Executive Yuan, the DoH is the leader dominating the health policy formation and supervising the performance of the BNHI. In the DoH, well-organised committees such as the NHI Supervisory Committee (NHISC), the NHI Disputes Mediation Committee (NHIDM) the NHI Expenditure Negotiation Committee (NHIENC) the NHI Task Force

and the BNHI are important components in running the NHI (BNHI, 2015). In particular, the NHISC is the most important intermediary which allows social associations, employers and providers to communicate with each other under the NHI Act. Moreover, the NHIDM is an independent agency and quasi-public sector which can mediate disputes between the insured and the providers. Similarly, in order to negotiate payments to providers under the Global Budget Payment (GBP) system, the NHIENC was formed by delegates identified by the provider and the BNHI in 1999. Hence, most administrative orders and commands related to diverse health domains can be decided in these committees (BNHI, 2015). The committee members including the minister of the DoH, the BNHI and the providers, the employer, employee association representatives or other related welfare NGOs can be seen as important veto players in the decision-making process.

However, if the constitution requires parliamentary approval, the decision-making process moves to the Parliament. Under this situation, the political status quo of either a unified or a divided government and the party competition rules should be carefully considered as the policy process will become more complicated than the administrative orders and commands themselves (Bonoli, 2000, 2001). In Taiwan, the legislature or the so-called Legislative Yuan (Article 62 of Taiwan's Constitution) has two different kinds of powers. One is proactive, such as, with initiating a bill. The other is reactive, such as in the cases of cutting the budget, monitoring budget enforcement, and reviewing executive decree orders. Here, however, partisanship and party discipline make a difference. If the executive government enjoys a stable parliamentary majority and party discipline is being maintained, the probability that an executive decision would be overturned by the Parliament is extremely low. Thus, under the constitution, although

the Parliament is required formally to ratify the executive decision, the effects of partisanship will lead the Parliament to essentially “rubber-stamping” the legislation and the executive will remain the effective point of decision-making (Wu and Huang, 2007). In other words, the political environment and policy formation procedure of a unified government can be seen as a situation introducing administrative orders and commands.

On the contrary, a stable parliamentary majority does not have to support the executive if party discipline does not require members of Parliament to veto in mediation with their fellow party members in the executive. Also, the probability that parliamentary representatives would seriously review and overthrow executive decisions is much greater. Under such a circumstance, one would expect significant policy changes and even vetoes from parliamentary representatives (Rose, 2001). However, the premier (the president of the Executive Yuan) can ask the legislature (the Legislative Yuan) to reconsider some impracticable bills in 15 days. If the Legislative Yuan does not reconsider or pass a resolution within 15 days, the original bills will become invalid. But if over one-half of the members in the legislature support the original bill, the premier accepts and enforces it. This power to reconsider bills is similar to veto power in the Executive Yuan under the political environment of a divided government.

Divided government exists where different political parties control the executive and legislative branches in a political system. A number of researchers have claimed that divided government tends to lead to policy inefficiency and stalemate between executive and legislative branches (Binder, 1999; Coleman, 1999). While executive and legislative posts are determined through separate elections, there is a lack of unified

leadership and this tends to lead to conflicting policy positions. Policy formation in a divided government will suffer from more veto players who attempt to intervene in policy outcomes at more veto points (Rose, 2001). This also means that because of the different stances from the opposition parties, the position of the ruling party's reform proposals could lead to more stalemates in legislative procedure in the policy domains. Under such a political circumstance, it is harder for the ruling party to build a policy community capable of reducing uncertainties while promoting reform proposals (Wang and Chen, 2010).

The power situation in the year 2000 marks the first time in history that the parliament in Taiwan was under the control of an opposition party. The KMT became the biggest opposition party and assembled other small parties to organise the “pan-blue camp” to oppose the ruling party, the DPP, in the Parliament. A divided government became a common feature of Taiwan's national political landscape during DPP's rule between 2000 and 2008. Based on the experiences of advanced democratic countries, when high levels of partisan conflicts appear, universal political order is unlikely to flourish (Leonard, 1991; Rose, 2001). In other words, the division of Taiwan's government between a DPP-led executive and an opposition-dominated legislature has led to rather inefficient policy-making (Wu and Huang, 2007). Under a divided government, the majority party in the parliament would not be able to distribute more political benefits and interests to voters than would a unified government. This pattern can explain legislative behaviour in Taiwan's Parliament during the period of the minority government after 2000 (Wu and Huang). Based on Taiwan's constitution, only the government can propose the budget and the legislature shall not increase the expenditure component of the budget. Thus, the legislature has dominating power over

the executive. In addition, because of a particular political dynamic - the ruling party is a minority in the legislative - there is a political balance, especially with regard to budgetary bills. The opposition would not let the government have its way and there would be regular party confrontations in the Legislative Yuan, especially when considering bills regarding budgets or controversial issues. Otherwise, the government would have the upper hand in the next election - this would hurt the opposition parties' competitive advantage in the election. If the government wants to pass distributed policies or barrel projects, the ruling party needs to strategically give up some political benefits or compromise on the contents of the bills when a political deadlock happens (Wu and Huang, 2007). This problem has been exacerbated by the increasing involvement of interest groups in Taiwan's legislative process. Hence, there are many reasons for expecting that, in divided governments, universalism is less common than in unified governments.

Similar factors govern the relationship between the parliamentary and electoral arenas. In most political systems, a parliamentary decision is the last step in enacting a law. However, whenever there is a possibility of popular referendum on the legislative decisions under consideration, this formal constitutional rule allows the electorate to override parliamentary decisions. In Taiwan's case, the right for referendum engrained in the constitution protects the people's right to resist laws they do not like (Wang and Chen, 2010). For instance, when the policy agenda cannot be resolved by formal policy formation and implementation processes, it would become a serious dispute. It is also an opportunity to launch the referendum process. If the referendum option has been invoked, the electoral arena itself will become an effective veto point and all electoral members will become veto players (Wang and Chen, 2010). Sometimes, when electoral

shifts or approaching important elections make members of Parliament and the ruling party especially sensitive to voters' reactions to controversial policy agendas, the electoral arena can become a de facto point of veto and drive the ruling party and the opposition to leave the matter aside for the moment (Immergut, 1992). Thus, the promotion of the 2G-NHI financing scheme that attempted to relocate the contribution rate of the NHI's revenue by the DPP government also underwent a temporary "policy shift" towards other favourable policy issues of the ruling party while approaching important elections.

Constitutional rules and electoral results produce different constraints on the ability of the executive government to introduce new policies or promote reforms. Such institutional and political hurdles direct decision-making along different paths. Opportunities for veto determine whether the effective point of decision will lie in the executive arena, the parliamentary arena, or the electoral arena (Immergut, 1992). The specific mechanisms for veto determine precisely which veto players (including official policy participants or unofficial policy participants) have the power to ratify or block policy proposals. Moreover, formal constitutional rules and electoral results establish an institutional architecture in which policy-making and interactions among official and unofficial policy stakeholders get allowed.

All that has been discussed above are standard political factors affecting health policy-making in the context of the three Taiwanese cases alluded to previously. Furthermore, these three cases with different jural levels faced different number of veto players and veto points when the DoH and the BNHI attempted to promote the NHI's financial sustainability. Table 3-1 clarifies the institutional characteristics of these three

policy events and also classifies the suitable dimension of political feasibility for promoting the three proposals. With regard to the policy event of the 2G-NHI financing scheme, changing the calculation of revenue contribution was a bill that needed to be discussed and approved by the Parliament in the NHI Act. The DPP government attempted to increase NHI revenue through the new financing scheme that resulted after intense discussion in the Parliament. In the event, this policy event could be specified through the involvement one way or another of numerous veto players and veto points; almost all actors acknowledged that arriving at political feasibility for policy-making was a formidable political task (Wang and Chen, 2010). In contrast, the policy events of the implementation of the GBP system and the double raise scheme can be adjusted and announced by the executive government under the NHI Act, the constitutional rules and the NHI Act automatically filter the number of veto points and players while promoting these two proposals. It could be expected that boosting the two reform policies was easier than dealing with the 2G-NHI financing scheme. However, in the case of the double raise scheme, the controversy of raising the rate of co-payment for the insured led to a more complicated policy conflict environment which compelled several, unexpected policy stakeholders to get involved energetically and advocate their preferred policy goals (Wang and Chen, 2010).

Table 3-1. Institutional Characteristics of the Three Policy Events

Number of Veto Points	Number of Veto Players	
	More (divided government)	Fewer (unified government)
More	The amendatory act	
	Policy event of the 2G-NHI Financing scheme (2002-2012)	N/A
Less	Administrative orders or command levels	
	Policy event of the implementation of the GBP system (1998-present) Policy event of the double raise scheme for co-payment (2002-2004)	

Source: the author

This research focuses on the impact of political institutions on the ability of these actors to prevail in policy conflicts so far. In the past institutional perspective studies (Immergut, 1992), policy outcomes and policy makers' behaviours were analysed and anticipated through stable game rules. However, in this research, the rules of policy processes are established through a distinctive political logic that, at least at a preliminary level, they are capable of accounting for the three different patterns of political behaviours and the associated policy results. The constitutional rules of policy formation are also a stable institutional architecture for promoting these proposals, but the policy outcome is less decided by the institutional environment alone.

3-2. Financial Resource Flow in the NHI

To delineate the network's boundary, identify policy actors and policy actors' institutional roles and the resource capability of the NHI policy domain in terms financial sustainability, the financial flow pathway of the NHI operation mechanism should be reviewed first. Running a huge universal health care system is a complex

task; therefore, the operation should be supported by sustained financial provision. The NHI Act has set up several institutional platforms for important stakeholders in either financing or expenditure mechanisms. As can be seen in Figure 1-5, three main flow pathways need to be sustained to ensure financial sustainability by balancing revenue and expenditure. The first pathway is the income side of the premium scheme using six categories. The second pathway is the expenditure side of running the GBP payment system. The final pathway is the supplementary side of the co-payment system that not only restricts wasteful “hospital-shopping” on the part of the insured but also increases revenue to sustain the NHI. Thus, while the NHI has indeed made health care more affordable at the point of service for patients, issues such as how much it has increased total national health spending and what premium and payment system is best capable of restraining the spending are getting more and more important and urgent.

On the income side, the BNHI is responsible for collecting premiums from health insurance subscribers. The main source of income for the programme is the six-category premium system based on the premium rate of 4.55% of salary (BNHI, 2015). The NHI is financed on a pay-as-you-go basis with the income-based premiums typical of social insurance systems. Also, the premium is shared by the insured, insuring agencies and government subsidies at 38%, 37% and 25% respectively in 2007 (BNHI, 2007a: 9). In addition, it is useful to note that, to embody the ideas of the NHI social relief, premium contribution rates differ among the six different categories of insured population. The government also plays a crucial role in providing a 10% financial subsidy to the insured, waged workers, 40% for self-employed workers and community workers, 70% (for farmers and fishermen, and 100% for military servicemen, retired soldiers and low-income families (BNHI, 2004).

The second main source of income is the co-payment system, which attempts to share the cost of health care utilisation and reduce unreasonable utilisation rates of health care resources. The rate of co-payment can be adjusted by the BNHI and the DoH under the NHI Act. Regular clinical visits require a modest co-payment, from which poor households are exempt. In other words, co-payments are levied on each component of a treatment and a reasonable volume standard for outpatient visit is introduced coupled with a sliding fee schedule for visits above the volume standard (BNHI, 2015). The co-payment system also intends to encourage the public to visit community clinics for mild conditions and to refer to a tertiary hospital only if advanced examinations and treatment are needed. The rates are the highest for outpatient care at medical centres and the lowest at clinics.

As far as the expenditure side is concerned, the GBP payment system is the most important institutional design adopted by the NHI in the interest of cost containment (Wang and Chen, 2010). The NHI Act has been imposing the GBP system in order to fix the yearly budget since the NHI's inception in 1995. However, in the early days, the NHI was paying medical fees to health care providers on a "fee for service (FFS)" basis at uniform national fee schedules. Medical services were scaled according to "their resource-based points of value", which were then converted into fees. The dollar value of a point was annually negotiated between the BNHI and the association of health providers. Like all open-ended health insurance systems relying on FFS payments to providers, Taiwan's NHI experienced rapid increases in the volume of services, which, in turn, led to charges of supplier-induced demand for services, many of which might not be medically necessary (Cheng, 2003: 67). In order to restrain the gradually rising expenditure, the Taiwanese government set up separate global budgets and medical care

quality indices for dental service, Chinese medicine, office visits at clinics and hospital outpatient and inpatient services from 1998 to 2002. To ensure the sustainable operation of the NHI, the GBP system created a communicative platform for payment negotiation between the BNHI, the providers and the insured (BNHI, 2015). It also instituted self-regulation and an inter-monitor environment for professional health care associations. In other words, the GBP system is a co-governance and responsibility-sharing regime aimed at cost containment between the BNHI and providers.

In this research, three important policy events representing three parts of the financial flow mechanism in the past decade are selected to classify the boundary of event participants and explore the structure of policy networks in the NHI's financial sustainability. Events are decision points while of selecting a collectively binding decision and determined potentially crucial activities. We selected the following three major policy events at which large numbers of actors are likely to seek influence and about which especially reliable recall data could be gathered from informants. First, for the policy events of the reform planning and promotion of the 2G-NHI financing scheme were chosen in order to examine who rules the income side of financial sustainability. Second, the evaluation of the GBP system's annual implementation was also selected so as to throw light on the network structure associated with the cost containment mechanism of the NHI. Finally, the promotion of the new co-payment scheme (the so-called double raise scheme in Taiwan) was selected in order to get a more comprehensive understanding of the governance mechanism of the NHI's financial sustainability.

These three representative policy events can be seen as three different policy

networks within the NHI policy domain. All formal and informal policy participants involved in the three policy events (networks) can be viewed as policy stakeholders with particular influence on policy outcomes in the NHI policy domain. Policy domains are socially constructed by the actors' mutual recognition that their preferences and actions on policy events must be taken into account by the other domain participants (Knoke, 2011: 211). More formally, a policy domain is any subsystem "identified by specifying a substantively defined criterion of mutual relevance or common orientation among a set of consequential actors concerned with formulating, advocating, and selecting courses of action (i.e., policy options) that are intended to resolve the delimited substantive problems in question" (Knoke and Laumann, 1982: 256). In this research, the twin concepts of policy network and policy domain are reconciled by recognising that a policy domain delineates a bounded system whose members are interconnected by multiple policy networks (Knoke, 2011: 211).

In summary, the above three policy events can be seen as three policy networks within the NHI policy domain. The method of sampling follows the above cases to select informants who either have formal channels of communication or use informal media while participating in the three policy events. Thus, the insured and other relevant premium contributors such as employers, employee associations and service providers also play roles necessary under the NHI Act.

3-3. Conclusion

The aim of this chapter is to sketch a rough picture of the institutional environment in which policy stakeholders operate and a brief background to three policy events in

the NHI domain in Taiwan. Firstly, from the perspective of formal institution, the 2G-NHI financing scheme, as an amendatory act, not only has the most veto players and veto points. It is also difficult to be passed, given the regulations of Taiwan's constitution. However, the other two policy events can be viewed as administrative orders or commands with fewer veto points and veto players. This has meant that the executive government has had to overcome huge political obstacles since 2003 in promoting the 2G-NHI financing scheme. Secondly, the policy actors articulate their policy interests and impact on policy outcomes under the NHI Act. The NHI Act can also influence the strategies adopted to connect with others and exercise power in the NHI policy domain.

Constitutional rules and electoral results produce different constraints on the executive government's ability to introduce new policies. The institutional and political hurdles so arising direct decision-making along different paths in the context of different policies. Under Taiwan's constitution, legislators and party caucuses in the Legislative Yuan have been allowed to vote on bills and exert power over law making. The legislators and parties (especially committee chairs in the parliament) often wield considerable political power while pursuing legislative agenda. The executive branch in the NHI policy domain (consisting of administrative agencies, the DoH and the BNHI) has considerable advantages in policy planning, making, implementation and evaluation. One of the most important advantages is its superior access to information. Another important advantage is that the BNHI is the only agency constitutionally authorised to levy the premiums.

As mentioned previously, the administrative agencies responsible for running the

NHI can be viewed as public managers of the NHI policy domain. It should be recalled that, although the executive branch has more public authority than other policy stakeholders, a divided government has replaced unified government as the institutional norm since 2000, thus putting the central government under siege. Maintaining effective governance was getting harder for the DPP government due to more pressure and challenges from the opposition parties and other related interest groups in every policy domain. The NHI policy domain has become more complicated and diverse in the DPP-led government than previous KMT-led government. Network management of the DPP-led executive has had to deal with more uncertainties resulting from the interactions among the strategies of diverse actors. This has also meant that, in reforming the NHI, the network management strategies and abilities of the DPP government have become more critical than was the case with the previous KMT government.

This chapter has adopted the formal perspective on institutions while seeking to explain differences in the abilities of policy stakeholders. This is to secure favourable policy outcomes and the ability of the executive government to enact legislative programmes it prefers. Moreover, political institutions can be thought of as the outermost frame encompassing political conflicts. By helping shape the meaning of political power and providing a basis for developing political heuristics, institutions define the roles and resources of the policy stakeholders. They also define the terms of political conflicts. However, policy outcomes are not determined just by the prevailing institutional designs. This has meant that, since at least the 1970s, the conception of policy networks in policy process literature in political science has been seeking a more comprehensive picture of policy processes. The rise of the policy network and the policy domain perspective was supplemented by formal institutional perspectives in the

evaluation of the steering abilities of the government and explaining policy outcomes and changes. This is why Chapter 5 (the chapter following the methodology chapter - Chapter 4) starts with a discussion of the resources and policy preferences of the policy actors in the institutional context of the NHI, then shifts to an analysis of multi-resource dependency and collective action relationships among policy stakeholders.

Chapter 4. Methodology

This chapter describes the methodology applied in this research. First, the policy network approach is employed so as get an idea of how patterns of connections among policy actors of Taiwan's NHI policy domain affect healthcare financial sustainability. Second, I present details concerning data collection along with the analytical methods I employ and examine the links between research topics, questions, and, in particular, the reasons behind the research framework I adopt. Finally, certain ethical issues impinging on the research are discussed.

4-1. Research Design

“A research design describes a flexible set of guidelines that connects theoretical paradigms to strategies of inquiry and methods for collecting empirical materials” (Denzin and Loicoln, 1998: 28). The approach I have employed is adapted from Marsden and Laumann (1977) and follows Laumann and Knoke (1987) and Knoke *et al.* (1996). The latter's framework is based on social network techniques, the actual research project for policy network structure utilised both quantitative and qualitative research techniques. In order to understand the power relationship and governance mechanisms between multiple policy actors in the previously mentioned three policy events of the NHI policy domain in Taiwan, my research employed both quantitative and qualitative methods. The participants were not only asked the same set of social network and policy value questions but their observations and experiences participating

in these reforms were also recorded to supplement the hypotheses drawn from my quantitative network analysis.

The policy network approach offers more insights into how policy is made more than what the traditional studies of policy processes can. Decisions are shaped by networks of interrelated public and private sectors or elites sharing common expectations and interests in policy domains. Consequently, in order to investigate who had been dominating the NHI's policy-processing with a clear focus on the operation of the institutions (Knoke, 2011: 211), my research was concerned more about the social structure of multiple policy makers or of policy communities constructed by these policy actors' social relationships. Therefore, this study selects relevant policy events to supplement my survey-based analysis with context-dependent characters (John, 2004: 139).

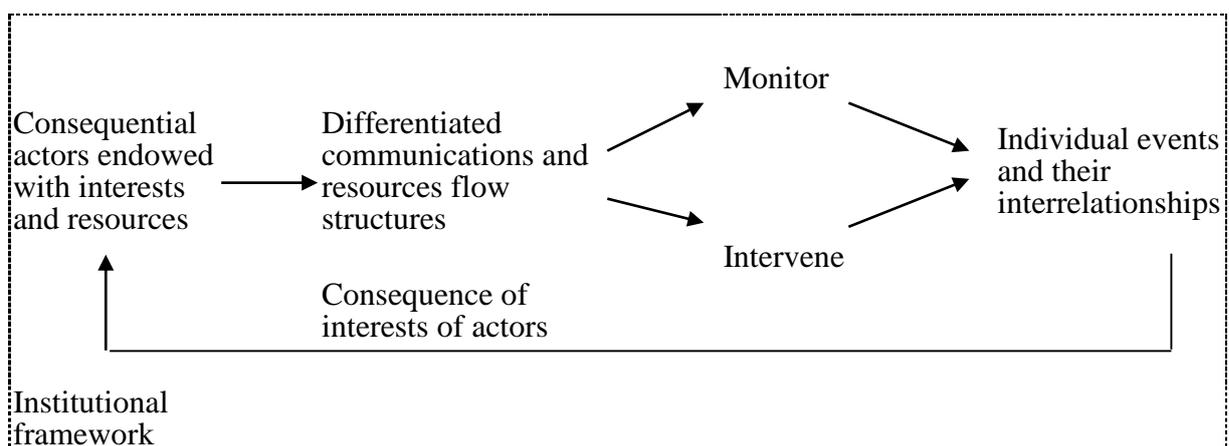
To delineate the boundary of the NHI policy domain network with respect to financial sustainability, I shall review the approach of policy domain (Knoke, 1994a, 2011; Laumann and Knoke, 1987, 1989; Laumann, Marsden and Prensky, 1983) and the financial flow pathway of the NHI operation mechanism. Following its definition presented in the previous chapter, a policy domain can be seen as a set of actors with major concerns about the substantive area. Their preferences and actions on policy events must be taken into account by other domain participants (Laumann and Knoke, 1987, 1989). A specific policy domain can be seen as a bounded system whose members are interconnected by multiple policy networks (Knoke, 2011: 211). Researchers have assumed that the most significant policy actors would leave public records of their efforts to influence domain policies (Knoke, 1994a; Laumann *et al.*, 1983). This means

that the network data collected from different policy events covering different periods in the NHI policy domain in the DPP government may have the potential to interpret stable and continuous interactions among key players during our survey period.

With regard to the financial flows within the operations of the NHI, there are three main flow pathways to ensure financial sustainability (see Figure 1-6). The first concerns the income side of the premium scheme. The second is the outcome side of the payment system. The final pathway concerns the supplementary side of the co-payment system from the viewpoint of restricting the insured's wasteful behaviour with respect to hospital-searching. I selected three representative policy events (occurring over the last decade) corresponding to the three paths of the financial flow mechanism to determine who governs it. I selected major policy events at which large numbers of actors were likely to seek influence and about which, especially reliable recall data might be obtained from informants. The first concerned the promotion of the 2G-NHI financing scheme since it could be seen as a policy network in which a lot of policy stakeholders involving in. I chose it to examine who influence the outcomes of the promotion. The second concerned the implementation of the GBP system since it could throw light on the question of who governs the cost containment mechanism of the NHI. The third concerned the new co-payment scheme (the so-called double raise scheme in Taiwan) in order to arrive at a more comprehensive understanding of the governance mechanisms underlying the financial sustainability of the NHI. The key players in the three policy events could be seen as three bounded policy subsystems within the NHI policy domain. The method of sampling used in the above cases involved selecting the participants engaged in the three policy events.

With a view to arriving at more scientific and systematic findings, I purposefully chose quantitative SNA. Different from the classical, empirical social research, SNA examines the relations between actors rather than actors' attributes. Social network data are treated mathematically rather than statistically. This is because the observations are seen less as a "sample" of certain larger populations and more as population of interest in themselves (Hanneman and Riddle, 2005). Laumann and Knoke's (1987) used mathematical and sociometric ways to collect and analyse data and interpret findings through the research framework of the collective action system embedded in U.S. health and energy policy domains (see Figure 4-1). They identified 65 and 56 policy events in health and energy policies respectively and distributed a social network questionnaire focusing on four sub-network categories: research, development, regulation, and expenditure in U.S. domestic politics (Laumann and Knoke, 1987, 1989). My research followed a similar framework during data collection and analysis.

Figure 4-1. Model of Collective Actions within a Policy Domain



Source: Laumann and Knoke, 1987: 4, 1989: 19

Following are some details concerning the analytical framework of the collective action system. First, an action system refers to the fact that policy actors are embedded

in a collective action system in the different policy event contexts. Each collective action system is composed of a set of consequential policy actors with different capabilities to influence policy outcomes. Each policy event can cause a special event scenario in which the powers and resources of multiple actors are bounded and identifiable. In Knoke *et al.*'s (1996) policy network model, "different capabilities" of actors means that the antecedent variables affect, but not completely determine, actors' locations within policy networks. The basic principle behind this expectation is cumulative structure advantage: actors have border policy interests, larger resources capabilities, and public authorities can more easily convert the advantages into proximity to the centres of communication and resource exchange networks. Second, the actors in collective action systems pertaining to different policy events are assumed to have the capability to communicate information and exchange resources with other actors in accordance with the principle of reciprocity under a network structure shaped by stable interactions among actors. Third, these event participants can influence policy outcomes or interrelationships by monitoring, intervening in or mobilising resources. Policy outcomes or new interrelationships create positive or negative consequences for those who are involved and for the participants in each policy event.

With a view to enhancing the understanding of the interactive structures and power distributions in health and energy policy domains, Laumann and Knoke (1987) focused on access and reputational networks. As for an access network, the communicative and resource support and collaborative interactions among policy participants are measured on the basis of how they arrive at a consensus, resolve conflicts and exchange information and resources within an interactive structure. Many previous studies on community elites have claimed that they are able to locate stable and valuable

information. They have claimed that the identification of the material resource exchange network is a prerequisite for resolving local public issues and facilitating productive collective actions (Laumann and Pappi, 1976; Marsden and Laumann, 1977). Therefore, good communications between policy participants can decrease transaction costs and facilitate resource exchanges and action-set coalition relationships impinging on policy-making processes. Therefore, Laumann and Knoke (1987) focused on information-exchange channels among policy participants in both policy domains. Knoke *et al.* (1996) also captures the power structure of labour policy domains in the U.S, Germany and Japan by exploring three access networks of policy participants: information transmission, resource exchange and action-set coalition.

Based on the sense of power dimension of access network, the social structure of a national policy domain is primarily determined by the network of accesses to trustworthy and timely information about policy matters. The greater the variety of information and the more diverse the resources that a consequential actor can tap, the better situated the actor is in anticipating and responding to policy events that can affect its interests (Laumann and Knoke, 1987, 1989). In Knoke *et al.*'s (1996) original policy network model, "resource exchange network" refers to a political support network. By contrast to "communication network", resource exchange refers to possible political support through votes, vetoes, lobbies and the like. Within a resource exchange network, a policy actor's power and influence is a function of its position and location in the overall resource exchange networks generated through dyadic resource exchanges (Knoke, 1994a, 2011; Laumann and Knoke, 1987, 1989). As for the third access network, action sets are coalitions whose partners have similar outcome preferences and work together (Knoke *et al.*, 1996). Less-powerful policy actors protect themselves

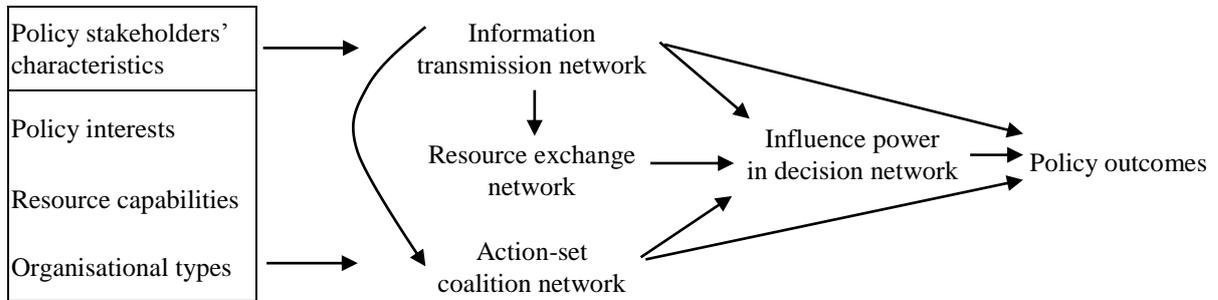
from utility losses by building coalitions with other actors who share their preferences.

On the other hand, “reputational network” is structure emphasising salient power. Informants are asked to designate all other policy actors that they see as “especially influential” in the policy domain (Knoke *et al.*, 1996: 191). Thus, in contrast to the other three access networks, reputational networks emphasise perceived attributions rather than real access relationships. However, as the same with access networks, the reputational network is interpreted as an information/resource dependence network wherein reputational differences indicate power imbalances in a network (Knoke *et al.*, 1996: 193).

Based on Cook and Emerson’s (1978) power dependence theory and Rhodes’s (1986) resource dependency theory, actors obtain power to the extent that others depend on them to supply the resources desired. Actors holding more information/resource dependent relationships than others are treated as more influential (Knoke, 2011; Smith, 1997). In order to succinctly examine the power structure of a network system, the above mentioned access and reputational networks should be considered together in relational as well as positional terms (Laumann and Knoke, 1987, 1989; Knoke *et al.*, 1996). Laumann and Knoke (1987) hypothesised that if any two actors can share the policy interests or decrease the transaction cost of stable interactions, it is easy for them to shape the communicative linkages help resource mobilisation and manipulation. They also facilitate action-set coalitions while pursuing similar policy goals. As for this research, we focus on communicative, information, political resource exchange, collective action relationships and reputational attributions among the policy participants. Figure 4-2 shows the causal model of relations among institutional and

organisational characteristics, communication, resource exchange and collective action networks, influential power distribution and policy outcome.

Figure 4-2. Analytical Model of Policy Network/Process



Source: modified from Knoke *et al.*, 1996: 106

With regard to validity and reliability issues in this research, using self-report quantitative network data could reflect a far-from-complete correspondence between survey reports of interaction frequencies (“cognitive” data) and contemporaneous observations (“behavioural” data) (Knoke and Yang, 2008; Marsden, 2005). However, SNA application seems looser and more flexible compared to other quantitative or qualitative methods. Firstly, few studies have dealt explicitly with the validity issue in SNA, e.g., to determine whether or not the relations measures actual interactions (Marschall, 2007: 13-14). However, research has shown that response accuracy is not only flawed, but also systematically biased (Bondonio, 1998; Carley and Krackhardt, 1996; Kilduff and Krackhardt, 1994; Killworth and Bernard, 1976; Marschall, 2007; Mouton, Blake and Fruchter, 1995a, b). Also, using SNA is very sensitive to response rate (Provan, Veazie, Staten and Teufel-Shone, 2005: 606), which is relevant to the validity issue in this study. John (2004) also argues that social network research is sensitive to collect data and takes time; thus it is unfair to judge its validity. However, rather than relying on data collected by a single researcher, utilising the opportunity of

joining research projects conducted via two research teams - one sponsored by the DoH and the BNHI and the other by the National Science Council (hereafter NSC) - can guarantee the quality and response rate of data. Secondly, it is difficult to frame the issue of reliability in the context of SNA. Since social patterns of interaction are likely to be volatile, they have not been dealt with systematically in previous social network research, with a few exceptions (Knoke and Yang, 2008: 35; Wasserman and Faust, 1994: 58-59).

SNA in the field of policy network studies can be divided into using network analysis as a research tool and research into SNA using policy networks as specific cases. Throughout this research, SNA has been applied to measure the interactive structures of three policy events in the policy domain of the NHI's financial sustainability by utilising both quantitative and qualitative methods. The research steps are described below.

1. Identification of the policy network boundaries

This research introduces and explains the background of three important policy events, i.e., the policy-making process of the 2G-NHI financing scheme, the GBP system's implementation and the promotion of the new co-payment scheme (double raise scheme) of the NHI policy domain, with particular reference to the DPP government (2000-2008).

2. Identification of the network actors

Most public affairs include official and unofficial participants in the policy-making and implementation processes. Also, because the characteristics and interests of policy

domains should be identified as well, special participation is required in the policy process. At this stage, a primary literature collection can be helpful in coming up with an initial plan before proceeding to analysis.

3. Data collection methods

After identifying the research boundaries and network actors and documentary collection, a structured social network questionnaire and semi-structured interviews were adopted in my research to collect data. The network data so collected were utilised to map the influence mechanisms and the power pathways in the NHI policy domain. After that, semi-structured sets of interviews were conducted to expand upon the previous analytical results so as to get a more comprehensive understanding.

4. Analysis of network data

This research applied the software UCINET and Netdraw to glean preliminary information on the actors' interactive networks of contact and information. This helped me come up with a graph capturing the interactive structures. Also, questions such as “who can be a policy broker”, “who is the key person to decide policy outcomes”, “what kind of coalitions these policy participants shaped” were explored by means of the same software. The qualitative data was analysed through NVivo in order to supplement the analysis of influence pathways and stakeholders' policy stances in the NHI policy domain.

It needs to be emphasised that the key challenge that decides the success or otherwise of a social network study lies in identifying the network's boundaries and multiple policy participants. This research is not an exception since it involves

measurement of the most comprehensive identification of the consequential policy participants related to three policy events. More details concerning the four steps discussed above will be presented in the following sections.

4-2. Data Collection Strategies

In this study, quantitative and qualitative data were collected from documentary literature and from responses to the SNA questionnaire and semi-structured interviews. After collecting relevant documents, a combined data-collection strategy was used to explore and answer the research questions being addressed. First, quantitative SNA was employed to reveal ties and network relationships from the perspective of the individuals in the sample list (de Vaus, 2001). Second, semi-structured interviews were used to collect qualitative data, with the researcher and participants as the instrument of choice. In other words, quantitative SNA is used to primarily explore the interconnected ties among the policy actors and semi-structured interviews are applied for more details in the discussion of the policy domain. This approach has been advocated by network researchers who suggest that there is a natural fit between quantitative SNA and qualitative studies (Emirbayer, 1997; Kilduff and Tsai, 2003).

4-2-1. Documentary Literature and Official Statistics Collection

Most empirical researchers are aware that data are helpful in the right context and data out of context are simply unhelpful. Policy network studies are very sensitive to boundary setting and participant identification. The appropriate archives, official and unofficial documents are useful in arriving at a preliminary identification of the policy

background, the major policy participants and their policy preferences preliminarily. In my study, I gathered a variety of documents to understand the developmental history of the NHI, in particular, focusing on financial sustainability in the three policy events.

I collected data from a variety of relevant sources: books, newspapers, specialised magazines, government reports and published statistical reports, academic research papers, PhD theses and the like, either electronic or paper copies. Government documents including conference records, white papers, hansards (meeting records), published statistical data and some relevant project reports were collected from the DoH, the BNHI, the Taiwan National Library and other possible sources in order to not only gain a primary understanding of the historical development of the NHI but also identify three important cases in the policy domain of the NHI's financial sustainability. Second, specialised magazines especially from the healthcare providers' associations and other NGOs were collected to understand the official standpoints of the provider. These magazines were helpful in grasping the providers' and the insured's policy interests. Third, newspapers are an important data source to explore the social and political issues and attitudes of not only the public but also the government and healthcare organisations in these three policy events. Fourth, gathering other possible data sources such as books, PhD theses and academic papers and reports were helpful in reviewing the significant contributions of previous works with either academic or practical contributions. More details about the documentary data collection can be seen in Table 4-1.

Table 4-1. Documentary Data Collection

Documents	Sources	Usage	Relevance
Academic books and papers	Libraries, Amazon	Literature review	Helps explain the background of the research and build a theoretical framework
White papers and reports	The DoH and the BNHI	Literature review and content analysis	Valuable in the analysis of the official standpoint and policy promotion
Newspapers	Electronic database	Content analysis	Collected from the three main newspapers in Taiwan to identify crucial policy events and screen for viewpoints of different key players
PhD theses	Taiwan National Library	Literature review	Helps pinpoint previous achievements in NHI studies
Committee hansards	The NHI committees	Content analysis	Most helpful in helping to understand preliminary interactions and viewpoints in these committees
Association magazines	Healthcare providers, employee, employer associations and NGOs	Content analysis	Helpful in understanding the viewpoints of the providers and NGOs involved in these three cases
Published statistical data	The DoH and the BNHI	Descriptive statistical analysis	Identifies the basic outline and trend of the NHI's financial status

Source: the author

In the NHI policy domain, the identification of policy actors and their policy interests can be done by collecting official and unofficial documents. I compiled an event-based database recording the involvement of policy participants in three major policy events. The database captured the policy standpoints and interests along with the basic characteristics and roles. It also provided insights into the political and institutional contexts of the NHI policy process in Taiwan. Next, content analyses were

performed to arrive at preliminary outlines of the three cases.

4-2-2. Network Survey and Semi-Structured Interviews

All survey participants were asked the same set of network-related questions concerning their observations and experiences while participating in the reforms. They were also asked to supplement the interpretation of my quantitative network analysis. The research method combined a network survey and a set of semi-structured interviews in order to gain a more comprehensive understanding of policy stances and arrive at interactive maps of the policy actors involved in the three policy events. The following sections describe the design of the questionnaire and interview questions as well as the data collection methods used.

4-2-2-1. Sampling

As already mentioned, the key challenge determining the success or failure of this research concerns the comprehensive identification of the consequential policy participants involved in the three policy events. Also, policy network studies are sensitive to the identification of research boundaries and participants. Therefore, the first challenge the research faced concerned sampling. Laumann *et al.* (1983) suggests that SNA-based research should focus on one or more of the following components: actors, relations, or activities (events). There are two methods of identifying the system boundaries in policy domain studies. The first is the positional approach in which “membership test” refers to the presence or absence of attributes indicating the occupancy of a position in a formally constituted organisation (Knoke and Yang, 2008: 15; Laumann and Knoke, 1987: 95). This approach can be also specified as a nominalist approach. It imposes a conceptual framework designed according to the researcher’s

theoretical agenda (Knoke *et al.*, 1996: 66). The second is the reputational approach which utilises the judgements of knowledgeable informants while delimiting the set of participant actors (Laumann and Knoke, 1987: 95; Knoke and Yang, 2008: 15). This approach can also be called the realist approach. It assumes that all or most actors share a subjective awareness of who belongs to a social system (Knoke *et al.*, 1996: 66). In empirical studies, these two approaches are sometimes combined (Laumann and Knoke, 1987, 1989; Laumann and Pappi, 1976). Laumann and Knoke (1987, 1989) used the event participation approach to combine the previous two approaches and identify the participants in different policy events so as to narrow down network boundaries in the scope of a huge policy domain in a specific duration. This research also follows the event participation approach to sample the participants and collect the network data at specific times and places.

A policy domain analysis typically begins with multiple methods to delineate the core set of domain actors, events, and issues for a given period (Knoke, 1994a: 164, 1994b: 278-282; Laumann and Knoke, 1987: 94-108). The social groups and key persons involved in policy processes can be divided into 3 categories on the basis of general political system: internal, external, and intermediate. The internal category includes political actors in the administrative and legislative sectors, such as senior civil servants and influential legislators. The external category includes social actors in major professional or occupational associations and non-governmental organizations (NGOs). Four categories including employer associations, employee associations, welfare groups, and medical groups were further delineated. The intermediate category shuttles between the external and the internal categories and may include opinion leaders in the press, political parties, and the academic community.

As mentioned above, my research on who governs Taiwan's NHI policy domain is based on data drawn from policy actors who are influential in the policy making and implementation processes. In order to avoid methodological mistakes and make this study more manageable, three important policy events representing the financial flow mechanism of the NHI (when the DPP was in power, 2000-2008) were selected to identify the scope of sampling boundary. The idea was to concentrate the analytical focus on the politics of financial reform in the NHI policy domain. Data on these policy events were collected from Taiwan's major newspapers, official documents and governmental research reports, and used to classify the participating actors based on their status.

All samples were categorised according to Laumann and Knoke's (1987) methodology. I tried to pinpoint the key policy players to fit the categories mentioned above through two sources. The first comprised the lists of three major NHI committees: the NHI Supervisory Committee, the NHI Disputes Review and Settlement Committee, and the NHI Committee for the Arbitration of Medical Costs. The second consisted of related participants involved in the three policy events. These three functional committees were under the DoH and composed of members from both public and private sectors. Furthermore, the lists of the three major committee members were very stable over several years. This suggested that the power relationships and participatory opportunities among the policy participants might have been stable as well. The function of the NHI Supervisory Committee is to oversee the operations of the NHI; that of the NHI Disputes Review and Settlement Committee is to mediate disputes related to the Programme; and that of the NHI Committee for Arbitration of Medical Costs is to decide the annual medical expenses for the Programme (DoH, 2004: 13).

Some key groups have seats in these Committees and take part regularly in the policymaking process under the NHI Act. I also drew a list based on data collected from legislative assistants in the Parliament in the period 2000-2008. I focused especially on the members of the Parliament and their assistants involved in these three policy events.

In addition, I also sampled the participants from other relevant sources, especially from the newspapers - the China Times and United Daily News. These two newspaper companies are two of the biggest and most popular newspaper companies in Taiwan. Besides the above three committee members, there were other important policy participants involved in these three policy events each advocating his/her own interests and policy goals. Although some of them had no connections with participants in official channels, they still tried to influence the policy outcomes via other ways such as legislative lobbying, protesting, and organising participants in a collective endeavour. Through the two most important newspapers in Taiwan and interviews, I carefully reviewed and identified the policy stakeholders and their interests and standpoints with regard to the three policy events. Following intensive review processes and consultations, I arrived at an interview list consisting of 62 NHI policy participants⁴ including official and unofficial actors and mediators involving three policy events in the NHI policy domain (see Table 4-2).

I found that the policy participants in these three policy events were highly overlapping. This suggested that, in the NHI policy domain between 2000 and 2008, decision-making power was concentrated within a few, stable policy actors. It also

⁴ Some interviewees mentioned that the President Shuei Bian Chen and two premiers of the Executive Yuan were also important in the NHI financial reforms in the DPP government between 2000 and 2008. However, they were not selected based on policy event participation on the one hand and they were also hard to be accessed on the other hand (the President Chen is serving a prison sentence now). Thus, they are not in the interview list of this research.

meant I wasn't facing possible methodological problems arising from a changing network structure. These policy actors, either organisations or individuals, were then classified into eight categories: 10 from administrative sectors, 9 legislators involved in the NHI affairs in Taiwan's Parliament, 5 main employer associations in Taiwan (business associations), 8 main employees associations in Taiwan (labour unions), 4 main welfare NGOs involving in the NHI financial affairs, 6 main medical associations in Taiwan, 8 other intermediate participants such as the mass media and political parties, and 12 important scholars with different standpoints and varied professional backgrounds. The scholars various backgrounds include health management, financial management, economics, public health services, laws, sociology, public administration and policy, health policy, political sciences, medicine, etc. In sum, the above mentioned policy actors participated in NHI affairs frequently.

Table 4-2. Major Policy Participants in the NHI Policy Domain

Category	No	Title	Category	No	Title
Administrative Sector	A1	Department of Health	Welfare NGOs	D8	Taiwan Labour Union
	A2	Ministry of Civil Service		E1	Consumers' Foundation
	A3	Ministry of the Interior		E2	Taiwan Health Reform Foundation
	A4	Ministry of Finance		E3	League of Disable Groups
	A5	Council of Labour Affairs		E4	NHI Supervision League
	A6	Directorate General of Budget, Accounting and Statistics	Medical Associations	F1	Taiwan Medical Association
	A7	Ministry of Economic Affairs		F2	The National Union of Pharmacist Associations
	A8	Taipei City Government		F3	China Dental Association
	A9	Kaohsiung City Government		F4	The National Union of Chinese Medical Doctors' Associations
	A10	Bureau of the NHI		F5	Taiwan Hospital Association
Legislative Sector	B1	Legislator A	Intermediate Groups	F6	Taiwan Community Hospital Association
	B2	Legislator B		G1	United Daily News
	B3	Legislator C		G2	Daily News
	B4	Legislator E		G3	China Times
	B5	Legislator F		G4	Liberty Times
	B6	Democratic Progressive Party (DPP) Caucus		G5	DPP Policy Section
	B7	Kuomintang (KMT) Caucus		G6	KMT Policy Section
	B8	People First Party (PFP) Caucus		G7	PFP Policy Section
	B9	Taiwan Solidarity Union (TSU) Caucus		G8	Alliance of Fairness and Justice
Employer Associations	C1	The Chinese National Federation of Industries	Scholars	H1	Prof. A
	C2	The Chinese National Federation of Commerce		H2	Prof. B
	C3	The Chinese National Association of Industry and Commerce		H3	Prof. C
	C4	National Association of Small and Medium Enterprises		H4	Prof. D
	C5	Association of Public Enterprises		H5	Prof. E
Employee Associations	D1	Chinese Federation of Labour		H6	Prof. F
	D2	Taiwan Confederation of Trade Unions		H7	Prof. G
	D3	Chinese General Federation of Craft Unions		H8	Prof. H
	D4	Taiwan Provincial Fishermen's Association		H9	Prof. I
	D5	Taiwan Provincial Farmers' Association		H10	Prof. J
	D6	Committee of Action for Labour Legislation		H11	Prof. K
	D7	Chinese General Labour League		H12	Prof. L

Source: the author

The sampling list including both organisational and individual actors faced a potential methodological problem. Normally, organisations cannot be viewed simply as “individuals”. An individual is a unitary actor while making decisions, whereas an organisation is a formally structured plurality of actors whose decisions are made through social processes involving many individual participants with different capacities and briefs. Moreover, organisational interests can be seen as outcomes of internal decision processes that take into account the interests of all members in an organisation. However, in reality, organisational interests are usually unitary rather than multiple because of the hierarchical managerial structure and common vision in a formal organisation. For example, the dominant coalition - a subset of organisational members in authority positions, typically seeks to impose its preferences or facilitate decisions on the entire collectively, despite the resistance from or the indifference of other members (Goodman and Pennings, 1977: 152; Knoke *et al.*, 1996: 81). This also means that organisational interests can be organised in a unitary brief which can represent the collective decision making of an organisation. The highest position within each organisation, such as the CEO or an executive committee member, can be assumed to represent the interests and unify the policy goals of their members. Their social relations (in a policy domain is something like the interconnections of resource exchange) with other policy actors can be represented by their own organisations’ interconnection with other policy actors.

Thus, in this research, the CEO or other representative individuals (such as the member of the above three committees) of the organisational participants in the sampling list were interviewed in order to collect the representational data concerning these organisational participants in the NHI policy domain. These policy participants, as

representative interviewees, could be treated as active actors involved in these policy events. In the event, we had 62 policy participants.

4-2-2-2. Network Questionnaire Design and Pre-test

My social network questionnaire consisted of four main sections. The first concerned the interviewees' personal attributes such as age, education, gender and occupation. The second focused on fundamental attitudes to the operation of the NHI operation. The perceptions of policy actors on the nature of financial and financing issues were evaluated on a five-point Likert scale. The third part of the questionnaire, also measured in five points, deals with the attitudes on the proposal of the 2G-NHI financing financial scheme and related issues for the NHI programme. This section measured attitudes towards the institutional design of the 2G-NHI financing scheme by using eight items. The final section - the most important part of the questionnaire - focuses on the interactive patterns of these policy actors through not only three sub-network systems such as information transmission relationship, resource-exchange relationship, action-set coalition relationship and influence powers but also some questions measuring who has influence and professional knowledge among these policy participants on the NHI (see Appendix One).

To identify the policy domain's information transmission network, respondents were shown a list of their core policy domain's important participants (see Table 4-2) and asked which of the eight categories of policy actors mostly needed policy information from others. They then checked all policy actors from whom they received such information. Next, they were asked to check all policy actors to whom they were most likely to send information. The measurement item of information transformation in

the whole questionnaire was whether “the people (organisations) on the list are important in providing you with information or exchange information with you” (Q1). Similar procedures were used to measure domain resource exchanges and collective action networks. Many information transmission network projects studied in the past had encountered great difficulties in obtaining accurate data on policy actors’ resource transactions, either because informants did not know the extent of their contributions or refused to reveal what they were (Laumann and Knoke, 1987: 193). As an alternative resource measure, we asked informants about receiving public political support such as voting. The measurement item concerned “the people (organisations) on the list can support your activities such as voting your proposal under a reciprocal principle” (Q2). To help ascertain the reputations or influences of policy actors, the informants were shown “a list of policy participants (62) in the NHI policy domain” and were asked to check policy actors standing out as being especially influential in coping with general NHI affairs and three specific policy events (Q4). I measured policy actors’ reputation by totalling the number of mentions each received from the informants.

The questionnaire was designed with a view to exploring the attitudes on these reform proposals that the 62 policy actors who were involved in the NHI policy domain and attempted to evaluate the political feasibility of the policy-making and implementation process. After finishing the draft of the questionnaire, the research carried out a pre-test by collecting feedback from some core bureaucrats in the DoH and the BNHI and scholars in this area to check the validity and to clarify the diction of these questions.

We screened the frequency and direction of the network of interaction and

information among the 62 policy participants. These items were helpful in arriving at a fundamental understanding of the political-interactive map of the NHI governance mechanism in Taiwan. However, as noted earlier, although the history of the NHI's development spans over a long period, network data could be collected effectively for only the three policy events. Therefore, this research focused just on the power distributions between policy actors in the NHI policy process as displayed in the three events specified above.

4-2-2-3. Interview Question Design

To be comparable, all the questions posed in the semi-structured interviews needed to follow the principle of SNA. The question design had to be semi-structured in order to let interviewees feel more comfortable and have them more willing to express their own opinions. In order to link the purposes of policy network studies, the interview questions concentrated on participants' attributes and the forms and contents of their interactions, so as to help arrive at a more comprehensive understanding of "who the most influential actors are in every policy event and what kind of information exchange flows between these policy actors are." For example, the question can be "please elaborate on your (or your organisation's) policy interest of the 2G-NHI programme. Why are some specific actors influential? Why do they have an influence on the policy process? Please indicate the five persons from our list with whom you have closest business and professional communication in coping with the NHI affairs? Why and how do you have closed connections and with whom? Or indicate five persons with whom you most frequently discuss policy affairs? Why do you have frequent discussions with these people? How do you share information about the NHI affairs?" Participants were asked to talk in detail about these issues and other related topics. Some of these

questions may seem sensitive for interview participants and might raise anxiety, stress and damage their self-esteem during data collection. The questions needed to be embellished in order to avoid ethical harm during the interview.

To sum up, in semi-structured interviews, there are no simple sets of guidelines for determining the sample size (De la Rey, 1999). In this research, the sample was the same as in previous social network surveys (see Table 4-2). This was because both semi-structured interviews and the network questionnaire survey were conducted at the same time. The sociometric assessments of SNA can provide a list of key players. Since some of these may be members of a given network community, the network based on the predetermined roster of these participants is bounded and restricted. In short, the role of semi-structured interviews is just supplemental to get a more comprehensive understanding of the analytical result of network survey.

4-2-2-4. Accessing Participants

The exact indication of the actors and events in a policy domain may decide the success or otherwise, of measuring who governs the policy-making and implementation processes. In order to minimize the cost of data-collection and maximise valid response rate, I utilised semi-structured interviews together with my network survey. As discussed previously, methods for establishing the policy domain include the positional approach and reputational approach (Knoke and Kuklinski, 1982; Laumann and Knoke, 1987, 1989; Laumann and Pappi, 1976). However, in their study on “*Organisational State*”, Laumann and Konke (1987) proposed the event participation approach to identify the events that are influential in the governance structure of the health and energy policy domains in the U.S. It also helps identify the actors in these important

events. This research followed this approach.

The social network interviews were administered using the “notables interview” method (Heinz, Laumann, Nelson and Salisbury, 1993). The fully-structured questionnaire discussed above was prepared following the identification of the key players, the introductory documents to the NHI financial current status and three reform proposals. This was to explore the preferences and attitudes of the policy actors as well as their network relationships. As discussed above, the participants involved in the policy events were potentially sensitive to issues related to policy network studies, especially since these types of research always focus on informal relationships and underlying exchange interactions. Real political decision-making is usually conducted in sub rosa conditions where the policy actors prefer to keep silent and do not want to make their opinions widely known. Besides, it is also difficult to get access to these policy actors without strong personal ties and trust. In addition, it is not customary in Taiwan to accept interviews from strangers, even for academic purposes. Past experiences suggest that a strong personal network or the support of public authority is necessary to conduct a social network interview research in Taiwanese society.

My past experiences with universal healthcare research in Taiwan over the past few years (Wang, 2010a, 2010b, 2012, 2013) helped build an initial personal network with the bureaucrats in the DoH and the BNHI, some important researchers, doctors involved in NHI affairs, and committee members in medical, employee and employer’s associations. Between 2010 and 2011, I also joined a research project sponsored by the DoH and the BNHI. In addition, I was the principle investigator in another research project granted by the NSC in Taiwan in 2011. These connections allowed me to contact

key informants in this investigation and ask them what procedures might be effective in gaining access to the policy participants involved in these three policy events.

Moreover, joining two research teams on the NHI reform evaluation provided me with the rationality needed in accessing the samples. It was also helpful in getting the required support from the DoH, the BNHI and the NSC to carry out this investigation.

For these reasons, these interview participants agreed to be interviewed and provided more assistance during my research. All this also illustrates one general point: personal network is helpful from both theoretical and practical perspectives: the selection of participants (sample) and access to potential interviewees.

To improve the quality of our interviews, they were all personally conducted by the researcher. Likewise, all interviewees were persons included in our sample list consisting of leaders or key persons responsible for the NHI affairs in the governmental organisations or social groups. The interview guidelines (see Appendix Two; also can be modified for use in in-depth interviews.) were followed at all times. Each interview took between 40 minutes and 2 hours. Interviewees were shown the list of the participants and asked about their organisations and their involvement with each one. In order to be able access every participant in the interview list, we utilised the authorities of the DoH and the BNHI. We also collected other relevant official records and documents via the gateway. Some official documents and archives were very difficult to collect because of their obscure characteristics. In these two projects, the researchers grasped every opportunity to collect some data from interviewees during the interview. These interviews depended strongly on personal relationships and the official authority of the minister of the DoH and the CEO of the BNHI and their subordinates.

The interview procedure consisted of 3 phases. 35 out of 62 interviews were successfully completed between 1st August and 8th October 2010; 10 more were interviewed between 8th November and 15th January 2011; and the remaining 17 e were interviewed in the period 30th March to 30th June 2011. The network surveys and interviews were completed by July 2011. The completion rate was 100%.

4-3. Data Analysis

Data analysis must take into account the types of data gathered (Cohen, Manion and Marrison, 2000). Our data analysis was performed in two stages. The first was a sociometric analysis on the network data and was intended to prepare a preliminary map of the power distribution between the policy actors and identify potential interviewees for subsequent semi-structured interviews. The second stage involved a content analysis of the quantitative data from the semi-structured interviews. A statistical analysis with SPSS was utilised to indicate the trend of the NHI financial status and participants' attitudes about the proposal to reform 2G-NHI. The units of analysis were participants in the NHI policy domain.

4-3-1. Social Network Analysis

The NHI's reform policy domain was examined and screened via quantitative SNA. The quantitative social network data collected via the questionnaire were analysed to determine the network size and their interconnections within the NHI policy domain. Social network techniques adopting a structural perspective are used to visualise the network of relationships systematically. In this research, quantitative social network data were analysed by two programmes, called UCINET and NetDraw respectively,

which can produce visualisations of network measures such as degree centrality, betweenness centrality, structural hole and density, along with the terms used to describe network structure and interactive frequency between policy actors (Wasserman and Faust, 1994).

Quantitative SNA is a method emphasising social positions and relations in a network structure by means of graphs derived via applications of mathematical theories. According to past significant empirical works in policy network studies (Heinz *et al.*, 1993; Knoke *et al.*, 1996; Laumann and Knoke, 1987, 1989; Sohn, Yu and Kim, 1992), information, resource exchange and collective action relationships are the most important research issues in understanding the pathways of power exercise in policy domains. Numerous works have observed and discussed political interactions among policy actors via the sub-networks of communication and resource-exchange (e.g., votes and money). Laumann and Knoke (1987) argued that specialised communication linkages among consequential actors allow them to accomplish political resource exchanges and organise collective action while participating in policy events.

According to previous community elite and policy domain studies (Knoke *et al.*, 1996; Laumann and Knoke, 1987, 1989; Laumann, Marsden and Galaskiewicz, 1977; Marsden and Laumann, 1977; Woods, 1998), although communicative and information channels are the most important instruments in resolving conflicts between multiple policy stakeholders, there is no doubt that these channels are mostly established on the basis of interpersonal trust. Besides communication and resource-exchange networks, attention is paid to the relationship with interpersonal trust in this research. However, the interpersonal trust relationship might be susceptible to the fancies of policy

participants. Some participants decline the invitation, thus increasing the over cost of interviewing. Thus, most of the previous works had to ignore some trust relations between policy makers (Knoke *et al.*, 1996; Laumann and Knoke, 1987, 1989; Laumann *et al.*, 1977; Marsden and Laumann, 1977; Woods, 1998). My quantitative social network data was designed and collected for the NHI policy domain and was analysed for the purpose of examining the three previously discussed sub-networks and influence reputation index.

In order to analyse the quantitative social network data meaningfully, certain steps need to be followed. First, data validity needs to be checked. This step examines the returned questionnaires and differentiates between valid and invalid questionnaires for further analysis. For instance, if the items of social network section are nonresponse in the returned questionnaires, these questionnaires will be identify invalid. Second, the detailed coding process is initiated. If the participant has a relationship with other participants (the row policy actor reportedly gets policy information or receives support from the column policy actor), “1” should be entered in the coding window of UCINET; else, “0” is entered. Third, valid data sets of these sub-networks are created and analysed with certain indicators in order to map and screen the structure of these networks and relationships among the participants. Fourth, a primary explanation of the interactive patterns is established under the principle of policy network perspectives, especially the policy community/issue network typology, which can provide a rough political map of these policy networks in the domain of the NHI financial sustainability.

In order to conduct the network analysis accurately, the indicators of SNA need to be utilised by applying relational and positional approaches. The indicators of degree

centrality and betweenness centrality are two most important criteria in determining who the key person is in a bounded domain established through a relational approach. “Degree-centrality index” means that, regardless of whether they are sending or receiving ties, a prominent actor has high involvement in many relationships (Christina, 2012; Knoke and Kuklinski, 1982; Knoke and Yang, 2008; Wasserman and Faust, 1994). A higher degree centrality score means that the actor is involved in more relationships (strong ties) and that the actor not only has more possibilities to mobilise informal power in the decision-making and implementation process but also has more support from other actors in the network structure (Krackhardt and Hanson, 1993). Degree centrality index can be calculated by formula one,

$$C_D(n_i) = d(n_i) = \sum_{j=1}^g z_{ij} = \sum_{j=1}^g z_{ji}$$

【1】

where $C_D(n_i)$ denotes the degree centrality of node i and $\sum_{j=1}^g z_{ji}$ counts the number of direct ties that node i has to the $g-1$ other j nodes (Christina, 2012; Knoke and Kuklinski, 1982; Knoke and Yang, 2008; Wasserman and Faust, 1994).

Second, betweenness centrality examines how the actors control information exchange, resource flows or undertake collective actions within a network through a relational approach. The indicator is concerned with how other actors control or mediate the relationship between dyads that are not directly connected (Knoke and Yang, 2008: 67). Burt’s significant work on “structure holes” is a representative work about the power of the betweenness index which focuses more on the ego-central network than on

the whole network (Burt, 1992, 2001, 2004). In policy network studies, the betweenness centrality index means that an actor with a higher betweenness score can also be assumed to have more ability to be a policy broker or policy entrepreneur (Kingdon, 2003). He has more chances to manipulate or facilitate policy outcomes or changes in the policy domain. The greater is an individual's actual or potential intermediate value for all members of a network, the greater is his control over communication flow and independence of others. The betweenness centrality index can be calculated as

$$C_B(n_i) = \sum_{j < k} g_{jk}(n_i) / g_{jk}$$

【2】

where g_{jk} is the number of geodesic paths between the two nodes j and k , and $g_{jk}(n_i)$ is the number of geodesics between the j and k that contain node i . Dividing $g_{jk}(n_i)$ by g_{jk} measures the proportion of geodesic paths connecting j and k in which node i is involved (Christina, 2012; Knoke and Kuklinski, 1982; Knoke and Yang, 2008; Wasserman and Faust, 1994).

Third, individuals located as structural holes may have more chances to manipulate collective outcomes and exhibit positive individual performances (Cross and Cummings, 2004). It is because actors who take structural-hole positions have more unique and timely access to information and greater bargaining power (Burt, 1992, 2001, 2004). Thus they control over resources and outcomes, and greater visibility and opportunities throughout the social system (Seibert, Kraimer and Liden, 2001: 221).

Burt (1992: 18) defines a structural hole as a relationship of non-redundancy between two contacts. According to the structural hole theory (Seibert *et al.*, 2001: 3), it is advantageous for individuals to be connected to many “alters” (the person’s network members) who are themselves unconnected to other alters in the ego’s (can be seen as oneself, above “the person”) network. Individuals located in the positions of structural holes may have more chances to manipulate collective outcomes and create positive individual performance (Cross and Cummings, 2004). This is because actors who take structural positions have more unique and timely access to information, greater bargaining power and thus control over resources and outcomes, and greater visibility and opportunities throughout the social system (Seibert *et al.*, 2001: 221). Thus, just as with the previous degree and betweenness centrality indexes, the ability to utilise the position of structural holes is also a crucial indicator of an actor’s power and influence in a network structure.

Effective size is commonly adopted as a measure of structural holes (Burt, 1992, 2001, 2004). According to Taylor and Doerfel (2003), effective size is a measure which indicates the ability to access network members beyond the initial contact of a focal network member. In other words, the effective size is the number of people the ego is connected to less the redundancy in the network. Thus, it reduces the non-redundant elements of the network. Thus, one key set of measures is concerned with the notion of redundancy. The general meaning of redundancy is a person's ego network and has redundancy to the extent that her contacts are connected to each other as well. Greater effective size indicates that actors take positions where there are larger structural holes with fewer redundant relationships. The normalized effective size score starts from 0. A larger score means that the actor is more autonomous in the network. The effective size

may be calculated as

$$\sum [1 - \sum p_{iq} m_{jq}] m_{iq} = i\text{'s interaction with } q \text{ divided by } j\text{'s}$$

strongest relationship with anyone where p_{iq} = the proportion of i 's energy that is invested in relationship with q . Effective size is the network size (N) minus the redundancy in the network (Burt, 1992, 2001, 2004; Christina, 2012) .

【3】

Fourth, the indices of degree centrality, betweenness centrality and structural holes deal with actors' ability to manipulate and intermediate information or resource flows within a network at an individual level as determined by a relational approach.

However, the structure of overall network must also be concerned with the exploration of the power pathways in the policy domain. There are three significant indicators of SNA positional approach while evaluating the entire network structure in this research.

The first indicator is density, which can be calculated as the number of all ties occurring in the network matrix divided by the number of all possible ties (Knoke and Kuklinski, 1982). Density ranges between 0 and 1, representing the extremes of a totally

disconnected or totally connected graph. Density is one of the most important indicators to determine the whole structure of policy network (Christina, 2012; Knoke and Yang, 2008). A higher density score means that the policy network could be considered as a

policy community rather than an issue network to steer the policy agenda and the

outcomes. For a symmetric g , the co-attendance matrix, x_{ij}^N , whose non-diagonal values

are the number of events attended by each pair of actors, the density measure is the

following (Christina, 2012; Knoke and Kuklinski, 1982; Knoke and Yang, 2008;

Wasserman and Faust, 1994):

$$\Delta_{(N)} = \frac{\sum_{i=1}^g \sum_{j=1}^g x_{ij}^N}{g(g-1)}, \quad i \neq j$$

【4】

Fifth, another important indicator of global network measurement is the E-I index (Krackhardt and Stern, 1988). The E-I index is a social network measure capturing the relative density of internal connections within a social group compared to the number of connections that group has with the external world. Krackhardt and Stern (1988) noted the increased effectiveness in moments of crisis of organisations which had stronger informal networks that crossed formal internal group structures. The calculation method involves the number of ties the group members have to outsiders (E), minus the number of ties to other group members (I), divided by the total number of ties (Christina, 2012; Knoke and Kuklinski, 1982; Knoke and Yang, 2008; Wasserman and Faust, 1994), i.e.,

$$\text{Index} = (E-I)/(E+I)$$

【5】

The final important indicator of global network measurement is structure equivalence. It is also the most important foundation while discussing the roles and positions in an entire network structure using SNA's positional approach. Social scientists are interested not only in actor cohesion but also in the equivalence of actors, in the sense of two or more actors having identical or very similar relations with others in a network (Christina, 2012; Knoke and Kuklinski, 1982; Knoke and Yang, 2008; Wasserman and Faust, 1994). Moreover, structural equivalence also means that actors

are aggregated into a jointly occupied position to the extent that they have a common set of linkages to other system actors (Knoke and Kuklinski, 1982). In other words, two nodes are said to be exactly structurally equivalent if they have the same relationships as all other nodes. A node of structural equivalence can be seen as a role occupying the same or a similar position in the network structure; two objects in the same set are structurally equivalent. Structural equivalence can be calculated by the following formula based on the logic of the *CONCOR* method (White, Boorman and Breiger, 1976) which is the most popular index used in Blockmodel analysis to partition all nodes into different roles and positions in a complete network structure (Christina, 2012; Knoke and Kuklinski, 1982; Knoke and Yang, 2008; Wasserman and Faust, 1994):

$$r_{ij} = \frac{\sum_{q=1}^k (x_{iq} - \bar{x}_i)(x_{jq} - \bar{x}_j) + \sum_{q=1}^k (x_{qi} - \bar{x}_i)(x_{qj} - \bar{x}_j)}{\sqrt{\sum_{q=1}^k (x_{iq} - \bar{x}_i)^2 + \sum_{q=1}^k (x_{jq} - \bar{x}_j)^2} \sqrt{\sum_{q=1}^k (x_{qi} - \bar{x}_i)^2 + \sum_{q=1}^k (x_{qj} - \bar{x}_j)^2}}, i \neq k, j \neq k$$

【6】

However, Wasserman and Faust (1994) pointed out that there are several problems with *CONCOR* as a method for finding the positions of approximately structurally equivalent actors in a network system. First, *CONCOR*'s procedure of always splitting a set into exactly two subsets imposes a particular form on the resulting positional structure of the network. The form of clusters is determined by the procedure rather than by the structure of the network. Second, the resulting *CONCOR* partition often shows little resemblance to the social relations that are intuitively and formally understood to exist in the network in practice. Third, the formal properties of the procedure are not

well understood. Although *CONCOR* algorithm is not perfect, it is still the most used indicator and is widely regarded as particularly appropriate calculating indicator for finding out structural equivalence positions and social roles of Blockmodels in SNA (Knoke and Yang, 2008: 85-91).

Moreover, *CONCOR* algorithm can be used with MDS to provide a visual representation of pattern of proximities among different positions. In SNA, MDS is a statistical technique that seeks to represent social similarities (or dissimilarities) among a set of entities in a low-dimensional space so that entities that are more similar are closer in the space, and vice versa. The MDS map lets us know how close the actors are, whether they cluster in a multidimensional space, and how much variation there is along each dimension. However, as mentioned, calculating social distance among actors is more difficult than calculating their physical distance; the measure of social distance can face estimation errors. More specifically, unlike the linear yardstick distances in geographic surveying, social distance metrics can contain so much measurement error that more than two dimensions are necessary to satisfactorily reproduce the underlying social space. Fortunately, MDS and graph-plotting programs can be compute descriptive statistics and the stress coefficient that summarise the amount of error between the observed distance matrix and the distance matrix calculated from the k-dimensional solution (Kruskal and Wish, 1978: 49-52). The stress coefficient is a measure of fit ranging from zero to one. The closer it is to zero, the better is the fit of the spatial plot to the data (Christina, 2012; Knoke and Kuklinski, 1982; Knoke and Yang, 2008; Wasserman and Faust, 1994).

The above SNA indicators and the SNA survey of the 62 policy actors will be

analysed in subsequent chapters. However, since one scholar in the list of policy actors had passed away in September, 2011, I shall not include this data in my discussion on the policy outcomes of the 2G-NHI financing scheme in 2012. Thus, although the discussion of the NHI policy domain in the DPP government (between 2000 and 2008) will be based on 62 samples using positional and relational approaches respectively (Chapter 5 and 6), in the case of the 2G-NHI financing scheme all the analysis and discussion will be based on the data drawn from 61 samples (Chapter 7).

4-3-2. Statistical Analysis

This research utilised documentary statistical data published by the DoH and the BNHI for the 2012 General National Health survey. The survey, a nationwide effort, offers perhaps the most comprehensive official statistical data and can be considered to be representative of the national's health survey and financial status of the healthcare system in Taiwan. The data are able to depict a detailed picture showing the trends of NHI's financial status and other relevant statistics; they have been analysed via descriptive statistical analysis with the help of SPSS statistical software.

With respect to first hand quantitative data sets, some questions related to the issues of the policy perceptions of the 2G-NHI financing programme were analysed to understand the interests and standpoints of the participants. The analysis removes the questions not relating to the research purposes and questions first and then checks the characteristics and distributions of the samples (see Appendix Three). After that, the items can be used to compare differences in the attitudes of participants across different group categories via descriptive statistical analysis and ANOVA. The analysis is also helpful in obtaining a general understanding of the participants' policy stances with

respect to specific reform proposals. Also, Pearson correlation analysis will be applied to check the correlation between different sources of access and reputational network data and avoid the possibility of collinearity between them.

4-3-3. Content Analysis

All interviews were audio-recorded with participants' consent, transcribed to ensure accurate and complete recording, and entered into NVivo qualitative data analysis software for data analysis and management. The software is considered to be an effective tool to analyse and understand qualitative data for documentary management (Bazeley, 2007). Handwritten notes were taken as well during each interview.

Reflections were recorded as soon as possible after each interview. In order to increase the accuracy of the transcripts, a summary of the transcript or full transcript was sent to each participant to check for errors and misunderstandings. After checking, the transcripts and other relevant documents, they were reviewed and entered. Hence, the software of NVivo qualitative research was utilised to manage and let the unstructured qualitative data make sense in this research.

Qualitative data analysis starts with a transcript review of the semi-structured interviews and keeps notes of all comments and research analyses. Our examination of the qualitative data included six more specific analytical steps inspired by Creswell (2003). The first step consisted of organising and preparing the data for analysis. This step included transcription of the interviews and data entry. Second, the data were analysed to gain a sense of the content and identify the general ideas, tones, impressions and credibility. This step attempted to develop an overall feel of the information. Third, detailed coding process and analysis was begun, starting with chunks of data that could

be segregated into categories. This step initiated the data analysis by importing the transcripts and coding in NVivo. Fourth, the coding process included both open coding and axial coding (Strauss and Corbin, 1998) so as to be able to describe the participants as well as the themes for further analysis. This step started analysis by conceptualising, categorising, naming the main concepts such as network, informational transmission, and political support from the unstructured qualitative data. This was followed by the identification of the themes from the initial codes and chunks. The themes were analysed for each individual case and then compared across the different cases. Fifth, the description and themes were assessed and presented as a narrative. This step identified appropriate ways of presenting the data. Sixth, the data was interpreted and supplemented by SNA. This step confirmed the propositions using the results from quantitative SNA and the documentary review.

To sum up, every feasible analytical method was used in this research in order to see how these participants were related and who was in the centre of the policy networks of the decision makers. The influence power and other related sub-personal interactions were analysed from data collected from the documentary review, the quantitative social network, and the supplemental interview transcripts. Two observations are pertinent here. First, it is important to locate the centre of the decision-maker networks so as to identify who the most powerful stakeholder is in shaping the policy process as indicated by centrality scores. In the quantitative analysis, a number is assigned to each participant and applied to a multi-dimensional scaling map, which attempted to represent the path distance and pathway from each participant to the centre of the decision makers. Second, the documentary literature and interview transcripts were analysed to supplement and test the accuracy of the results from the quantitative

SNA.

4-4. Ethical Issues

An application for ethical review was submitted to the School of Sociology and Social Policy, the University of Nottingham for approval prior to data collection (see Appendix Four). In addition, this research obeyed the ethical request from the NSC in Taiwan in order to process the research project and gain support from the NSC.

Moreover, I recognised that I am required to obey the latest statement of ethical practice from the British Sociological Association. The School's approval was granted before implementation. The School was informed of changes in the protocol throughout the period of the study.

Informed consent (see Appendix Five for the Chinese version) was obtained from the participants prior to all individual network and semi-structured interviews. All were provided full disclosures. My role as a researcher studying policy actors' communication and information exchange interactions from the perspective of policy network was made known to all involved in the research. Participants were informed clearly of the research purposes, what activities are expected of them with regard to the interviews, and any risks to their anonymity. Data were stored securely. After each interview, transcripts of the interviews and the researcher's narratives regarding the interviews were sent to participants to check the content again in order to reduce mistakes and misunderstandings. The final transcripts were made available to the participants if asked for. After each interview, a code number was applied to each audio-mp3 to ensure that the information on the identity of the participants is removed. The

list of codes and participant details were kept separately in a secure place. Only the researcher had access to the records. The interview mp3 files were stored in an extended hard disk and will be destroyed after seven years in accordance with the University of Nottingham's guidelines.

With regard to more details about the procedures of network survey and semi-structural interviews, all interviews took place at the participants' location in order to make them feel more comfortable and ensure that no ethical issues were encountered. No unusual pressure or financial incentives were used to encourage participation in this research. Because of the sensitivities involved in policy network research, the interview questions avoided language that potentially caused anxiety, embarrassment, stress, and damage to participants' self-esteem. Furthermore, SNA can reveal positive or negative information; the researcher and participants are responsible for the ethical use of the information that was obtained (Cross and Parker, 2004).

As far as the report writing is concerned, I omitted information that may reveal the identities of individual participants while discussing the findings and using quotes. The idea was to protect participants' privacy and avoid the participants' uneasiness with potential betrayal in policy domains. I recognised my ethical responsibility to disseminate research findings that may potentially impact practices and policies, in particular with regard to the ethical principles of the ethical review form which I had filled out before starting the research.

Chapter 5. Global Power Structure*

This chapter contextualises the research questions posed in previous chapters by using analytical models of policy networks and domains. The focus will be at the comprehensive level of policy network analysis: global power structure. The natures and functions of policy actors under the National Health Insurance Act will be discussed first to provide a basis for understanding of the policy participants' institutional positions, resource capacities and overall public interests. Combined with the discussion presented in Chapter 3, this chapter sets for the analytical arguments to come in subsequent chapters. The second part applies the SNA positional approach to analyse the entire network structure.

This chapter is made up of five sections. The first section introduces the nature and policy preference of policy actors in the NHI policy domain. The second explores some characteristics of the entire networks, such as network density, the network degree centrality index, the E-I index and distance-based cohesion in information transmission, resource exchange, action-set coalitions and reputation networks. It identifies the equivalent actors' roles and positions by combining their relations with other policy actors' reputational attributions, information transmission network, resource exchange network, and action-set coalitions into a multi-network structure. The structure is then analysed in the third section using the *CONCOR* algorithm and the Blockmodel. One-way ANOVA is applied to determine the statistical differences between distinct

* Part of the contents contained in this chapter appeared in the author's article - (2012). A Network Approach for Researching Political Feasibility of Healthcare Reform: The Case of Universal Healthcare System in Taiwan. *Social Science & Medicine* (SSCI listed, peer reviewed), 75(12), 2337-2344.

structurally equivalent groups. In the fourth section, the roles of policy actors in separate networks pertaining to information transmission, resource exchange and action-set coalitions are subjected to Blockmodel analyses. Section Five summarises the conclusions.

5-1. Policy Actors' Policy Preferences in the NHI Context

The DoH and the BNHI run a compulsory healthcare system that provides universal coverage and comprehensive benefits to all inhabitants in Taiwan. The single public payer, the BNHI, tries to contain administrative costs to a very low level. In addition to the policy actor samples identified in Chapter Four, the system takes into account other policy participants engaged in co-governance, responsibility sharing and mutual supervision while estimating costs. The NHI's financial flow mechanism is an institutional co-management platform in which not only official sectors but also unofficial actors can legally participate in the policy-making process and share their resources. Different members of the governing committees have different institutional roles and resources and it is possible that they might exploit their positions to shape their standpoints and classify their own influential power in the policy network scenario.

(1) *Administrative Sectors (N=10)*

Nature and Functions:

Since the adoption of the NHI in Taiwan in 1995, the system has remained a government-run, single-player national health insurance scheme. While administrative sectors occupy institutionally advantageous positions, the ruling party has the final responsibility for operating the NHI in a sustainable manner. The DoH is designed to

manage domestic health affairs and the BNHI does the same for NHI affairs. Under the supervision of the DoH, the BNHI is the only body authorised to levy the premiums in the NHI. It is also an intermediary between the insured and providers and has the legitimacy and responsibilities to facilitate communications among them. The BNHI is also responsible for system planning, promotion, implementation, supervision, research and development, manpower development, information management and auditing (BNHI, 2007a: 6). In addition, there are other relevant administrative sectors such as Ministry of Civil Service, Ministry of Interior, Ministry of Finance, Ministry of Economic Affairs and two municipal city governments in Taiwan. Some of them are the contributors to public revenue collected under the NHI Act. However, many of them play only secondary and supplemental roles by assisting in the operation of the NHI or providing consultancy services to the DoH and BNHI in ensuring financial balance.

Preference:

In making sure that the NHI operates smoothly and at the lowest cost possible, most of the administrative sectors, especially the DoH and BNHI, rely upon the NHI to provide the best healthcare service of which not only the insured are satisfied with the service quality but also in the way in which the providers and the insured can be involved in sharing resources and responsibility. In addition, since the continually expanding trend of expenditure is irreversible, the reform of the NHI financial system is getting more pressing and politically sensitive. However, due to the rising financial deficit of the central government as well as the drastic increase in political competition, the ruling party always hopes that she can be safe in the morass of the problem of the NHI financial sustainability. Whether a regime continues depends on the ruling party's governance performance whereas the party's own priority is to win elections. The

following was said in an interview with a participant from the DoH:

“mm.....The main goal of the DoH is to ensure the stable operation of healthcare and provide comprehensive medical service to the people. There is no doubt that the government is responsible for the sustainable operation of healthcare. Without such stability, the government loses its credibility. The ruling party treats the NHI reform as a hot potato. This creates immense pressure on the BNHI and DoH.” (Administrative sector A1)

Sometimes, to address people's angst during approaching elections, the ruling party might temporarily put aside reform proposals or switch the focus to other less controversial issues.

(2) Legislative Sectors (N=9)

Nature and Function:

The Parliament has legislative power under Taiwan's constitution. All amendatory bills must be submitted to and reviewed by the Legislative Yuan. Due to a divided government and drastic increase in political competition between 2000 and 2008, the relationship between the central government and the ruling party (the DPP) and the majority of Parliament (the KMT) usually present more conflicts on policy legislative procedures. There have been two main parties occupying seats in the Legislative Yuan. I interviewed the major party caucuses to understand every party's policy preference and strategies. Also, other very active and deeply involved legislators in the Social Welfare and Environmental Hygiene Committee (the committee which helped divide the congressional legislators such that each member does not need to study every bill) in the Legislative Yuan were also interviewed as the informants.

Preference:

The first priority of the ruling party and its legislators is to continue its ruling power and pass its reform proposals in the Legislative Yuan. However, the opposition may also intend to drive the NHI reform in different directions. These different policy stances and reform proposals could represent different party standpoints. The legislators not only review and reduce budgetary bills, but also monitor the enforcement of the budget by passing resolutions with the bills. They also seek to satisfy expectations from the electorate. They play their roles carefully to balance pressures and anticipations from different sources. A clerk associated with KMT's party caucus mentioned:

“Even when the party caucus belongs to the same political party as the ruling party, reform proposals presented by the latter are not accepted without question. We have the responsibility to deliberate on proposals presented by the Executive Yuan and not merely issue acceptance stamps. We also have to manage pressure and expectations from the voters. Some legislators are backed by welfare and labour groups and could thus more easily take their side. Similarly, legislators backed by medical groups are more prone to back these said groups. Hence, the discussion on the NHI reform proposals in the Legislative Yuan is always very complicated and different legislators backed by different groups want to promote their own alternatives on different policy stances.” (Legislative sector B7)

In terms of political conviction, the stances of the DPP and the Taiwan Solidarity Union (the TSU) are similar, so the two-party alliance earned the nickname “the pan-green camp”. Likewise, since the stance of the opposition party (the KMT), which has been in the majority in the Legislative Yuan since 2000, is similar to that of the People's First Party (the PFP), the alliance may be called the “the pan-blue camp”.

(3) *Employer associations (N=5)*

Nature and Functions:

There are five major employer associations in Taiwan. Although each represents specific employers' interests, three of these associations have overlapping membership (the Chinese National Federation of Industries, the Chinese National Federation of Commerce, the Chinese National Association of Industry and Commerce). According to the NHI Act, the employer associations are among the contributors to the premiums. Since the premiums increase the financial burden on the associations, employer representatives play a critical role in monitoring the NHI's operations. Therefore, the representatives of these five employer associations also have institutional positions to express and fight for their preferred policy goals in the Expenditure Negotiation Committee. Every delegate of the employer associations has one vote to approve or veto proposals related to revenue or expenditure.

Preference:

Employers are also receivers of healthcare services. Hence, while seeking to decrease the contribution rate, their representatives seek to gain a more comprehensive service package and monitor the providers' service quality. In some cases, employer associations even stood by with the representatives of the insured against the providers' representatives. In other cases, they collaborated with the providers to negotiate with the representatives of administrative sectors. This incoherence has led to vacillation among employer's representatives. They have remained mostly passive. They have been more concerned with who can provide more benefits and which proposals end up in the final bill. All this points to an information and knowledge gap between the employer representatives and the administrative sectors or medical associations. The interviewee from the National Association of Small and Medium Enterprises stressed:

“Employer associations are an important source for premiums. However, I have to confess that we are usually not very keen participants because most of us are less familiar with healthcare issues and thus cannot contribute extensively. Furthermore, opinions vary among different employer associations, and without consensus, these associations cannot exert any real influence.” (Employer association C4)

(4) Employee associations (N=8)

Nature and Function:

Compared to employers, employees are usually more disadvantaged. Although they are the voters and representatives in many policy domains, most employees' rights and interests are often ignored in national policies. Under the NHI Act, the representatives of the employee associations are expected to negotiate employee interest with representatives from other categories. These representatives serve as public-opinion agents who can enter national politics on behalf of employees' interests and can also be county-level interpellators and overseers, so that they can have political influential power to bargain with the central government, the employers and the providers based on their own public-opinion foundation. However, mostly, the employees' representatives have been nonprofessional and passive delegates on the NHI affairs.

Preference:

The first priority of the employees' leaders is to protect the rights and interests of all employees. They are expected to champion more comprehensive and superior healthcare provisions along with a lower premium contribution rate. To realize this goal, usually, delegates representing different employee associations establish collaborative alliances with welfare NGOs who generally profess similar stances with regard to

policy processes. In addition to protecting their own official right, they seize upon every opportunity to speak up in favour of protecting labour rights in the NHI policy domain.

The interviewee representing the Taiwan Labour Union claimed:

“Employee groups and Welfare NGOs usually have the same interests when it comes to healthcare issues. We do not wish to see the BNHI, DoH, and medical groups gain sole control over healthcare. It is true, however, that the healthcare system in Taiwan has always had imbalance between the insured and the provider. The BNHI always sides with medical groups in attempts to increase premiums to meet the latter’s needs.” This is the reason why we are always very discontent with the reform proposals about financing scheme and pull every string and strive for our voice in this matter.” (Employee association D8)

(5) Welfare NGOs (N=4)

Nature and Function:

Although representatives from welfare NGOs delegate the rights and interests of the insured (except for the employers and employees), the representation of some of them has been questioned frequently. Under the NHI Act, the representatives are expected to articulate the preferences of the insured, monitor the performance of the NHI’s performance, and negotiate the contribution rates and distributions associated with the global budget payment. Welfare NGOs constantly monitor the quality of health service and oppose medical providers and administrative sectors. However, welfare NGOs stick to institutional channels advocating their policy goals or impacting policy outcomes. Some claim that they are more representative than many involved in the NHI committees. For instance, some representatives such as the Fisherman’s Foundation and the Farmer’s Association are usually inactive in the NHI policy domain and their participation is a format outweighing quality. Further, most welfare NGOs represent social groups engaged in providing political support and election mobilisation through

social group networks. Hence their representatives have long been regarded as important social mechanisms in maintaining the ruling party's legitimacy.

Preference:

Compared to medical associations, most welfare NGOs are deficient in manpower and financial resources. However, as a public group close to the people, their representatives' first priority is to protect the rights and interests of the social groups concerned. The interviewee of the Taiwan Health Reform Foundation expressed:

“Welfare NGOs strive to become more involved in healthcare issues. However, our understanding of the NHI system cannot refute the fact that medical groups and thus are often ignored. The same can be said of our resources, thus rendering us unable to conduct a systematic study of healthcare policies. We usually end up just monitoring the procedures and serve as a voice of the people.” (Welfare NGOs E2)

Like the previous two categorised associations, these welfare NGOs aim not only to share revenue but also to gain health service from providers. These welfare NGOs care about the contribution rate in the financing scheme and the service quality they obtain. They always approach official representatives in the NHI policy domain to negotiate with the government for lower contribution rates and a more comprehensive package. They also champion better service quality and review the annual global budget payments of medical associations. My experience indicates that they usually have major conflicts with medical providers in matters related to financing and payments.

(6) Medical Associations (N=6)

Nature and Function:

The NHI covers Western medicine, Chinese medicine, dental care and hospital care

as well as preventive health and child delivery services to meet the public's diverse medical needs. Western medicine can be divided into three levels of healthcare providers: Taiwan Hospital Associations, Taiwan Community Hospital Associations and the National Union of Pharmacist Association. The NHI can be seen as a co-governance mechanism between the government and healthcare providers. This is because the BNHI and the DoH not only pay medical fees to the medical providers in exchange for high quality medical care but also set up indices to evaluate the service quality. To ensure the sustainable operation of the NHI, the GBP system has created a communicative platform for annual payment negotiation between the BNHI and providers. It has also created a self-regulation and inter-monitor environment consisting of professional healthcare associations. The medical associations do not just engage in self-regulation to provide medical services within their associations; they also negotiate annually the price of points with other delegates under the GBP system. Even in more toilsome environments, the healthcare providers, including the pharmaceutical association, generally exhibit professional asymmetry in health service provision and medical cost estimation.

Preference:

Most medical providers strive for more income and support from the public and less service pressure. They want the public to be highly satisfied with the healthcare system. They also want to get as much medical payment as possible. In the early days, the NHI paid medical fees to healthcare providers on a "fee for service" (FFS) in accordance with uniform national fee schedules. FFS satisfied the Medical Associations' profit requirements. But it also increased the financial burden and led to resource wastage. However, more recently, in order to restrain healthcare expenditure, medical

associations have started negotiating the annual payment rate with other official representatives and internally regulate hospitals' and doctors' medical behaviour under the global budget system. Under the GBP system, operations have deteriorated in many hospitals. For these reasons, reasonable growth in the global budget and punishment for poor performance have become the priorities of many medical associations during NHI negotiations.

The interviewee from the Taiwan Hospital Association stressed that the control targets imposed by the GBP system is a major constraint in balancing high-quality medical service provision and providers' survival risk:

“To tell the truth, we are all not happy with the deadlock between the medical associations and the insured. The representative groups from the insured always stand on different viewpoints with us. They just oppose what they want to oppose, it is not rational! In fact, medical groups are usually in a disadvantaged position. Since the GBP system was implemented, we have been struggling to maintain finances. However, there is a general negative opinion towards us that further damages our confidence. Few acknowledge the quality of our services in such a financially limited environment. We are not being selfish, but we need to take care of our needs.” (Medical association F5)

(7) Intermediate Groups (N=8)

Nature and Function:

Mass media are frequently touted as the essential fourth power ensuring checks and balances in a democracy. Intermediate groups may not be institutional participants, but they sometimes play an important role by arousing people's awareness of their rights and interests. For example, in the case of the double raise scheme's promotion, the newspapers' news story and commentary of the BNHI's policy caused the

opposition party and the public to oppose hikes in rates and forced the ruling party to compromise on the final scheme. In addition to mass media, the policy research sections of the various political parties help study the reform proposals and draw up their own proposals, thus promoting inter-party competition and legislative wrestling.

Preference:

Intermediate groups, especially the mass media, have not been stable in terms of their preferences. The interview participant from the Daily News mentioned had the following to say:

“The media is mainly concerned with balanced reporting and delivering information... We play a very active role in delivering and managing information.”
(Intermediate group G2)

Similar to the situation of other countries, each mass medium has its own views on each issue. For instance, even though the Liberty Times’s political views are close to those of the ruling party, the political stances of the United Daily News, the Daily News and the China Times are closer to those of the pan-blue camp. Their reports on the NHI reforms are usually critical when the DPP was in power. In many cases, some popular newspapers (especially the United Daily News, the Daily News and the China Times) criticised not just the government’s reform proposals but also the medical providers’ interests. Quite often, they trace controversial issues and write critiques to express the voice of the disadvantaged minority in Taiwan’s society. The interviewee from the China Times said:

“mm...if you’d like to discuss this issue, it is clear that different media support different political tendency. For example, as you know, the Liberty Times is pro-

DPP while the United Daily News is on KMT's side. Thus, the reports or comments on the NHI issues of the Liberty Times are always more friendly to the DPP government than others. However, most media looks at the new financing scheme from a critical standpoint. The public has a right to information, and the government has the responsibility to ease their concerns.” (Intermediate group G3)

(8) Scholars (N=12)

Nature and Function:

Since the planning of the first generation of the NHI, scholars specialising in healthcare service, financial management, social policy, law and public administration have been playing important roles in administrative sectors or be the consultants of many associations or social groups. The DoH and BNHI appointed several reputable scholars as official committee members to serve spokesmen of the public. Some scholars have served in important official positions such as the CEO of the BNHI, the minister of the DoH and the chairman of other related NHI committees. Moreover, many scholars in the interview list had joined the research teams examining the 1G-NHI comprehensive physical examination and the formulation process of the 2G-NHI programme. Their varied and professional backgrounds have sometimes helped resolve strong differences during conflicts.

Preference:

Scholars are usually expected to give advice and suggest better alternatives from a professional standpoint. In most cases, they prefer to play a neutral third-party role and mediate conflicts among representatives with different interests. Some of them have been invited by the DoH or the BNHI to debate on the formulation process of the 2G-NHI and other reform proposals. However, those previously in important official

positions are expected to harmonise their professional standpoints with the ruling party's policy preference and improve the feasibility and political acceptability of reform proposals. One of the most important scholars shared his participation experience as follows:

“I had many opportunities and experiences to participate in the affairs of the NHI over the past two decades. I have also served as a chairman of many NHI committees and occupied a position in the DoH. As academics, we support the sustainable management of healthcare and often voice our opinions to the BNHI and the DoH from a professional standpoint.” (Scholar H2)

To sum up, every group of policy actors has its own resources and policy preferences while participating in the NHI policy domain. The DoH and the BNHI have more power under the NHI Act. Employer associations, employee associations and medical associations can be seen as interest groups which are necessary parts of the NHI politics in Taiwan. They faithfully play their roles in the policy-making processes and advocate their standpoints by lobbying or collaborating with other alliance members. The news media are also important actors in the policy process. Active communications media can be seen as “watchdogs” of the government. Some scholars who have served as the director of the NHI, the CEO of the BNHI, a member of an important NHI committee, or as an advisor in some association or social group may provide valuable input or professional advice needed to direct the policy process at hand into a productive direction.

This section has clarified the nature, function and general policy preferences of every policy participant sector in the NHI policy domain. Policy preferences and stances specific to the case of the 2G-NHI financing scheme will be discussed in Chapter 7.

5-2. Overview of Global Network Structures

This section seeks to reveal the general global network structure and identify the roles of actors in Taiwan's NHI policy domain by applying three indicators: network density, network degree centralisation score, E-I index and distance-based cohesion. Network density is the number of ties/links among people in the network, expressed as a percentage of all possible ties. For instance, if every person is tied directly with every other, the density is 100%. The most centralised network would be star shaped, with everyone at the perimeter being directly tied to the one at the centre, but not to each other. Network degree centralisation compares the observed centralisation with this perfectly centralised star-shaped scenario for a network of the same size, and expresses it as a percentage. A degree of centralisation means that, as only a few actors hold the majority of the ties linking the network together, only one may reach the well-connected few to reach the entire network. The E-I (external-internal) index is the number of ties group members have to outsiders, minus the number of ties to other group members, divided by the total number of ties. The resulting index ranges from -1 (all ties are internal to the group) to +1 (all ties are external to the group). Distance-based cohesion is useful in interpreting the cohesiveness of the total structure of the network. The group in-degree centrality index and E-I index will also be described in this section. The description is preliminary in the sense that the policy participants are not clustered according to similar power relations with one another, yet it has descriptive value for the conventional public-private actor category.

Starting with the policy actors' reputational attributions and overall comparisons with other networks, Table 5-1 displays the ranking of the eight different policy participant types (in network terms, their in-degrees: the number of times an actor was

mentioned as “especially influential” in the NHI policy domain). Reputational attributions may simply indicate the informants’ judgments made as natural observers of the network system. A reputational attribution is a perception of power imbalance rather than real relationships between actors in a network. Of the four network structures, the mean density is the highest for the reputation network (16.2% of choices made, with an average of 9.887 “votes” received per policy participant), intermediate in the action-set coalition network (11.1% of choices made, with an average of 6.742 votes per policy actor) and the information transmission network (10.1% of choices, with an average of 6.161 votes per policy participant), and the lowest in the material resource exchange network (6.5% of choices, with an average of 3.968 votes per policy participant). The degree centralisation scores indicate how centred the network is around a few dominant policy actors. It can be seen that the reputation network (61.838%) and information transmission network (61.380%) are the most highly centralised while the least centralised is the resource exchange network (41.709%) - the action-set coalition network’s centralisation is very close to this. Furthermore, the overall positive E-I index value shows that these four network structures exhibit rather than homophily (Krackhardt and Stern, 1988). The information transmission network, with the highest E-I index value (0.650), has more heterogeneity than the other network structures. Finally, distance-based cohesion shows the number of edges in the shortest path between each pair of nodes in a network. In addition to the reputation network, the action-set coalition network has the highest distance-based cohesion value (0.417), which illustrates that the relations in acting together in NHI policy events is more relationally cohesive than the information/resource exchange relations in the NHI policy domain. Thus, these four networks present very different pictures.

Table 5-1. Four Network Structures Classified by the Type of Policy Participants

	Information N.		Resource N.		Action-set N.		Reputation N.	
	In-degree	E-I	Density	E-I	In-degree	E-I	In-degree	E-I
Administrative sector	10.400	0.543	0.378	0.292	7.000	0.420	13.200	0.687
Legislative sector	4.000	0.915	0.278	0.529	3.889	0.263	16.444	0.793
Employer assoc.	1.400	1.000	0.600	-0.0091	0.800	0.333	8.800	0.800
Employee assoc.	2.375	1.000	0.571	0.111	2.750	0.091	7.250	0.923
Welfare NGOs	6.750	1.000	0.667	0.515	6.750	0.667	7.500	0.953
Medical assoc.	7.500	0.931	0.600	0.345	6.833	0.692	16.833	0.834
Intermediate groups	11.375	0.685	0.036	0.840	1.500	0.938	4.125	0.820
Scholars	4.417	0.867	0.000	1.000	2.917	1.000	5.583	0.924
Overall mean in-degree		6.161		3.968		6.742 ⁵		9.887
Network centrality		61.380%		41.709%		42.790%		61.838%
Network density		0.101		0.065		0.111		0.162
Overall E-I index		0.650		0.397		0.397		0.573
Distance cohesion		0.377		0.240		0.417		0.429

Source: the author

As mentioned earlier, public administrators and parliamentary actors play a crucial role in the NHI policy domain. The right to vote in the legislature is given only to these individuals. However, legislators may be organised collectively along party lines, so these party groups in parliaments and in legislative committees are corporate actors (the DPP caucus, the KMT caucus, the PFP caucus and the TSU caucus). Table 5-1 clearly shows that the members in the legislative and administrative sectors enjoy a reputation for having influence substantially above the average. However, in comparison with other networks, it is also obvious that the in-degree values of legislative members are much lower than their reputational values and those of the administrative sector. It is not implausible that the legislators, who have the right to vote on bills and oversee the public sector's implementation performance, occupy an advantageous institutional position in the policy formation and implementation processes, notwithstanding the fact

⁵ The action-set coalition network is a symmetric matrix.

that they seldom exchange information/material resources with other policy participants. For legislators and party caucuses, parliament won't be in session during all year, the frequent information and political resource exchange has just occurred in the session. This is the reason why the results show that information and political resource exchange between the legislative sector and other policy participants are rare. The public sectors, especially the DoH (A1) and the BNHI (A10), maintain highly frequent interactions with other policy stakeholders through numerous platforms, including publishing new white papers, hosting public for a and building regular committees for healthcare service and global budget negotiations. It is also interesting that the members of the medical associations enjoy the highest reputations as a result of their superior access to information and knowledge. They also have greater power and resources while negotiating with the DoH and the BNHI or lobby in the legislative procedure. From the perspective of the degree centrality, it can be concluded at this stage that the legislative sector, the medical associations and the administrative sector are the most important players in Taiwan's NHI policy domain.

Turning to the information transmission network, Table 5-1 suggests that the chief communication targets in the NHI policy domain are the administrative sector (10.400) and intermediate groups (mass media; 11.375). These two have the highest in-degree scores, followed by the medical associations. Moreover, employer associations have the lowest in-degree scores, showing that other policy stakeholders did not have that many information exchanges with them. On the other hand, the E-I index value also reveals some interesting characteristics of the entire network, split into the categorised groups. A positive and high E-I value indicates more and stronger cross-site relations compared to within-site ties. Krackhardt and Stern (1988) suggest that a positive E-I value will be

rare in whole networks because of a tendency for friendships to cluster within the group rather than external to it. However, Table 5-1 shows that all E-I index values in the information transmission network are positive. Furthermore, the employer associations, employee associations and welfare NGOs all score 1 for their information exchange relations (their overall densities within the groups are all 0). This can be taken to mean that the external linkages between the different groups clearly dominate internal linkages within these three policy participants in the NHI policy domain.

However, Table 5-1 also presents somewhat different results. First, the indicators for the overall mean in-degree index (3.968), network degree centrality (41.709%), network density (0.065), E-I index (0.397) and distance cohesion (0.240) are lower for the resource network. This means that the resource exchange network is less centralised and also less connected than the information transmission network. This demonstrates that weak ties, indeed, bring a wide range of policy participants and categories together than other relations in the network. It can therefore be supposed that weak ties in the resource exchange network are important for resource mobilisation. Second, it also seems that there are fewer resource exchanges than information transmission interactions among policy participants. This might be because not all information transmission in a policy domain consists of items in high demand, such as resource exchanges with other policy actors. Much information is broadcast freely to all system participants. To distinguish between valuable and more-or-less freely distributed information, the more “material” resources (such as vote support) also need to be discussed. Thus, in order to capture the total power picture of a policy network, it is essential to combine the above with the insights from the relational approach (as will be discussed in the next chapter). The comments of the interviewees were confined to

policy resources that only other policy participants could provide.

The administrative sector (7.000), the welfare NGOs (6.750) and the medical associations (6.833) have higher centrality in-degree scores than the other policy stakeholders in the resource exchange network. This shows that these policy actors are more active and have more capabilities for resource mobilisation than others in the resource exchange relation. Moreover, the E-I index values show that the scholars exchanged resources with other categories rather than internally within the group of scholars. On the contrary, although the group E-I indexes of the resource exchange network are all positive, the employee associations (0.091) have a lower E-I value than that in the information transmission network. The members of this group access and mobilise more material resources within the group than through information exchange.

Finally, Table 5-1 presents the action-set coalition network, which also has a somewhat different pattern. The action-set coalition network brings together policy actors with similar interests in the NHI policy domain so that the groups' internal densities might be very high. The most important evidence is that its distance-based cohesion is higher than for the other networks in the NHI policy domain. The in-degree centrality index suggests that the chief collaborative coalitions in the NHI policy domain are quite fragmented and dispersed among these groups. However, in the action-set coalition network, the issue is the extent to which policy actors in the same category act together. Here, the internal density and the E-I index refer to the densities of coalition partners chosen from within each policy participant category. For example, few scholars act together in policy event action-sets, and the state government, legislative sector and intermediate groups all participate in self-coalition at a lower

average rate. In contrast, 60 percent of the employer associations, 57.1 percent of the employee associations, 66.7 percent of the welfare NGOs and 60 percent of the medical associations are linked to one another by collaborating in two or more event action-sets. Furthermore, it can be seen that coalitions formed in the NHI policy domain arise mainly within the employer, employee and medical associations and the welfare NGOs, and not across different categories. However, the groups also rely on resources from different groups (E-I value=0.515). In addition to working together, they need to collaborate with other groups to collect more information and resources affecting policy outcomes.

5-3. Global Power Structures in the NHI Policy Domain

This section looks at the global power structure in the NHI policy domain using the Blockmodel analysis and MDS. This section weaves together the diverse strands mentioned in the previous section into the global network structure of power distribution. Specifically, different types of relationships - policy actors' information transmission, resource exchange networks, the action-set coalition network, and the reputation perception network - are combined to reveal the multiplex patterns connecting core and peripheral clusters of actors with equivalent ties. The analytical emphasis thus moved actor cohesion to actor equivalence.

5-3-1. Multi-Matrix and Blockmodel Analysis

With the decision having been made to examine a full network that includes all domain actors irrespective of their authority roles based on formal institutions, the first

task is to construct a matrix that optimally measures power in networks. A general problem with exchange networks is that the commodities or material resources exchanged can be very different. Thus, identifying which relation between policy actors reflects the total power structure is quite a difficult task in both theoretical and empirical studies. As Cook's social exchange theory (1990: 120) argues, some imbalance may be built into actual exchange networks, especially if more than one potential power resource is taken into account. For instance, valuable policy information may be exchanged not only for other valuable information, but also for securing other resources, such as legislative votes. To obtain a complete picture of the multiple, hidden power dimensions, an analyst would have to exhaustively enumerate the important power resources and their exchange rates. In addition, one should try to gather data on exchange offers that were not accepted by more powerful or active policy actors. Because such information is lacking, this chapter will focus on the four relations examined in the preceding chapters: policy actors' reputation attributions, information transmission, resource exchange, and action-set coalitions. The idea is to bring our global power structure analysis closer to operationalising Cook and Emerson's (1978) power dependence theory and Rhodes's (1986, 1988) resource dependency theory.

In combining the four networks, assumptions about their relative importance for the overall power structure should first be discussed. The network of policy actors' reputations captures a salient power structure dimension. In an interview, the informants were asked to identify all other policy participants that they saw as "especially influential" within the NHI policy domain. The resulting reputation was an asymmetric network; its rows were the respondents and its columns were the policy participants mentioned as being especially influential. Second, it was not a social exchange network,

in the sense of summarising information on actual exchanges or collaborative interactions. Rather, it was a perceptual network. It served both to identify actors believed to be powerful and to remedy some of the pitfalls associated with mis-specifying the exchange relations (to be described next).

Other power structure dimensions are captured by access networks: informational transmission, resource exchange and action-set coalition. Most elite network studies (Higley, Hoffmann-Lange, Kadushin and Moore, 1991; Higley and Moore, 1981; Hunter, 1959; Luamann and Knoke, 1987, 1989; Laumann and Pappi, 1976; Moore, 1979) collect relational data concerning structural ties that offer elites direct or shortened indirect communication/resource exchange opportunities. In the associated matrices, the actors granting access are placed along the rows and the actors seeking access are the columns. A policy actor's position within the power structure is determined by both the information/resources sent and those received. Based on the questions asked, the information/resource receivers are supposed to be dependent policy participants because they had claimed to need the information/resources provided by the senders to achieve their policy goals. Since they enjoy better and broader access, the column actors, are likely to be more powerful. However, one need not rely solely on the column actors' claims about those policy actors to which they have access. Ideally, their responses should also be cross-validated by the respective row actors. For this reason, some researchers see information/resource exchange relations as "confirmed information/resource exchange matrices" (Knoke *et al.*, 1996; Laumann and Knoke, 1987, 1989). They reveal latent access dimensions of power networks. These relations can be seen as a way of double-checking asymmetric networks such as the reputational one.

By using both actors' reputation and access network matrices, a core cluster of policy actors in the NHI policy domain can be identified. This cluster jointly occupies the centre of the confirmed information/resource exchange relations, in the sense that they send and receive valuable information/material resources to and from other positions. If nothing were known about the interests of the policy actors in the central positions or with strong connections, one might doubt whether they actually constitute a unified ruling caucus in terms of a policy community or policy advocacy coalition. Do they usually agree on public policies, or are they divided into two or more opposing subgroups with different policy preferences? In analysing reputational attribution and access networks, it is possible for one player to appear powerful simply because he/she can access or receive valuable information/resources from other policy players. This does not mean that these powerful policy actors share the same policy preferences and act together with the receivers towards common policy goals. Some policy actors might occupy less powerful positions in the reputation and access networks, but would still be able to protect themselves from utility losses by building coalitions with other actors who share their preferences on a particular set of policies. Therefore, the fourth power structure matrix, the action-set coalition network, is constructed. Action-set relationships are coalitions whose partners hold the same policy goals with respect to a legislative bill or policy event. Thus, the action-set matrix is symmetric; both parties are included twice and the columns and rows contain the same data.

By jointly analysing the four power structure dimensions of policy participants' reputations, information and material resource exchange networks and action-set coalitions, global power structure analysis comes closer to operationalising Cook and Emerson's (1978) power dependence theory and Rhodes's (1986, 1988) resource

dependency theory. Actors obtain power to the extent that others depend on them to supply the desired resources. In order to accomplish this objective fully, the reputational distribution network should be interpreted as a resource dependence matrix wherein reputational differences indicate power imbalances. In this case, interpreting a non-mutual reputation as an indicator of a resource dependence relation may overemphasise the dependence aspect. Reputational attributions simply indicate the informants' judgments as natural observers of the network system. Thus, a conservative strategy of interpreting the weight of reputation attributions in the multi-matrices can be useful in exploring the global power structure.

Based on the above discussion of the rationale for combining different networks, it can be anticipated that the new multi-matrix network will be much more complex, increasing the difficulty of the following analysis and explanation. Blockmodel analysis is a quantitative method for reducing the complexity of relations and perceptions in multiple networks of actors. Details of the technical procedures are available from several sources (e.g. Christina, 2012; Knoke and Kuklinski, 1982; Knoke and Yang, 2008; Wasserman and Faust, 1994). A Blockmodel analysis is a way to cluster actors into positions, or cluster their relations into roles, by analysing multiple actor-by-actor binary networks. The analysis searches for structurally equivalent policy participants. Policy participants maintain the same or very similar patterns of ties to other policy participants across the four networks. The original network data are partitioned into eight subgroups, each containing policy actors that occupy structurally similar positions within the four network power structures. These subgroups are called "positions" or "blocks" and are described in the following sections.

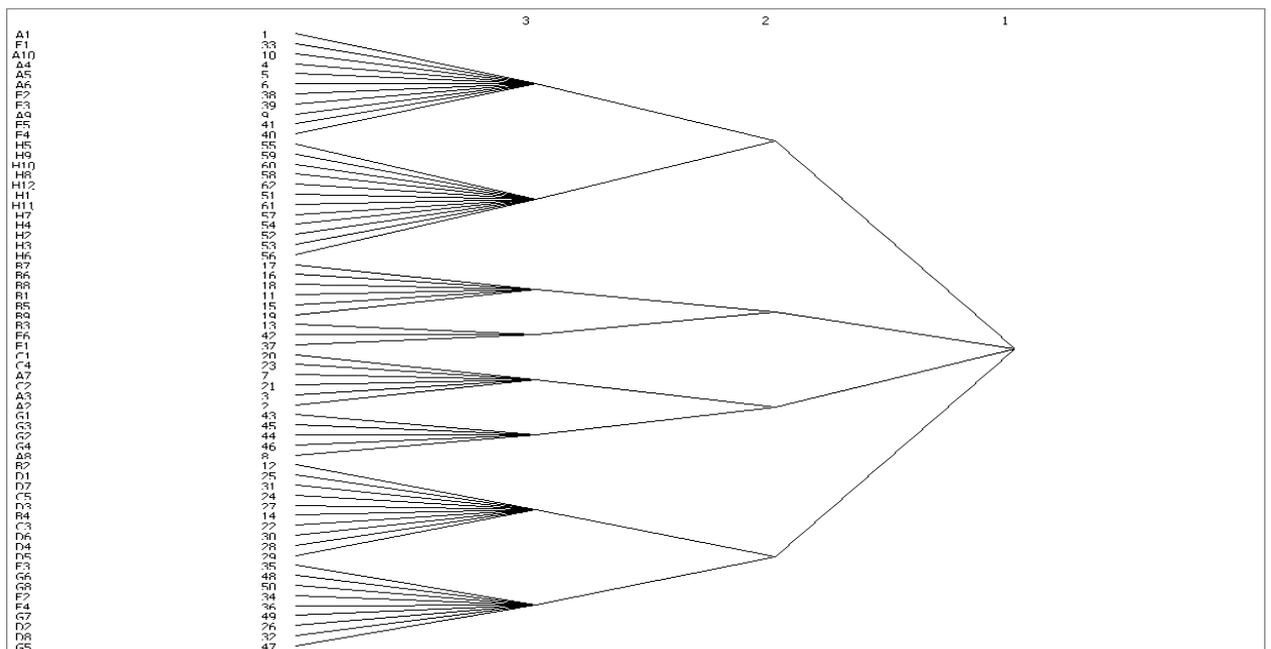
5-3-2. Splitting by Applying the Blockmodel Analysis

In order to obtain a comprehensive understanding of the structural organising principle underpinning the NHI policy domain in Taiwan, Blockmodel analysis and MSD are performed. *CONCOR* is a procedure based on the convergence of iterated correlations. One way to display the results following a series of partitions from *CONCOR* is to construct a tree diagram indicating the degree of structural equivalence among the positions and identifying their members (Wasserman and Faust, 1994: 378). The tree diagram shown in Figure 5-1 is a graphical representation resulting from the *CONCOR* algorithm that rearranges the order of policy participants according to their similarity of participation in different blocks. The tree diagram also places policy stakeholders located close to other stakeholders in similar clusters. The scale gives the level at which they are affiliated via overlapping participation and the corresponding numbers of overlaps.

The diagram leads to two important findings. First, the 62 policy participants can be clustered into eight structural equivalent blocks at level three, through the procedure of correlation calculation. The output results can be addressed through the output of a partition diagram, which shows information similar to that determined by *CONCOR*. The three splits are shown as a tree diagram in the partition diagram in Figure 5-1. In the first division, all policy participants are in a single group determined by a loose standard. The group can be seen as one block in the network. In the second division, they are subdivided into four groups, as the tree diagram shows on the column of label 2. In the third division, they are clustered into eight groups. The eight blocks can be seen as eight roles sharing similarities such as attitudes, behaviours and relationship with others (Borgatti, Everett and Johnson, 2013: 207). The actors in the same block

have identical or vary similar relations with others in a network (Knoke and Yang, 2008: 76). In other words, actors in the same equivalence block tend to exhibit a certain amount of homogeneity.

Figure 5-1. Tree Diagram Obtained by Applying *CONCOR* Analysis over 62 Policy Participants in the NHI Policy Domain



Source: the author

*Note: The level at which any pair of policy actors are aggregated is the point at which both can be reached by tracing from the start on the right to the policy actors on the left. The scale at the top gives the level at which they are clustered and correspond to the number of overlaps. Hence, to find all members of vertex *i*'s block at level *k*, simply locate the value of *k* on the line connected to *i*, then move on to all actors that can be reached from this point by tracing to the left are in *i*'s block.*

The second finding is that reordering the members into these eight blocks mostly maintains the original public-private policy actor categories within each block. For example, in block two (labelled B), the re-clustered members are all scholars. In block three (labelled C), all members are legislative actors.

An eight-block solution for the four networks in Taiwan's NHI policy domain is

already too complex to be interpreted easily and completely. The action-set coalition network is a symmetric matrix with lower weights than the others. By contrast, the reputation network is a perception network rather than a set of real relations. It is also rather simple for discussing relationships between actors. However, the algorithm of *CONCOR* is now regarded by researchers to be a bit peculiar; the technique usually produces meaningful results only by condensing the original complicated multiplex matrices into a simpler image. The sequences among the eight blocks ordered by their average reputations are indicated by labelling the positions with letters. Furthermore, the differences between these eight blocks should be considered before proceeding with further analysis. Therefore, we used the ANOVA in order to get a more comprehensive understanding of the characteristics and differences between the eight blocks.

Table 5-2 presents the results of the ANOVA. The eight groups differ significantly from one another (based on the network in-centrality index). Some of the differences in the mean scores of the in-degree centrality index are quite large. Because of the simple research purpose here, post-hoc comparison is not used to further explore the actual differences between the groups. Block A is a generalist cluster with quite high in-degree scores of the four networks (information network: $M=19.970$, $SD=23.697$; resource network: $M=14.903$, $SD=16.482$; reputation network: $M=30.104$; $SD=22.09$; action-set coalition: $M=15.946$, $SD=14.773$), including eleven policy actors: players A1, A4, A5, A6, A9, and A10 in the governmental sector, E1 that belongs to the welfare NGOs, and F2, F3, F4, and F5 from the medical associations. Some of these players are very active and influential in the NHI policy domain. For example, actor A1 (DoH), actor A10 (the BNHI) and all of the policy actors from medical associations (F2 to F5) in this cluster enjoy very high network in-degree centrality (see Chapter 6). Based on in-degree

centrality, block A is the most influential of the eight blocks on average in the NHI policy domain.

Table 5-2. One Way ANOVA among Eight Positions in the NHI Policy Domain

Network features	Eight block positions							
	A	B	C	D	E	F	G	H
Information transmission P=0.002(<0.001)	19.97 (23.70)	7.240 (5.524)	6.011 (3.386)	14.21 (2.504)	2.459 (2.008)	26.56 (15.13)	3.279 (3.456)	6.739 (4.880)
Resource exchange P=0.016(<0.05)	14.90 (16.48)	4.781 (3.921)	7.378 (3.845)	10.38 (6.825)	1.639 (1.796)	3.279 (1.159)	2.787 (2.998)	5.829 (5.191)
Reputational attribution P=0.000(<0.001)	30.10 (22.09)	9.153 (5.612)	33.10 (21.91)	30.60 (15.75)	11.48 (12.22)	9.508 (2.694)	10.49 (7.697)	5.827 (6.356)
Action-set coalition P=0.02(<0.05)	15.95 (14.77)	4.098 (1.782)	16.12 (5.903)	16.94 (5.757)	4.918 (4.015)	6.885 (1.540)	13.44 (7.485)	12.75 (6.896)

Source: the author

Note: The coefficients are means and the numbers in brackets are standard deviations.

In contrast, block B contains all of the scholars working in public health or medical policy: H1 to H12. Based on the density value, it can be seen that the members of this block do not act together in the NHI policy domain (density within group=0%). They are not influential (their in-degree centrality scores are far below the values of block A in all four networks) but some policy actors (especially the influential actors from the administrative sector and the medical associations) in the NHI policy domain rely on their professional consultations to guide them in dealing with NHI affairs.

Block C, containing the legislative actors B1, B5, B6, B7, and B9, is also unified. As previously mentioned, the legislative sector is playing a crucial role in policy formation and implementation and these are expected to have been enjoying high reputations in the NHI policy domain. The main body in this block is the party caucus controlling the formal power to legalise all bills in the Congress. Thus, it can be seen that block C not only gets very high scores in the reputational attribution network

(higher than block A, $M=33.10$, $SD=21.91$), but also induces many other policy actors to attempt to collaborate with them (action-set coalition: $M=16.12$, $SD=5.903$).

Block D is the smallest generalist cluster, comprising a legislative actor (B3) and medical associations F1 and F6. In comparison with other blocks, this block not only enjoys very high reputation scores (reputation network: $M=30.60$, $SD=15.75$) but also has a greater ability to access information and material resources (informational transmission: $M=14.21$, $SD=2.504$; resource exchange: $M=10.38$, $SD=6.825$). Based on the above, block B seems to be the second most powerful block in the NHI domain. The most important feature of this block is that, the congressman with a medical background is also a doctor and not only paid a lot of attention to the NHI financial reform but also collaborated with two other active and influential medical associations: F1 and F6 (density within group=66.7%).

According to the differences in the mean in-degree scores, it seems the following split blocks do not have influential positions in the NHI policy domain. Block E includes six players, the administrative sectors A2, A3, and A7 and the employer associations C1, C2, and C3. A common feature among these actors is that those from the government are all responsible for economic and commercial affairs and communicate frequently with the employer associations. Thus, it can be anticipated that these six policy actors might have had similar interests and stances in the NHI policy domain. Based on the density value, the members of this block can be said to be loosely collaborating in NHI policy affairs (density within group=26.7%).

Block F is in a pro-intermediate position containing one administrative sector A8. The feature of the actor A8 (the Taipei City government) was a news maker in the NHI

affairs and had very close interaction with mass media when the DDP was in power. The four major intermediate groups, G1-G4, constitute the most influential block in terms of information transmission ($M=26.56$, $SD=15.13$). The members include four of the most popular newspapers in Taiwan. Despite its high in-degree centrality score for information transmission, these policy players do not act together in promoting any of the NHI affairs (density within group=0%). The most important feature of this block is that these actors play an important role in transmitting valuable information on all NHI policy events.

Block G can be seen as a largely pro-employee position, including two other major legislative sectors, B2 and B4, and two major employer associations, C3 and C5. Although the members of this block do not exchange valuable information/resources with others (information transmission: $M=3.279$, $SD=3.456$; resource exchange: $M=2.787$, $SD=2.998$), they seem to be acting together for common interests within the block at above-average rates (density within group=31.1%) and also act with other blocks to pursue common policy goals (action-set coalition: $M=13.44$, $SD=7.485$). However, most policy actors in this block are either not active or not influential in participating in policy events.

In contrast with block G, block H - containing three major public-private subsets (i.e., major employee associations, D2 and D8), three major welfare NGOs (E2 to E4) and four intermediate groups (G5 to G8) - is simpler and more consistent. The common characteristics of this block can be divided into three points. First, the members are all concerned about the interests of disadvantaged minorities and are very active in fighting the coalition of medical associations (density within group=41.7%). Second, the

members are linked to other blocks through collaborations in event action-sets (action-set coalition: $M=12.75$, $SD=6.896$). Third, the block has somewhat smaller scores with respect to access connections (information transmission: $M=6.739$, $SD=4.880$; resource exchange: $M=5.829$, $SD=5.191$), which indicates that it is not influential over policy outcomes (reputation network: $M=5.827$, $SD=6.356$).

The important features of the eight blocks in the NHI policy domain are summarised in Table 5-3.

Table 5-3. The Eight Blocks and Their Features in the NHI Policy Domain

Blocks	Policy Participants	Players	Density	Features
A	Administrative sectors: A1, A4, A5, A6, A9, and A10 Welfare NGOs: E1 Medical associations: F2, F3, F4, and F5	11	0.382	The actors in block A all have high reputations and are very actively involved in NHI affairs. Most are administrative sectors or medical associations.
B	Scholars: H1, H2, H3, H4, H5, H6, H7, H8, H9, H10, H11, and H12	12	0.000	This is a unified block and the biggest in the NHI policy domain. It is not influential but some policy actors rely on their professional consultations. The members are all scholars.
C	Legislative sectors: B1, B5, B6, B7, B8, and B9	6	0.200	The members are from the legislative sectors, especially including all caucuses in the parliament. They control the power over the legalisation of bills in the Congress.
D	Legislative sectors: B3 Medical associations: F1 and F6	3	0.667	This block includes one congressman and two medical associations and is the smallest in the NHI policy domain. The congressman has a background as a physician and is familiar with NHI affairs.
E	Administrative sectors: A2, A3, and A7 Employer associations: C1, C2, and C4	6	0.267	This block combines actors from administrative sectors and employer associations. Most of the public sectors in this block are responsible for economic and commercial affairs.
F	Administrative sectors: A8 Intermediate groups: G1, G2, G3, and G4	5	0.000	Most members of this block are from the mass media. The intermediate actors G1, G2, G3, and G4, are from newspapers with the highest circulation in Taiwan, and have a high impact on information transmission in the NHI policy domain.
G	Legislative sectors: B2 and B4 Employer associations: C3 and C5 Employee associations: D1, D3, D4, D5, D6, and D7	10	0.311	Most members are employee associations or represent employees' interests. Some policy actors in this block represent the inactive disadvantaged minority in Taiwan society.
H	Employee associations: D2 and D8 Welfare NGOs: E2, E3, and E4 Intermediate groups: G5, G6, G7, and G8	9	0.417	Most members of this block are similar to those in block G. They also represent the interests of blue-collar workers and the general insured. Actors in this block are more active than those in block G in NHI policy events.

Source: the author

5-3-3. Power Structure Analysed by Calculating the Spatial Distances among the Eight Blocks

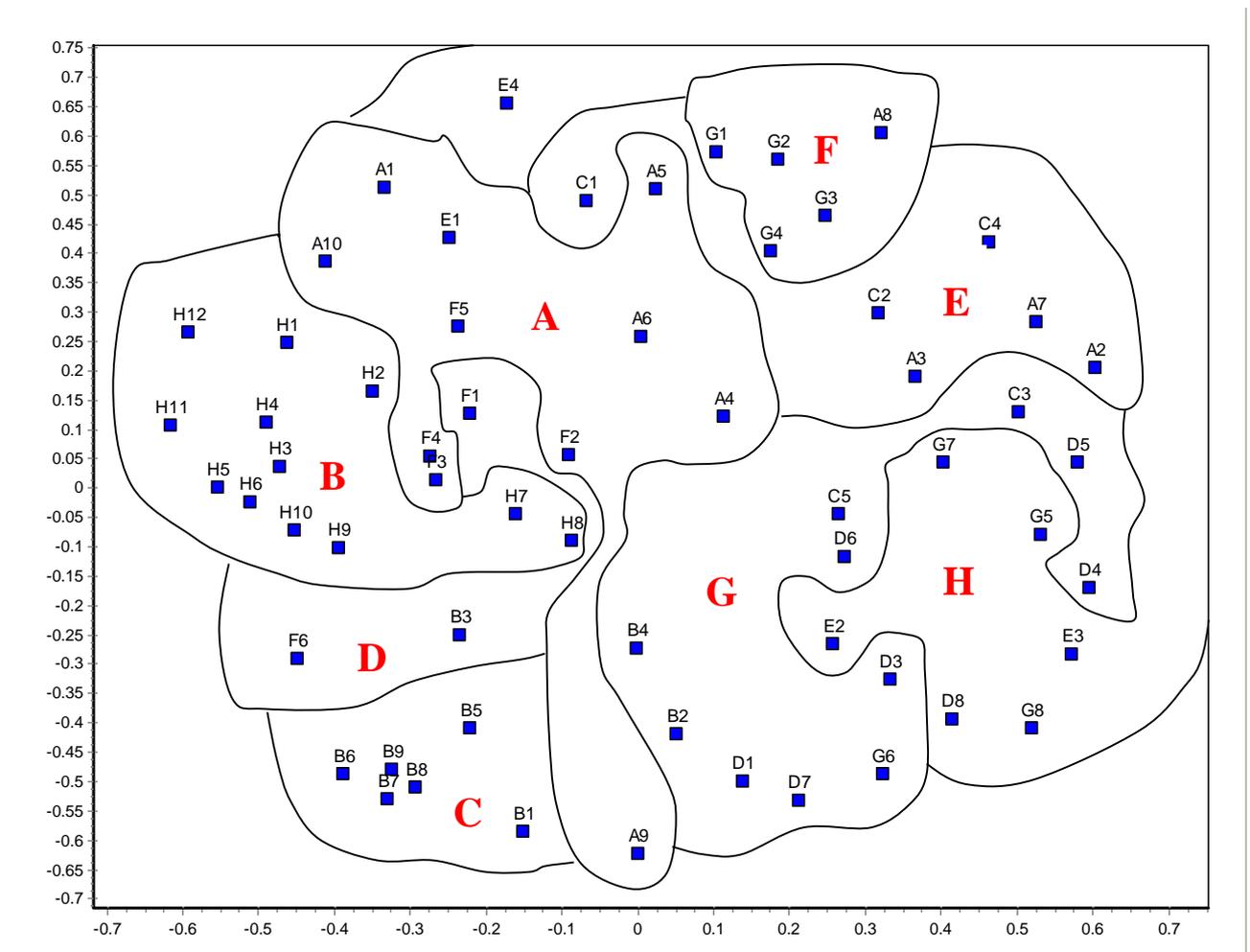
Usually the goal in equivalence analysis is to identify and visualise clusters of cases, and the global power structure becomes much clearer in the MDS analysis of the multiplex matrices. However, identifying and measuring social distance among actors is technically more difficult than measuring physical distance. The MDS, as a general data analysis technique, has been used in SNA for the more specific task of presenting equivalences among actors by calculating their social distances. The output of MDS is a set of estimated distances among pairs of entities, which can be expressed as coordinates in one-, two-, or higher-dimensional space. Moreover, MDS can also be used to visualise the blocks' spatial distribution created by *CONCOR* in a two - or higher - dimensional space (Breiger, Boorman, and Arabie, 1975; Wasserman and Faust, 1994). Thus, a social-spatial map is akin to a geographic map showing the blocks' relative positions for the interpretation of power distribution in a policy domain.

To calculate the social distances between pairs of blocks in the NHI policy domain, I begin with the multiplex matrix created earlier and compute the Pearson product-moment correlation coefficients for all pairs of policy participants. That is, an initial correlation matrix reflecting the mutual correlations between policy participants can be computed using the *CONCOR* procedure. In this correlation matrix, the higher is the correlation between a pair of policy actors, the greater is the similarity between them in the matrix. Next, the squared correlation matrix is entered into the metric-MDS solution and plotting routine in UCINET. This allows for a comparison of the proximity of policy actors in the multidimensional scaling map with the partitions resulting from *CONCOR*. This program iteratively derives for each object, plots the points as pairs of

Cartesian variables, and computes the solution's stress value.

Figure 5-2 displays the two-dimensional MDS solution of the multiplex relation analysis. The stress value (0.322) indicates acceptable fits but is somewhat higher than desirable (Wasserman and Faust, 1994). However, this figure can be used to provide approximate relative locations for the policy participants in the context of the four relations. In the figure, policy participants who are closer to each other in the space are relatively more structurally equivalent. One way to study this figure is to note the attributes of policy participants in different regions of the map. Some distribution characteristics can clearly be identifiable. First, the policy actors who are also scholars (H1 to H12) are all aggregated in the middle to upper left part of the space; most policy actors from the legislative sectors occupy very close positions (in the lower left corner, such as B1, B5, B6, B7, B8, and B9). Because of the short social distances among them, these two groups can be seen to be forming a cohesive alliance with frequent information/resource exchange and action-set coalition relations.

Figure 5-2. Spacial Distances in Multiplex Matrix among the NHI Policy
Participants: Two-dimensional MDS Analysis of Simple Matching Coefficients
(Stress=0.322)



A1	Department of Health	B7	Kuomintang (KMT) Caucus	E1	Consumers' Foundation	G7	PFP Policy Section
A2	Ministry of Civil Service	B8	People First Party (PFP) Caucus	E2	Taiwan Health Reform Foundation	G8	Alliance of Fairness and Justice
A3	Ministry of the Interior	B9	Taiwan Solidarity Union (TSU) Caucus	E3	League of Disabled Groups	H1	Prof. A
A4	Ministry of Finance	C1	The Chinese National Federation of Industries	E4	NHI Supervision League	H2	Prof. B
A5	Council of Labour Affairs	C2	The Chinese National Federation of Commerce	F1	Taiwan Medical Association	H3	Prof. C
A6	Directorate General of Budget, Accounting and Statistics	C3	The Chinese National Association of Industry and Commerce	F2	The National Union of Pharmacist Associations	H4	Prof. D
A7	Ministry of Economic Affairs	C4	National Association of Small and Medium Enterprises	F3	China Dental Association	H5	Prof. F
A8	Taipei City Government	C5	Association of Public Enterprises	F4	The National Union of Chinese Medical Doctors' Associations	H6	Prof. G
A9	Kaohsiung City Government	D1	Chinese Federation of Labour Unions	F5	Taiwan Hospital Association	H7	Prof. I
A10	Bureau of the NHI	D2	Taiwan Confederation of Trade Unions	F6	Taiwan Community Hospital Association	H8	Prof. J
B1	Legislator A	D3	Chinese General Federation of Craft Unions	G1	United Daily News	H9	Prof. K
B2	Legislator B	D4	Taiwan Provincial Fishermen's Association	G2	Daily News	H10	Prof. L
B3	Legislator C	D5	Taiwan Provincial Farmers' Association	G3	China Times	H11	Prof. M
B4	Legislator D	D6	Committee of Action for Labour Legislation	G4	Liberty Times	H12	Prof. N
B5	Legislator E	D7	Chinese General Labour League	G5	DPP Policy Section		
B6	Democratic Progressive Party (DPP) Caucus	D8	Taiwan Labour Union	G6	KMT Policy Section		

Source: the author

Second, all members from the administrative sectors (policy participants A1 to A10) are in the upper half of the map, whereas all members from the legislative sectors are in the lower half. The large social distance between the administrative and legislative sectors shows their lack of structural equivalence in the NHI policy domain.

Third, most of the employee associations (policy participants D1 to D8) are located in the lower right corner, while most of the employer associations (policy participants C1 to C5) are in the upper right part. It seems that these two categories of players not only take different stances but also lack similar relations with other players in the NHI policy domain.

The final noteworthy feature of the MDS map is that the policy participants from the medical associations also occupy places very close to the members of the administrative sectors (A1 and A10) in the upper left part of the map, and to all of the scholars. These policy actors can be seen as a large alliance that stands in opposition to the employee associations. The finding also shows the evidence again that the public sector (the DoH and the BNHI) and most medical associations have frequent interactions in dealing with the affairs of the NHI (the same analytical result also can be seen in Chapter 6). Also, note that the policy participants with high reputational scores are located on the left side of the map, whereas, those occupying the right half are less influential in the policy domain.

Another way to interpret the two-dimensional MDS plot is to compare the proximity of actors in the MDS map with the partition resulting from *CONCOR*. Figure 5-2 tells us a story that is broadly similar to the above with respect to the stances

assumed by the eight blocks. It can be seen that the split is essentially the right half versus the left half of the diagram. Further, if the eight-position result from the *CONCOR* algorithm is examined, there is a very close correspondence with the previous interpretation of the MDS. The members of block A (administrative sectors A1, A4, A5, A6, A9, and A10; welfare NGO E1; medical associations F2 to F5) are all in the upper left part with the exception of member A9. The members of block B (scholars H1 to H12) are clustered towards the left middle part. The members of block C (legislative sectors B1 and B5 to B9) are located together in the lower left corner. The members of block D (legislative sector B3; medical associations F1 and F6) are also located on the left side between blocks B and C. The members of block E (administrative sectors A2, A3, and A7; employer associations C1, C2, and C4) are in the upper right corner. The members of block F (administrative sector A8; intermediate groups G1 to G4) are also in the upper right part, above block E. The members of block G (legislative sectors B2 and B4; employer associations C3 and C5; employee associations D1 and D3 to D7) are mostly in the lower right part with the exception of C3 and D5. The members of block H (employee associations D2 and D8; welfare NGOs E2, E3, and E4; intermediate groups G5 to G8) are located in the lower right corner with the exception of E4 that is towards the top of the diagram. Policy actor E4 is the only member of block H that is conjoint with the influential block A.

In addition to the information about mutual positions among these policy participants, there are also other important features of power distribution in the NHI policy domain worthy of discussion here. First, the social distances between these eight blocks are not unduly large. With the exception of block F and most of block H, most blocks are located close to and are conjoint with block A. It seems that, apart from

blocks F and H, these blocks have a very high degree of boundary penetration with one another. The phenomenon of boundary penetration clearly shows that the nature of power distribution in Taiwan's NHI policy domain has a complicated interaction structure, with interest intermediation surrounding block A (administrative sectors A1, A4, A5, A6, A9, and A10; welfare NGO E1; medical associations F2, F3, F4, and F5) rather than a hierarchical or isolated mode among these blocks. The block A including administrative sectors, welfare NGO and medical associations can be seen as a core interest representation system surrounded by other members of blocks. It also means that it can be seen as a corporatist mechanism between the public sectors and medical associations in the NHI policy formulation and implementation. However, these core members also have interactions with the policy actors outside of the block A and the policy outcome can be understood in the negotiation process among multiple stakeholders in these blocks in the NHI policy domain. Thus, it seems that Taiwan's NHI policy domain has been constructed as a combination of pluralist and corporatist expectations about power structure in a democratic country.

Second, Figure 5-2 also shows that the government sectors (A1: DoH and A10: BNHI) responsible for NHI affairs are not located near the centre of the MDS map. These two policy participants with high in-degree centrality values in the four networks do not absolutely dominate the policy outcomes in the NHI policy domain. Rather, they collaborate with other policy participants (especially the medical associations, scholars and legislative sectors).

Third, in comparison with the participants from the government sectors (e.g. A1 and A10), some of the medical associations (F1 to F5) and scholars (H7 and H8) are

closer to the centre of the map. As previously mentioned, scholars involved in the NHI policy domain received low reputational scores but H7 and H8 are quite distinctive. One possible reason is that these two scholars have other official appointments. For instance, player H7 was the Committee Chairman of the National Health Insurance Supervision Committee and player H8 was the minister of the DoH between 2000 and 2004. Thus, their influence is not just a reflection of their positions as scholars. This suggests that these policy participants are more deeply involved in NHI affairs than the other participants, and also more influential in the NHI policy domain. More particularly, policy actor F1 (the Taiwan Medical Association) has shorter social distances to the members of blocks A and B than to the other members of block D. The Taiwan Medical Association clearly has a very high degree of boundary penetration with block A and pro-scholar block B.

Finally, based on the composition of block A, a particularly significant feature of this plot is that the government in Taiwan stood with the medical associations rather than the welfare NGOs or employee associations in dealing with NHI affairs in the DPP government from 2000 to 2008. As previously mentioned, the close position between administrative sectors and medical associations can be seen as an effective interest representation system surrounded by other policy actors in the NHI policy domain. The Taiwan government is more concerned with the policy interests of the medical associations than with those of the insured, blue-collar workers and disadvantaged minorities in the healthcare system. Thus, the composition of the jointly occupied blocks and their locations in the social map reflect a basic political cleavage between the medical associations and the disadvantaged and discriminated against members of the population, and the power distribution is obviously lopsided in the NHI policy domain.

However, although the welfare NGOs are relatively weak and scattered across the NHI policy domain, policy participant E4 (NHI Supervision League) is the one exception, located adjacent to the government sectors (A1 and A10) in block A. This means that E4 might have more opportunities to influence and connect with government actors A1 and A10 for information/resource exchange or to act in conjunction with them, than other welfare NGOs in the NHI policy domain.

5-4. Comparison of Image Roles (Positions)

The MDS map reveals a basic underlying power cleavage among the policy participants and the eight blocks by measuring their social distances from each other. The question of how the eight blocks relate to each other has remained unanswered. It is also important to describe the form of relations that splits the blocks. In this section, the ties between and within the positions will be discussed using the image roles/positions obtained from *CONCOR*.

The interactive relationships between these positions or blocks can be represented as “digraphs of the image graph” or the so-called reduced graphs (a kind of directed graph), in which the links between two positions (which will be represented as letters) are depicted as arrows emerging from the sending block and pointing at the receiving block. The direction of arrow means that the receiving block is depended by the sending block in the relational network. On the contrary, it also can be interpreted that the sending block needs to mobilise information or resources from the receiving block. In this case, the block who has more incoming connections is more influential than others.

The goodness-of-fit measure of a block model (R-square) is a criterion used to assess how much of the variance in the ties in the block model can be accounted for by a “perfect” structural block model. A tie between blocks, indicating powerful relationships between the policy participants in these blocks, is considered to exist only if the density of relations within or between positions exceeds the overall mean density of the respective network. In other words, a useful way to summarise the ties between blocks/positions is the density matrix calculated by the *CONCOR* procedure. The sequences among the eight blocks ordered by their average reputations are indicated by labelling the positions with letters. For example, block A stands for the most influential block and block C would be the next one and so on. Furthermore, a block with a high density of ties among its members is represented by enclosing its letter in a circle. Two positions whose members are extensively linked in the coalition network are identified either (1) by using a capital letter for the more powerful block and a lower-case letter for the less powerful coalition partners, or (2) by using the same capital letter with numerical subscripts when members of the two blocks occupy adjacent ranks in the reputation hierarchy. In the diagrams, directed arrows indicate that policy information or material resources are sent or built between blocks, and circles indicate within-block exchanges at above-average rates. Double-headed arrows mean that high information/resource flows are approximately balanced in both directions between the two blocks. For imbalanced relations in these three policy events, two arrows of varying thickness reveal which position had sent more information to the respective recipient. Imbalanced information/resource flowing to positions occupied by the public actors is an important characteristic of pluralist interest intermediation.

As previously mentioned, eight-block solutions for these four networks are already

complicated and not easy to interpret comparatively. The main reason for this is that both the action-set coalition network and the reputational network have lower weights because they are considerably simpler than the other two networks. For example, the information transmission network has the highest goodness-of-fit value (0.192), the reputational network has the second highest (0.183), and the action-set coalition ranks last (0.154). Thus, the action-set coalition dimension of the power structure is not only theoretically but also empirically downgraded, relative to the other three networks. In addition, as far as the theoretical base is concerned, the coalition network can be expected to primarily structure the main diagonal of the blockmodel, bringing together actors with similar interests in the NHI policy domain so that internal block densities are very high.

A second expectation is that the reputational network will mainly structure the columns of the data matrices. That is, it can be expected that there is overall agreement within the NHI policy domain regarding the most powerful actors, so that the column blocks contain either a high density or a very low density (in a dichotomous representation, either 0s or 1s) (Knoke *et al.*, 1996: 203). The fine-grained details of the power structure will appear in the information transmission and material resource exchange networks. Thus, it can be concluded that the reputational network and the action-set coalition network will not serve as the best measures of blockmodel fit for exploring power structure. Instead, this section will concentrate on interpreting the diagrams for the information and resource exchange networks.

5-4-1. Information Transmission

Table 5-4 shows the density and image matrices of the information transmission network as derived by the *CONCOR* procedure. First, the goodness-of-fit of this model is 0.192. That is, almost one-fifth of the variance in the ties in the *CONCOR* model can be accounted for by a perfect structural blockmodel. This value is somewhat low, so it is hard to say whether it is acceptable. Second, the average density of the whole network is 0.101, so that the image matrix can be transferred from the density matrix by the α density rule (Wasserman and Faust, 1994: 390). This rule specifies that a tie is presented between two positions, if the density of ties from actors in one position to actors in another position is greater than or equal to the density of the matrix as a whole. For example, consider the path from the members of block A to the members of block F. The proportion of ties is 0.364. Since this is larger than the density of the total sociomatrix, “1” (present) can be coded from block A to F in the image matrix. If the density were less than the entire density, then “0” (absent) would be coded. The resulting image matrix can help create for a further analysis of reduced graphs. In a reduced graph, positions are represented as nodes, and ties between positions as arcs connecting nodes.

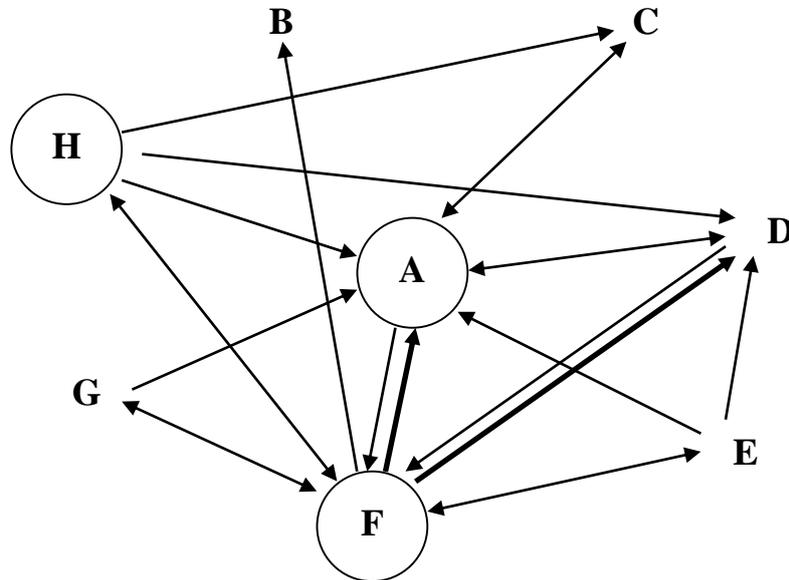
Table 5-4. Density and Image Matrices (R-squared=0.192, average density=0.101)

Density Matrix									Image Matrix								
	A	B	C	D	E	F	G	H		A	B	C	D	E	F	G	H
A	0.327	0.098	0.136	0.273	0.030	0.364	0.073	0.040	A	1	0	1	1	0	1	0	0
B	0.030	0.015	0.000	0.028	0.000	0.017	0.000	0.000	B	0	0	0	0	0	0	0	0
C	0.182	0.000	0.000	0.000	0.000	0.000	0.000	0.000	C	1	0	0	0	0	0	0	0
D	0.212	0.028	0.000	0.000	0.000	0.133	0.000	0.000	D	1	0	0	0	0	1	0	0
E	0.197	0.083	0.083	0.167	0.033	0.333	0.033	0.019	E	1	0	0	1	0	1	0	0
F	0.545	0.383	0.100	0.600	0.167	0.450	0.140	0.311	F	1	1	0	1	1	1	1	1
G	0.155	0.042	0.017	0.000	0.000	0.500	0.000	0.022	G	1	0	0	0	0	1	0	0
H	0.152	0.028	0.111	0.148	0.019	0.311	0.033	0.222	H	1	0	1	1	0	1	0	1

Source: the author

Figure 5-3 shows the reduced graph for the image matrix in Table 5-4 of the information transmission relation in the NHI policy domain. Only blocks A, F, and H exhibit high densities of internal policy communication. 22 of the 56 inter-block densities indicate frequent ties. These ties represent two rival NHI policy centres. The most powerful block, A, contains the major public actors in the governing centre (the DoH and the BNHI), including one welfare NGO (the Consumers' Foundation) and major influential medical associations (the National Union of Pharmacist Associations, the Chinese Dental Association, the National Union of Chinese Medical Doctors' Association, and the Hospital Association). Block A maintains direct links with six other blocks, the exception being block B. Only two of them have balanced information flows in both directions (pro-legislator blocks C and D). Most of these exhibit one-sided inflows towards the centre (blocks E, F, and H), while one has imbalanced information flow (pro-intermediate block F). This also means that all blocks excepted block B need to mobilise valuable information to deal with the NHI affairs from block A.

Figure 5-3. Information Transmission among the Eight Positions in the NHI Policy Domain



Source: the author

Note: In this case, an arrow from A to B can be interpreted by the way that A block has chosen B block as its interaction partners (or A block has mobilised resources from B block) in the relational network.

The second most powerful centre is block F, which consists of the most popular newspapers in Taiwan (the United Daily News, the Daily News, China News, and Liberty News) and the Taipei city government. The members of block F maintain frequent mutual information transmission with other blocks. Some are balanced relationships (blocks E, G, and H), although there is imbalanced mutual information exchange with blocks A and D. The pro-intermediate block, F, relies on the policy information from the pro-scholar block B. Based on the outflow and inflow connection from block F, the pro-intermediate group is very active and collaborates with others in information transmission. Block A as an informational transmission centre has more inflow information exchange while block F plays more of a receiver than a sender role. Thus, comparing blocks A and F, both have six direct connections with other blocks in

the information transmission network. The role of block A is more like an information provider. In contrast, the role of block F is closer to an information exchange platform in the NHI policy domain. However, influence flow between them is imbalanced, making block A the more influential centre.

Pro-scholar block B has no information exchange relation with the other blocks. It is relatively isolated. Pro-legislator block C has information exchange relation with block A, it might be because that the legislators having institutional veto power play a very important role in the policy formation process. To achieve desirable policy outcomes, the administrative sectors (the DoH and the BNHI) and medical associations have to communicate and share information with these legislators frequently. Block D, consisting of two major medical associations (the Taiwan Medical Association and the Taiwan Community Hospital Association) and one active legislator, seems to be an active block in the information transmission network. Block D also has four direct information link with blocks A, E, F, and H and maintains balanced information exchange with block A and take advantage of an imbalance flow with block F. By contrast, pro-employee association blocks G and H, which include representatives from the population of disadvantaged minorities, hold very sparse information connections with the other blocks. Blocks E, G, and H seek valuable information about the NHI affairs from the most powerful centre block A.

To summarise, Taiwan's NHI policy domain consists of two rival policy centres in information transmission activities. However, they seem to form a large alliance. As shown in Figure 5-3, the most powerful block, A, has reciprocal information exchange with the other powerful blocks D and F. This means that the members of these three

blocks share information frequently and appear to form a clear triangular governance regime integrating all important government sectors, medical associations and newspapers. In other words, block A has the ability to secure consensus. By contrast, the other blocks, especially the peak employee or employer associations (the insured), have been excluded by the governing alliance and have no influence in the NHI policy domain. The peak employee, employer associations and welfare NGOs have little to affect policy outcomes. It seems that, despite the triangular governance regime, there is a political cleavage between the insured and the alliance between the DoH, the BNHI, and the providers.

5-4-2. Resource Exchange

Table 5-5 shows the density and image matrices of the resource exchange network as obtained from the *CONCOR* procedure. Two observations may be made. First, the goodness-of-fit of this model is 0.158. This value is obviously lower than that of the information transmission network and means that about one-seventh of the variance in the ties can be accounted for. Second, the average density of the whole network is 0.065, which is also lower than for the former network. The image matrix of the resource exchange network in the right part of the table can be used for further analysis of the reduced graphs.

Table 5-5. Density and Image Matrices (R-squared=0.158, average density=0.065)

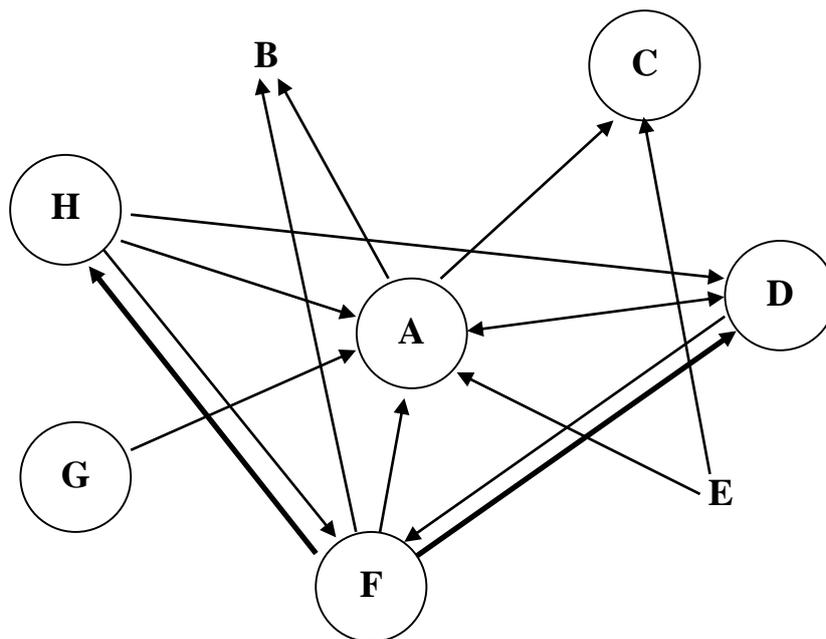
Density Matrix									Image Matrix								
	A	B	C	D	E	F	G	H		A	B	C	D	E	F	G	H
A	0.300	0.068	0.076	0.242	0.015	0.000	0.055	0.010	A	1	1	1	1	0	0	0	0
B	0.061	0.000	0.000	0.000	0.000	0.000	0.000	0.000	B	0	0	0	0	0	0	0	0
C	0.000	0.000	0.400	0.000	0.000	0.000	0.000	0.000	C	0	0	1	0	0	0	0	0
D	0.212	0.000	0.000	0.167	0.000	0.267	0.000	0.037	D	1	0	0	1	0	1	0	0
E	0.121	0.014	0.083	0.000	0.033	0.000	0.000	0.019	E	1	0	1	0	0	0	0	0
F	0.455	0.317	0.033	0.467	0.033	0.100	0.000	0.178	F	1	1	0	1	0	1	0	1
G	0.073	0.025	0.050	0.000	0.033	0.000	0.078	0.056	G	1	0	0	0	0	0	1	0
H	0.111	0.028	0.056	0.111	0.019	0.089	0.044	0.222	H	1	0	0	1	0	1	0	1

Source: the author

Figure 5-4 demonstrates a power picture similar to that of the information exchange network, but with some differences. Most blocks (A, C, D, F, G, and H) maintain high densities of internal resource exchange. 15 of the 56 inter-block densities indicate frequent ties. This suggests that, in the resource exchange network, more ties were built for internal exchange within blocks than external interaction between blocks. By contrast, there are more external information exchanges among blocks in the information transmission relations. In this network, the 15 frequent ties, considered together, suggest that there is a single governing centre (in Figure 5-4). As before, the most powerful block A contains the major public actors of the governing centre (the DoH and the BNHI), including one welfare NGO (the Consumer's Foundation) and the major medical associations (the National Union of Pharmacist Associations, the Chinese Dental Association, the National Union of Chinese Medical Doctors' Association, and the Hospital Association). Block A maintains direct links with all seven other blocks, just one of which has balanced resource flows in both directions (the link with block D). Most of these have one-sided inflows to the centre (those with blocks E, F, G, and H);

only two have one-sided outflows (to pro-scholar block B and pro-legislator block C). In other words, to achieve the policy goals, blocks E, F, G, and H seek the unilateral resources from the power centre block A, whereas block A needs to mobilise the resources from the pro-scholar and pro-legislative blocks. It seems that, although block A is the power centre holding the most ties with other blocks, the members of block A also need to mobilise other valuable resources in the NHI policy domain. For instance, the public sectors and medical associations need to consult with scholars to cope with the NHI affairs. Their advocated reform proposals or the NHI bills also need to be supported and approved by the legislative sectors in policy legitimisation process under the constitution. Thus, blocks B and C may not be as influential from the perspective of the social network but they are powerful because they occupy important institutional positions.

Figure 5-4. Resource Exchange among the Eight Positions in the NHI Policy Domain



Source: the author

Note: In this case, an arrow from A to B can be interpreted by the way that A block has chosen B block as its interaction partners (or A block has mobilised resources from B block) in the relational network.

The second most powerful centre of the resource exchange network is not as clear as it was in the case of the information flow network. A possible candidate is block D, consisting of the two major medical associations (the Taiwan Medical Association and the Taiwan Community Hospital Association) and one active legislator. The block maintains frequent mutual exchange relations with blocks A and F and has one-sided inflows from block H. The members of block F are also active in resource exchange relations, relying on resources from blocks A, B, D, and H. Some of the ties with blocks D and H consist of imbalanced mutual resource exchanges. Based on the outflow connections from block F, as with information transmission, the pro-intermediate group is very active and attempts to mobilise more inside information. The members of block G have no resource exchange relations with other blocks, suggesting that the pro-employees block is relatively isolated in the resource exchange relation. However, block H, consisting of employee associations (the Taiwan Confederation of Trade Unions and the Taiwan Labour Union) and welfare NGOs (the Taiwan Health Reform Foundation, the League of Disabled Groups, and the NHI Supervision League), is more active than block G in terms of external connections with other blocks. By contrast, pro-employee associations belonging to blocks G and H include representatives of the population of disadvantaged minorities. They have frequent resource exchange interactions within their groups but very sparse resource exchange connections with other blocks in the NHI policy domain. They also acquire or mobilise resources in supporting their policy stances from the most powerful (central) block, A.

To summarise, Taiwan's NHI policy domain consists of one dominant policy

centre, block A. However, this governing centre has a balanced reciprocal resource exchange relation with block D and relies on resources from blocks B and C. The members of blocks A and D share their political resources frequently and seem to have a governing alliance, integrating the members of all important government sectors and all the medical associations. In other words, the reduced graph reveals that the most powerful governing alliance, of blocks A and D, dominates NHI policy formation and implementation by connecting with blocks B and C. By contrast, as the analytical results for the information transmission network show, the other blocks, especially prominent employee associations or employer associations (the insured) are excluded from the governing alliance. They have neither connections with the legislative sectors nor influence in the NHI policy domain. It can therefore be concluded that the peak employee/employer associations and welfare NGOs stand in a weak position, without the ability to manipulate and mobilise resources and so affect policy outcome.

Regarding the triangular governance regime between the government, the insured and the providers, there is a political cleavage between the insured and the alliance constructed by the DoH, the BNHI (the single payer) and the providers based on the analytical results for both the information transmission network and the resource exchange network.

5-5. Conclusion

This chapter has sought to clarify many issues related to the power structure in the NHI policy domain. First, an eight-block solution was clustered using the *CONCOR* procedure with a multiplex matrix that combined the information transmission, resource

exchange, reputational attribution and action-set coalition networks. These eight blocks contain structurally equivalent policy participants maintaining the same or very similar patterns of ties with the other participants across the four networks. In view of the split result, the components of these eight blocks can be said to be reflecting the original public-private categories.

By applying multidimensional scaling, these policy participants were plotted to examine the mutual social distances among them. The social distances between these eight blocks are not too large in the MDS map. With the exception of block F and most of block H, most other blocks are located close to or conjoin block A. It seems that, with the exception of blocks F and H, the blocks have a very high degree of boundary penetration with one another. This shows clearly that, rather than being a hierarchical or isolated structure, power distribution in Taiwan's NHI policy domain displays a fragmented and complicated interaction structure of interest intermediation surrounding block A (administrative sectors A1, A4, A5, A6, A9, and A10; welfare NGO E1; medical associations F2 to F5).

Image roles can be used to reveal more specific and clearer power patterns between blocks. More general interpretations can be made. A general conclusion is that the public actors (the DoH & the BNHI) and all of the medical associations not only have strong reciprocal connections in their information/resource exchange relationships but also play very important roles in the NHI reform. Based on the findings from the positional analysis, it seems that their interaction in the NHI policy domain reveal a stable policy community consisting of leading actors in the policy reforms. The alliance between the public actors and the medical associations sets the rules of the game,

determines membership and the main policy direction of the community. In keeping with the NHI Act, this policy community also has an institutional basis. This conclusion is supported by several previous empirical findings (Chen, 2005; Wang, 2012). In addition, the legislative sectors are important. As previously discussed, the main reason is that the Parliament occupies an institutionally advantageous position; it has veto power in policy-making processes, according to the Constitution of Taiwan.

Another important feature is the political cleavage between the insured (the peak employee and employer associations and welfare NGOs) and the alliance between the government (single payer) and the service providers (medical associations). The insured groups located in the issue network are excluded from the policy community. The insured groups abide by the rules of the game but do not have adequate resources to exert continual influence on the policy outcomes. The groups of the insured seem to lack the appropriate channels to access and mobilise political resources for policy advocacy and interest intermediation. It seems that the employee association and the welfare NGOs do play necessary roles, although they do not have significant influence. Election outcomes, which determine party control of national legislature and administration, are crucial for understanding interest intermediation and authoritative decision-making in Taiwan's NHI policy domain. It can be anticipated that the interest of the intermediary group can be consolidated if the alliance between the public sector and the medical associations secure political support from the majority of the congress.

As mentioned in the previous chapter, there are two important approaches to examining power relationships in SNA: relational analysis and positional analysis. This chapter started with the discussion of policy actors' positions and roles in the NHI

policy domain and engaged in a systematic analysis of the overall social structure of and power relations among 62 policy actors. The findings point to two crucial features of the overall structure of the NHI policy domain: (1) there is a policy community organised by an alliance between the public sectors and the medical associations; (2) there is a political cleavage between the insured and the alliance between the government and the providers. However, this is still short of a reasonably comprehensive analysis based on SNA. To arrive at more insights concerning the resource interdependency among the policy actors, we need to move from the global level to the relational level of power structure. The next chapter aims to do exactly that.

Chapter 6. Policy Networks: the Nature of Influence in the Policy Domain*

6-1. Informal Rules: Social Structure of Policy actors

Alongside the constraint of the formal institutional context, the struggle over collective decisions involves numerous interactions among stakeholders, which permits their conceptualisation and analysis as networks of exchange relations. Policy processes can be seen as collective actions and pre-existing stable interactions among policy actors. They constitute a social structure shaping mutual role expectations and peer pressures through collective action (Carlsson, 2000; Carlsson and Sandström, 2008; Scholz, Feiock and Ahn, 2006). The structure influences the collective atmosphere comprising social norms and interaction patterns and, in the process, can be seen as informal game rules facilitating the resolution of political conflicts. It is also helpful while coordinating different policy interests and briefs so as to realise more acceptable policy outcome. In other words, social relationships can enhance or hamper the collective action in policy-making processes. From the perspective of the policy network approach, the limited number of actors means that the participants have stable and frequent resource exchanges and interactions over a long period of time. The stable policy network structure can be seen as a kind of informal institutional context which makes policy actors' behaviour more predictable and manageable. Although policy

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formation should be confirmed by the rules of the constitution, serious activities involved in the planning, formation and implementation of policies are determined largely by the briefs and behaviours of core policy actors. Rather than formal rules, social relationships, as informal rules in a policy network, could fix policy outcomes in some cases. Both formal rules and informal structures should be considered in process studies (Bruijn and Heuvelhof, 2008; Compston, 2009; Knoke, 1994a; Kickert *et al.*, 1997a, b; Marsh, 1998; Rhodes, 1997).

From the perspective of network analysis, it can be anticipated that a limited number of key players control scarce political resources that are highly valued by others. Resource-rich actors typically exchange their information or resources in pursuit of collaboration and support from their co-action partners (Knoke *et al.*, 1996; Laumann and Knoke, 1987, 1989). From the relational perspective, an active actor with more connections also enjoys more opportunities to manipulate or mediate the policy outcome (Knoke, 1994a, 2011). If the actors' relationships within a network structure are directed (contain only directed edges) rather than undirected (contain only undirected edges), it can be expected that the relationship between information and resource dependence will create power asymmetry between them. From the positional perspective, occupying a central position within information transmission and resource exchange networks allows one to coordinate collective actions. Social network analysis will be helpful here for systematically categorising the policy participants in the NHI policy domain.

As noted in Chapter 2, the exchange networks most relevant to this research broadly follow Knoke's (1994a: 3-7) analytical distinction between influence and

dominant networks or relationships. Influence relationships involve persuasive communications intended to change others' perceptions and beliefs regarding political actions along with their potential consequences in a bounded domain. Over the course of their research on local and national policy domains, Laumann and his colleagues suggested that the flow of information about policy issues among elite actors can be viewed as the primary social network in the resolution of issues (Galaskiewicz, 1979; Laumann and Pappi, 1976; Laumann and Knoke, 1987, 1989; Marsden and Laumann, 1977). Also, actors in a policy network are interdependent because they cannot attain their goals by themselves; they require the resources of other actors (Kickert *et al.*, 1997a: 6). Dominating relationships involve exchanges of sanctions intended to facilitate or restrain others' behaviours as directed by the initiators. Hence, analytical influence and domination relationships correspond to the policy information transmission network and the resource exchange network, respectively. It can be hypothesised that policy makers occupying important positions or having a large number of "inputting connections" with the information transmission and resource exchange networks are more likely to participate in dominant activities and be seen by their peers as influential in collective policy making. Policy stakeholders in the policy domain are embedded not only in the formal institutional rules but also in the specific social context existing between them. Moreover, both formal and informal game rules constrain or facilitate their abilities and opportunities to advocate for their own interests and policy goals.

6-2. General Characteristics of Social Relationships

As described above, a policy network analysis is based on the contention that understanding the characteristics of the information transmission and resource exchange networks is fundamental to the accurate interpretation of power distribution in a policy domain (Knoke *et al.*, 1996; König and Bräuninger, 1998; Laumann and Knoke, 1987, 1989). This section attempts, primarily, to assess the general network structure and identify the roles of policy actors in Taiwan's NHI policy domain by applying the technique of social network analysis.

Table 6-1 shows some basic properties of the two social networks in the NHI policy domain. The density of the information transmission network (percentage of possible ties, 73.2%) is much higher than that of the resource exchange network (39.5%). This means that policy actors have more frequent information transmission interactions than in resource exchanges. The resource exchange relationship is not only more likely to be concentrated among a few core policy actors; there are also more isolated actors with few relationships with others (information transmission network=4; resource exchange network=15). The same is evident with respect to indicators of distance-based cohesion and fragmentation. However, all policy actors in the information transmission network are nearly fully connected. Most pairs (dyads) are connected directly along two-, three- or four-step paths.

Table 6-1. Properties of Information transmission and Resource Exchange

	Information transmission	Resource exchange
Whole Network Characteristics:		
Density (%)	73.2%	39.5%
Average Path	2.716	2.647
Distance-based Cohesion	25.1%	11.0%
Distance-based Fragmentation	74.9%	89.0%
Path Lengths (%)		
1	13.3%	17.2%
2	35.0%	32.7%
3	25.4%	28.1%
4	19.8%	14.9%
5	6.2%	4.9%
6	0.4%	1.7%
7		0.5%
No connection (N)	4	15
Egocentric Characteristics:		
Ego-network Size (Aver. N)	7.6	3.9
In-degrees (Aver. N)	20.0	6.3
Reciprocity (Aver. N)	98.2	29.1
Local Density	25.5	19.8
Local Betweenness	6.7	10.9

Source: the author

At the actor level, the mean egocentric network size (total number of unique contacts), in-degrees, reciprocity (percentage of mutual dyadic ties), local density (percentage of ties present within the ego network) and local betweenness (betweenness of ego in own network) all exhibit higher values in the resource exchange network than in the information transmission network. This is contrary to what is expected. There might be an interesting contrast here in the local betweenness indicator between the information transmission and resource exchange networks. As the table shows, the local betweenness of the information transmission network (6.7) is much smaller than the value 20.8 for the resource exchange network. A network structure with high density means that actors have little chance to mediate or broker two other unconnected actors. This is the reason that the local betweenness of information transmission network

exhibits a value lower than that of the resource exchange network. This suggests that the associated financial reforms have a diffuse communication structure.

The resource exchange network, however, presents a very different picture. As expected, the densities are sparser than the information transmission densities; they are smaller than 39.5 percent of all possible ties in the resource exchange network. Further, many more dyads (N=15) are unreachable by paths of any length. Most of the policy participants have no interconnections in terms of resource exchange. At the egocentric level, the means of ego-network size, in-degrees, reciprocity, local density and local betweenness are lower than those for the information transmission network. This also means that the information transmission network of Taiwan's NHI policy domain is comparatively well attended by active policy actors. On the other hand, this can also be interpreted as indicating that the resource exchange network is centralised around fewer capable actors than the case with the information transmission network. As has been discussed above, both the information transmission and resource exchange networks can be separated into core and peripheral parts. The core part of the information sharing network seems to have more influence over policy outcomes than the core part of the resource exchange network. This difference in importance shows up in their effects on the actors' reputations and activities.

6-3. Network Plots of Social Relationships: Core/Periphery Model

Network plots, or graphs, have been developed for each of the network relationship measures. These plots provide descriptive evidence concerning the overall network

structure and the embeddedness of individual agencies, from both the relational and positional perspectives. Mapping the network connections between actors provides a useful pictorial representation of the links between people. The figures that follow combine the three types of ties (information transmission, resource exchange and collective action) in the NHI policy domain. The thicknesses of the lines between nodes (policy actors) reflect the number of different types of ties. For the purposes of this mapping exercise, three different types of ties between the policy actors are taken into account as indicating either stronger or weaker relationships. The relative positions in the core/periphery network structure are used for understanding the informal rules governing the NHI domain. The maps presented below were generated using Netdraw, a visualisation tool of the UCINET package.

Policy stakeholders having the most connections with others are placed at the centre of the network plots by this software. In Table 6-2, it shows that the different shapes of the dots (policy actors) reflect which policy participant sample it is from. The different sizes of nodes indicate higher or lower in-degree centrality scores; a larger node indicates a higher in-degree centrality, i.e., that the participant has more incoming connections than others. Different colours indicate different relative positions in the structure. Blue nodes are policy actors with very close connections with each other at the core of the policy network. These close connections create a circumstance of high density network structure between blue nodes. As previous mentioned, high density is one of the most important features of a policy community. The high density network structure of these core policy actors is more probable to be seen as a policy community in which all participants share basic values and accept the legitimacy of the outcome (see Section 2-3-2). By contrast, due to the loose connective structure among the policy

stakeholders, the red nodes occupying the peripheral positions can be seen as an issue network probably lacking influence during policy-making. Whilst membership in a policy community is limited, it is extremely large in an issue network. An issue network contains a large number of actors with relatively limited resources. It is hard to arrive at a consensus in such a network. According to literature on policy networks, policy communities have more capacity than issue networks to steer or manipulate policy agendas and outcomes. It should be noted that the length between two nodes in the network plots drawn by Netdraw has no significant theoretical meaning.

Table 6-2. Network Plots Interpretation

Category	Number	Code	Shape
Administrative sectors	10	A1-A10	Circle
Legislative sectors	9	B1-B9	Square
Employer associations	5	C1-C5	Up Triangle
Employee associations	8	D1-D8	Box
Welfare NGOs	4	E1-E4	Down Triangle
Medical associations	6	F1-F6	Circle-in-Box
Intermediate groups	8	G1-G8	Diamond
Scholars	12	H1-H12	Cross

Source: the author

According to the analytical model of policy network studies, pre-existing stable communication and resource exchange relations are a prerequisite for policy stakeholders resolving conflict and collaborating in the policy domain. Therefore, the structures of the information transmission and resource exchange networks can be to indicate a fundamental policy-making environment affecting power distribution between policy actors and outcomes.

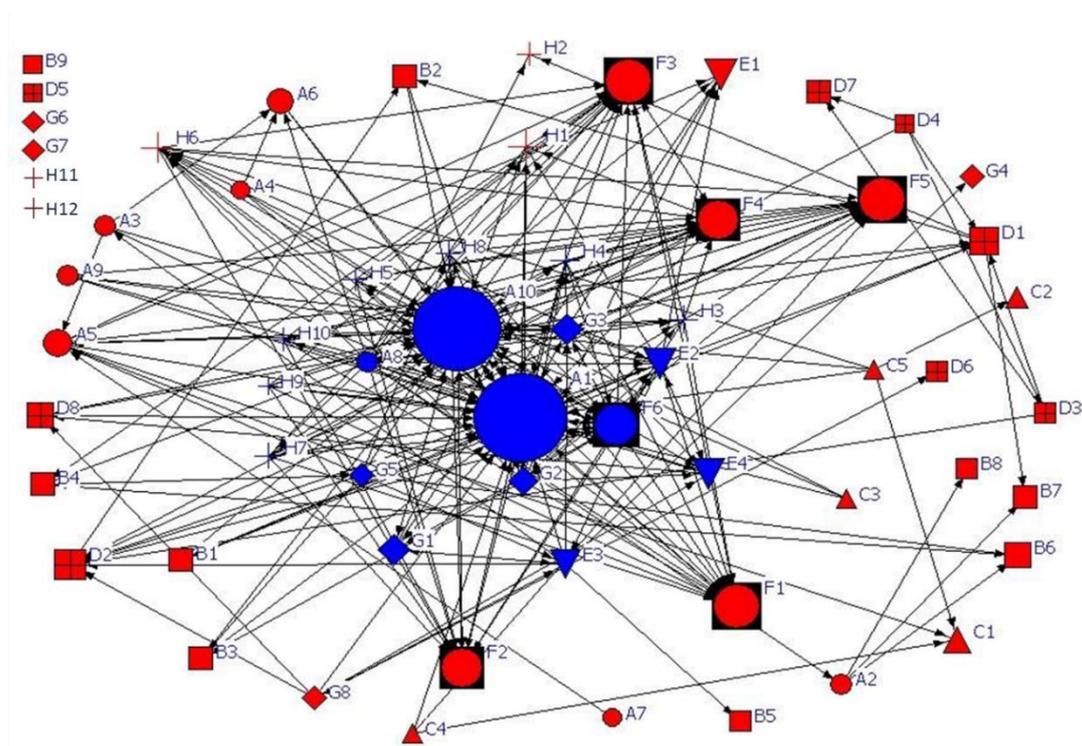
Figure 6-1 shows the structure of ties for each of the 62 policy participants'

communication interactions in the NHI policy domain. The policy actors can be divided into core and peripheral parts to demonstrate who is influential in communication relationships. The inner region (blue nodes), point to an information transmission network with many strong and dense incoming and outgoing connections, particularly to the DoH (A1) and the BNHI (A10), who have the authority to deal with NHI affairs, and to most of the scholars (H1-10). It is not a surprise that these participants are near the centre of the network. Furthermore, most welfare NGOs, including the Taiwan Health Reform Foundation (E2), the League of Disabled Group (E3), the NHI Supervision League (E4), and some intermediate groups such as the United Daily News (G1), the Daily News (G2), the China Times (G3), and the DPP policy section (G5), are also central in information sharing and exchange. The interaction between the DoH, the BNHI and some of the scholars with professional knowledge may be forming a close consultation platform for coordinating diverse interests. They also help resolve conflicts under the regulations of the NHI Act. Mass media also plays an important role with information transmission and delivery between the DoH (A1), the BNHI (A10), and some of the welfare NGOs. The communication channels between the public sector bodies (the DoH and the BNHI) and the group consisting of welfare NGOs are established by sounding others to avoid controversies. The positional distribution suggests that those located at core positions in the NHI information transmission network are quite professional and have a problem-solving orientation. The core policy actors active in the NHI information transmission network play important roles during consultation and suggestion delivery to communicate opinion conflicts and reach consensuses. In the interview with the informant of the NHI Supervision League (E4) and scholar H3, they mentioned:

“We actually have a communication channel with the DoH and the BNHI, but it is not very formal. When they attempt to promote new reform proposals or formulate new policies, they sometimes take soundings to show their respect on our opinions. However, the respect is just superficial. Likewise, we also usually express our opinions on some NHI issues by the channel. However, I think our opinions are not important in the process of their policy formulation, but we actually have communication sometimes.” (Welfare NGOs E4)

“My colleagues and I are advisory counsellors of the DoH and the BNHI, so that we have many chances to exchange of views and discuss with committee representatives and officials in the DoH and the BNHI.” (Scholar H3)

Figure 6-1. Network Plot: Information Transmission Relationship (In-degree Network Centralisation = 51.163%)



Source: the author

Note: An arrow from A to B indicates that A has chosen B as one of his or her top five interaction partners in this relational network.

By contrast, the representatives of the medical associations, most of the

participants of the employees, the employer associations and some representatives of the legislative and public sectors are not very active in the NHI's information sharing and exchange. These actors in the outer region can be seen as peripheral actors without strong reciprocal connections with others in the information transmission network. The figure also demonstrates that A1 (DoH, 34 direct ties) and A10 (BNHI, 32 direct ties) are the core actors, sharing information (both giving and receiving) with numerous other actors in the NHI policy domain. These two public sector policy actors occupying the institutional positions for planning, promoting and implementing NHI policies need to communicate frequently with other actors. Another important feature of Figure 6-1 is that there are six isolated nodes (B9, D5, G6, G7, H11, and H12) that have no communication with others. These six policy actors are quite inactive in terms of information sharing and communication. Thus, it can be concluded preliminarily that, although the DoH and the BNHI might be dominating with strong and frequent communication relationships with most policy stakeholders, other important policy stakeholders such as most of the employee and employer associations and some representatives of the legislative and public sectors have few reciprocal connections with one another in terms of communication. This structure suggests that these inactive policy stakeholders with different policy stances might find it hard to resolve conflicts of opinion and reach consensus with the leading actors.

The resource exchange network is illustrated in Figure 6-2, which again presents the network structure using the core/periphery technique as in Figure 6-1. The most central policy actors here belong to three categories: the public sector (A1, A4, and A10), the legislative sector (B1 to B4), and the entire group of medical associations (F1 to F6) - shown in different shapes and sizes. They form a close, solid policy community

and appear to have the most lines coming into and going out from each of them; calculations of the size of their ego-networks have confirmed this. This also means that most resource exchange activities take place in the triangular interdependent zone, reflecting the relationships between the public sector (the DoH and the BNHI), the active legislative representatives, and all of the medical associations. In the interview with the informants of the BNHI (A10), the Taiwan Medical Association (F1) and the legislator from the DPP (B3) mentioned:

“It is a fact that the BNHI works more closely with medical associations, given that the latter are service providers and the former is a healthcare authority. On the one hand, it is necessary to consult with medical groups to establish budgetary distribution for the year; on the other hand, the BNHI has to maintain healthcare quality. It is thus only natural for the BNHI and medical groups to work in close association with each other.” (Administrative sector A10)

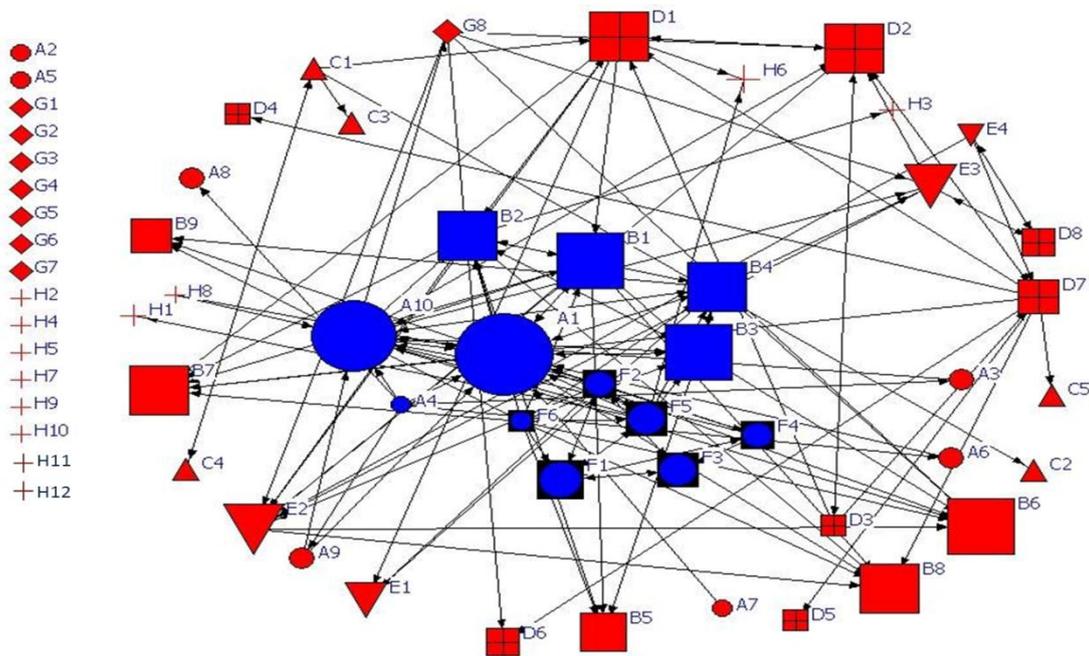
“It is a fact that medical groups do indeed have frequent interactions with the BNHI and the DoH. This is partly because they monitor the healthcare system while we provide service. Another reason is that we need to provide services based on the GBP system, and thus are partly controlled by the BNHI and the DoH.” (Medical association F1)

“I think it is very normal for us to support the reform proposals of the DoH and the BNHI, because we are all party members of the DPP. It is also normal that the KMT legislators do not support the reform proposals of the DPP government. The other reason is that the DPP is backed by the medical groups more than other social groups. This is the reason why we also have more interconnections with the medical groups in coping with the NHI affairs.” (Legislative sector B3)

However, in addition to A1 (the DoH) and A10 (the BNHI), most of the legislative sectors (the KMT caucus and its legislators), except for the ruling party caucus and the legislators, oppose the promotion of the new financing scheme (will be discussed in

Chapter 7). Moreover, some of the medical associations show just a lukewarm welcome to the promotion of the new financing reform. Thus, although policy actors A1 (the DoH) and A10 (the BNHI) are still the two most influential core policy actors in the political support relations, they have had to compromise with other core policy actors in promoting the new financing scheme.

Figure 6-2. Network Plot: Resource Exchange Relationship (In-degree Network Centralisation = 16.662%)



Source: the author

Note: An arrow from A to B indicates that A has chosen B as one of his or her top five interaction partners in this relational network.

From the institutional perspective, the Parliament has legislative power under Taiwan's Constitution. All amendatory bills must be submitted to and reviewed by the Legislative Yuan (the Parliament). The BNHI and the DoH depend on the agreement of the legislative power for policy formation and implementation. On the other hand, the medical associations providing healthcare services and receiving payments from the

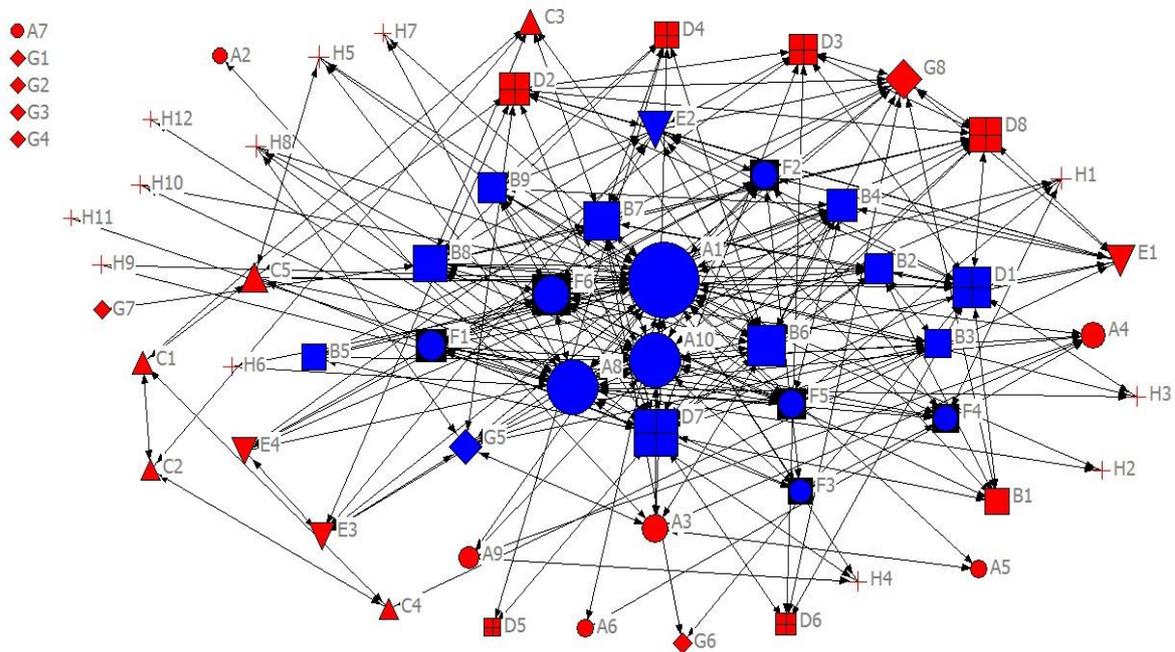
BNHI are also very sensitive to changes in the regulatory rules and resource allocations. The medical associations, by virtue of their superior professional knowledge, financial resources and political influence in comparison to the groups representing the groups of the insured, do not just coordinate and collaborate with the BNHI and the DoH over health service provision; they also lobby for their preferred policy outcomes in the Legislative Yuan. On one hand, as the providers of the NHI system, it was a very serious matter that the medical associations boycotted the provision of healthcare services for some time. On the other hand, many DPP legislators representing the interests of the providers were financially and politically supported by these medical associations. It can be seen that some ties between these three core policy actors are reciprocal. So far, it seems reasonable to conclude that some legislators in the policy community assume the roles of “veto players”. At the same time, both administrators (the DoH and the BNHI) and medical associations are the leading actors during policy reform.

Comparatively speaking, coming from different categories, the policy actors allocated to the peripheral area are very diverse. Most supported the implementation of the GBP system but had some misgivings concerning the new financing scheme and the double raise scheme. Although some (B5 to B9, D1, D2, E2, and E3) have resource exchange connections with others, these outer policy actors hold disadvantageous positions in terms of resource exchange and gaining political support for policy formation. On the one hand, this means they might have found it more difficult to build the strong connections with influential actors needed to intermediate in the resource flow and influence policy outcomes. On the other hand, their peripheral allocation reveals that they have fewer political resources to exchange with others in the policy-making process.

In addition, seventeen policy actors are isolated in the resource exchange network, including most of the intermediate groups and scholars. Compared to the core actors, these isolated policy actors, who supported the reform proposal of the new financing scheme, may be excluded from the NHI reform process. Two key features of this phenomenon may be noted. First, these actors do not occupy institutional positions on any governing committees that would allow them to influence policy outcomes under the NHI Act. They do not have votes to exchange or the power of veto. Second, these policy actors are not directly involved in resource allocation and service provision. In comparison with other policy actors, they are active in information sharing and communication but seem to be inactive in terms of political resource manipulation and mobilisation. They neither seek political support nor have the capability to provide resources to support others in the NHI policy domain.

The action-set coalition network is illustrated in Figure 6-3, as determined by a technique analogous to that used in arriving at the previous two plots. As in the resource exchange network, the most central policy actors again come from three categories: the public sector (A1, A8, and A10), most of the actors in the legislative sector (B2 to B9, the only exception being B1) and all medical associations (F1 to F6), shown in different shapes and sizes. They form a close, solid policy community and appear to have the most lines coming into and going out from each of them. Calculations of the sizes of their ego-networks led to the same conclusion. It can also be seen that, just like the network structure of the resource exchange network, most of the collective action took place within the triangular interdependent relation between the public sector (the DoH, Taipei City Government and the BNHI), the active legislative representatives and all medical associations.

Figure 6-3. Network Plot: Action-set Coalition Relationship (In-degree Network Centralisation = 42.787%)



Source: the author

Note: An arrow from A to B indicates that A has chosen B as one of his or her top five interaction partners in this relational network.

It can be seen from Figure 6-3 that most of the legislators are involved in frequent and dense collective and collaborative actions with other players. It might be that the Legislative Yuan (the Parliament) has legislative power under Taiwan’s Constitution and all amendatory bills must be submitted to and reviewed by it. Not only the BNHI and the DoH but also other policy players such as employer and employee associations, welfare NGOs and medical associations have to depend on the agreement of the legislative power for policy formation and implementation. On the other hand, the representatives of the medical associations, by virtue of their professional knowledge and huge medical resources, not only coordinate and collaborate with the BNHI and the DoH in health service provision, but also lobby for their preferred policy outcomes in

the Legislative Yuan. Some ties between the three core-category policy actors - which can be seen as a policy community engaging in collective action - are reciprocal, that is, these policy actors seek political support from each other. So far, combined with the previous analytical results, this seems to confirm that most of the legislators among the policy elite act as “veto players” in policy formation and reform promotion, in which the administrators (the DoH and the BNHI) and the medical associations are the leading actors.

In sum, these figures illustrate the usefulness of examining ties between policy actors in the NHI policy domain. The core/periphery model not only helps estimate the degree of closeness to the core of each actor but also helps visualise the structure of bounded networks. The resource exchange network and collective action network present very different pictures from the information transmission network. First, as expected, the density and centralisation of the resource exchange relationships and the collective action among these policy stakeholders (especially the former) are sparser than in the communication network, with fewer incoming and outgoing interactions with others. Second, combined with the analytical results in chapter 5 and 6, it is not surprising that the policy actors A1 (the DoH) and A10 (the BNHI) are the most central actors in these three networks, and it seems that these two actors with high in-degree centrality exchange not only valued information but also political resources with others under the NHI Act. This may be why most policy actors collaborate with them. Third, in comparison with the situation in the informational transmission network, a triangular political resource exchange relation is formed between the core members of the BNHI, the DoH, some active legislators and most of the medical associations in the resource exchange and action-set coalition networks. The alliance can be seen as a policy

community with high density that had excluded societal actors in reform processes. The views of interviewees from the BNHI (A10), the Taiwan Medical Association (F1), and the legislator from the DPP (B3) quoted in earlier sections support these analytical findings. However, the interviewee from the BNHI disagreed with the statement that societal actors were excluded in the policy processes related to the NHI's reform:

“No..No...No...Not like as you have mentioned. I have to correct your statement. The BNHI does not operate with the intention of ignoring the opinions of labour associations, welfare groups or other societal groups. It is a fact that the BNHI works more closely and frequently with medical associations, given that the latter are service providers and the former is a healthcare authority. Thus, please do not treat us unjustly, ok?” (Administrative sector A10)

Regarding the above finding, the informants from the Taiwan Health Reform Foundation (E2) and the Taiwan Labour Union (D8) held opinions different from those of the BNHI. They said:

“You know...welfare NGOs strive to become more involved in healthcare issues. We actually try very hard but the problem is that we do not have enough professional knowledge on the NHI programme and its operation. Thus, our understanding of the system cannot rival that of medical groups and thus are often ignored by the medical associations and the BNHI. The same can be said of our resources, thus rendering us unable to conduct a systematic study of healthcare policies. Hence, in order to service as a voice of the people, we usually just end up monitoring the procedures. We do this by supporting legislators and monitoring the process outside of the system.” (Welfare NGOs E2)

“To tell the truth, we do not wish to see the BNHI, DoH, and medical groups gain sole control over healthcare. It is true that the official website indicates that the operation of the NHI in Taiwan is a balanced and equal partnership among the public sector, the insured and the provider. It is rubbish! The healthcare system in Taiwan has always had imbalances. I think the BNHI always sides with medical

groups and attempts to increase premiums to meet the latter's needs." (Employee association D8)

In contrast, the policy community in the information transmission network is formed by the BNHI, the DoH, most of the scholars, most of the mass media, and the welfare NGOs. The difference might be indicating that the information sharing and transmission relations are more related to consulting activities while the resource exchange and collective action relations reflect sustainable political mobilisation and lobbying activities needed for the sensitive policy legalisation process.

6-4. Who Has Strong Reputations in the NHI Policy Domain?

An actor's reputation in one pre-existing bounded network structure is also an important factor determining their capability to access information and mobilise resources. As discussed above, the core/periphery model estimates each actor's closeness to the core, and the structures of the two policy communities demonstrate a clear picture that all other core policy actors and activities surrounded the central actors A1 (the DoH) and A10 (the BNHI) in the NHI policy domain. However, the core/periphery network plot illustrates the actors' closeness to the central actors rather than their reputations and influence in the network structure. In other words, the core/periphery network plot shows actors' enthusiastic initiatives rather than their prominence. Within the social network technique, a large range of measures of global network reputations and agencies' social reputations is available. The following table is based on the three different types of network ties discussed above - informational transmission, resource exchange and action-set coalition. We will also discuss the

actors' professional knowledge, capabilities and initiative (active or inactive participation) in order to get a more comprehensive understanding about the policy actors' capabilities and participatory behaviour in the NHI policy domain.

In measuring the actors' social reputations or prominences accurately, the indicator of in-degree centrality will be used to estimate the network's degree of centralisation and degrees of centrality of the individuals involved. The network degree centralisation score is based on the centrality scores of each individual in a bounded network. Degree centrality simply counts the direct ties going into and coming out from people in the network. Those with the most ties have the highest centrality scores, reflecting how others perceive a person to be in terms of their informal resources. Two classes of prominence measure need clarification: *centrality*, where a prominent actor has high involvement in many relations, regardless of whether they are sending or receiving ties; and *prestige*, where a prominent actor initiates few relations but has many direct receiving ties (Knoke and Yang, 2008: 62). The prominence measure of prestige is more suitable for measuring actors' social reputations. Thus, the indicator of "normalised in-degree centrality" which are comparable across different networks will be applied to calculate the actors' prominence within these complete networks.

As Table 6-3 shows, the information transmission network is the most centralised among the four networks. This means that fewer policy actors are sought out for this purpose than for other interactions. The resource exchange network, meanwhile, is the most dispersed. The table also demonstrates the individuals' in-degree centrality measures for the eight highest-ranked policy actors in each network. Some important differences can be seen between the information transmission and resource exchange

networks. First, there are seven policy actors (A1, A10, G1, G2, G3, G4, and E2) ranked in the top seven for in-degree centrality in the information transmission network, while there are ten in the resource exchange network. This allows easier examination of the social network plots, which show the fragmentation and sparseness of the resource exchange network structure. Second, the top seven roles of these two network structures show different patterns of influential power distribution. The medical association representatives, F1, F2, F3, F5, and F6, play an important role in resource exchange in the NHI policy domain. However, the social structure of the influence of the information transmission network shows quite a different pattern. In contrast, the mass media (G1 to G4) without political resources to exchange (low in-degree centrality in resource exchange network) shows great influence on information and communication in the NHI policy domain. The finding also demonstrates that the mass media in Taiwan hold frequent connections with the policy stakeholders concerned. In addition, the Administrative actors (A1 and A10), legislative actors (B6), some medical associations (F1 to F6), and welfare NGOs (E1 and E2) are more likely to provide essential political support than others in the policy-making process.

Table 6-3. Centrality Measures for Individuals within Networks – Highest Ranked Actors

Actor		Relational networks						Reputational network	
		Information N.		Resource exchange N.		Action-set coalition		Influential reputation	
		Centrality	Ranking	Centrality	Ranking	Centrality	Ranking	Centrality	Ranking
Admin. Sector	A1	63.93	2	47.54	1	52.46	1	77.05	1
	A2	1.64		0		1.64		3.28	
	A3	1.64		1.64		11.48		3.28	
	A4	3.28		8.20		9.84		14.75	
	A5	11.48		0		3.28		16.39	
	A6	9.84		6.56		3.28		26.23	

Actor	Relational networks						Reputational network	
	Information N.		Resource exchange N.		Action-set coalition		Influential reputation	
	Centrality	Ranking	Centrality	Ranking	Centrality	Ranking	Centrality	Ranking
A7	1.64		1.64		0		3.28	
	3.28		1.64		34.43	2	4.92	
	3.28		1.64		6.56		3.28	
	70.49	1	45.90	2	34.43	2	63.93	2
Legis. Sector	4.92		3.28		9.84		9.84	
	6.56		3.28		14.75		8.20	
	16.39	8	4.92		11.48		27.87	
	4.92		4.92		16.39	8	8.20	
	8.20		3.28		9.84		9.84	
	13.12		13.12	7	22.95	4	59.02	3
	8.20		9.84		21.31	5	57.38	4
	8.20		8.20		19.67	6	36.07	7
	0		6.56		13.12		26.23	
Employer Assocs.	6.56		4.92		6.56		32.79	
	1.64		1.64		4.92		19.67	
	0		1.64		8.20		9.84	
	1.64		1.64		4.92		6.56	
	1.64		1.64		11.48		3.28	
Employee Assocs.	11.48		8.20		22.95	4	31.15	8
	6.56		9.84		16.39	8	19.67	
	3.28		3.28		13.12		13.12	
	0		1.64		9.84		6.56	
	0		1.64		3.28		8.20	
	4.92		1.64		6.56		9.84	
	3.28		6.56		27.87	3	6.56	
	1.64		6.56		18.03	7	0	
Welfare NGOs	11.48		13.12	7	14.75		27.87	
	18.03	7	14.75	6	19.67	6	11.48	
	4.92		4.92		9.84		1.64	
	11.48		11.48	8	9.84		8.20	
Medical Assocs.	16.39		22.95	4	16.39	8	47.54	5
	11.48		13.12	7	14.75		19.67	

Actor	Relational networks						Reputational network	
	Information N.		Resource exchange N.		Action-set coalition		Influential reputation	
	Centrality	Ranking	Centrality	Ranking	Centrality	Ranking	Centrality	Ranking
F3	9.84		14.75	6	9.84		24.59	
	8.20		11.48		11.48		18.03	
	16.39	8	24.59	3	14.75		39.34	6
	11.48		16.39	5	22.95	4	16.39	
Intermediate groups	39.34	4	0		0		11.48	
	40.98	3	0		0		9.84	
	34.43	5	0		0		9.84	
	21.31	6	0		0		11.48	
	6.56		0		16.39	8	3.28	
	0		0		3.28		4.92	
	0		0		1.64		1.64	
	3.28		1.64		19.67	6	1.64	
Scholars	16.39	8	9.84		6.56		14.75	
	16.39	8	0		3.28		6.56	
	6.56		9.84		4.92		18.03	
	13.12		0		4.92		16.39	
	9.84		11.48	8	6.56		11.48	
	4.92		3.28		3.28		6.56	
	3.28		0		3.28		11.48	
	1.64		1.64		6.56		6.56	
	0		0		3.28		3.28	
	3.28		0		3.28		11.48	
	0		0		1.64		1.64	
	0		0		1.64		1.64	
Centralisation	51.163%		16.662%		42.787%		62.869%	
Mean	7.316		3.955		11.052		16.208	
Std Dev	10.943		4.669		9.729		16.293	

Source: the author

Third, the normalised in-degree centrality scores of the top seven policy actors in the information transmission network are clearly much higher than those of the highest

policy actors in the resource exchange network. This means that the top seven policy actors in the information transmission network enjoy more prestige than those in the resource exchange network. For instance, A1 (the DoH) and A10 (the BNHI) are conspicuously more influential and have better reputation in information sharing (A1=63.93, A10=70.49) than in resource exchange (A1=47.54, A2=45.90). Fourth, A1 and A10 play a central role in both network structures.

With respect to the network structures of the actors' collective and collaborative actions and their influential reputational attributions in the NHI policy domain, it seems that the network structure of the action-set coalitions among these policy actors is more fragmented and sparser than their influential reputational attributions. First, there are eight policy actors (A1, A8, A10, B6, B7, D1, D7, and F6) ranked as the top five in terms of in-degree centrality in the action-set coalition network,. This shows that these policy actors have more frequent collective and collaborative actions with others in dealing with NHI affairs. Furthermore, although the action-set coalition network is another relational network, just as in the cases of information transmission and resource exchange networks, the high-ranked policy actors are quite different in these three networks. As for the action-set coalition network, it seems that the members of the legislative sector (B5 to B8) and the employee associations (D1, D2, D7, and D8) usually act collaboratively with others in the NHI policy domain. This implies that employee associations without the valued information and resource flows that are voiced in public statements on behalf of employees, necessitate collaboration with others. Meanwhile, others depend on the legislators' collaboration because they have the advantage of veto power in the policy-making process.

The reputational attribution in the decision-making network (based on those actors mentioned to be most prominent) is composed of a few central policy actors strongly tied to each other and a more loosely connected periphery. It seems that the representatives of the administrative sector, A1 (the DoH) and A10 (the BNHI), the legislative sector, B6 (the DPP caucus, the party in power) and B7 (the KMT caucus, the largest opposition party), and the medical association F1 (Taiwan Medical Association) are the core players with the highest influence in the NHI decision-making network. These policy players can be treated as political elites with high influence in policy processes, dominating policy making in reform promotion. A1 (the DoH) and A10 (the BNHI) are the central competent authorities regarding NHI affairs and may have advantaged institutional positions relative to the other actors. F1 (Taiwan Medical Association) is the largest and most influential medical association in Taiwan. Two influential party caucuses (the DPP and the KMT caucuses) control agenda setting and have the veto power in policy legalisation. Especially the KMT caucus has occupied the majority of seats in the Legislative Yuan since 2000. This may be why the legislators and party caucuses have high reputational attribution in the policy-making networks of the NHI.

Finally, as the data collection of access networks and reputational attribution, the same method was used to collect subjective perceptions on which actors use professional knowledge or initiative in dealing with NHI affairs. These two networks (professional knowledge and initiative networks), like the reputational network, can also be seen as the subjective perception of the 62 policy actors' attributions. The values can be calculated via the corresponding in-degree centrality index values. The findings are shown in Table 6-4 demonstrating similar plot structures. First, the same seven policy

actors (A1, A10, E4, F1, F3, F5, and F6) are ranked in the top five for in-degree centrality in these two networks, meaning that all these policy actors are capable and active in policy activities. Furthermore, the policy actors with high knowledge/capability have the advantage in terms of information asymmetry compared to those with no professional knowledge. Professional knowledge may be an important resource for policy actors, not only in terms of involvement but also in terms of impact on the NHI policy process. Second, although the top five policy actors are the same in both networks, different patterns of influential power distribution can be seen. The BNHI (A10) and the DoH (A1) seem to play an important role in NHI knowledge consultation in the NHI policy domain. In contrast, they are not as active as some of the medical associations (F1, F3, F5, and F6) and the welfare NGO E4.

Table 6-4. Individuals' Professional Knowledge and Participatory Initiative within the Networks - Highest Ranked Actors

Actor		Professional Knowledge		Participatory Initiative	
		Centrality	Ranking	Centrality	Ranking
A1	DoH	30.329	2	18.121	5
A10	BNHI	34.168	1	20.113	4
E4	NHI Supervision League	18.675	5	25.334	3
F1	Taiwan Medical Assoc.	25.667	3	28.221	2
F3	China Dental Assoc.	22.231	4	28.221	2
F5	Taiwan Hospital Assoc.	22.231	4	30.113	1
F6	Taiwan Community H. Assoc.	22.231	4	28.221	2

Source: the author

6.5 Political Brokerage in the Policy Domain

Another method of SNA applicable in exploring the nature of power and how it is exercised is to examine the brokerage positions in the social network. Brokerage is generally understood as the intermediate position that one actor takes between “the sender” and “the receiver”. Studying the brokerage positions of different actors in a network provides information at two levels. Firstly, it captures the specific role(s) different actors assume and their relative centrality in the network. Secondly, it offers interesting insights concerning the most prominent types of flows taking place in the network as a whole. According to Burt (2007: 23), there are three benefits of being a broker: (1) access to alternative viewpoints and applications in a network, (2) early access to innovative ideas and thoughts, and (3) the ability to transmit the new ideas and thoughts if there is an advantage to be gained. In recent discussions in the field of policy studies, policy entrepreneurs and brokers take up the central stage in theoretical models designed for policy formulation. Policy entrepreneurs also play key roles in the multiple streams model developed by John Kingdon (2003). Such entrepreneurs may be positioned anywhere in a policy community, either inside or outside the government, and apply their resources (time, energy, reputation, funds) in defence of certain proposals based on expected future profits. In the policy network scenario, the roles of policy brokers, who are equivalent to the policy entrepreneurs in Kingdon’s (2003) policy window theory, no doubt represent one of the most important influences on policy outcomes.

In this section, the indicators of betweenness centrality and structural holes will be applied to determine which actors occupy advantageous positions in the three relational networks previously analysed. Betweenness centrality indicates that the extent to which

an actor lies between two or more actors and is dependent on them while engaging in exchanges (Hanneman and Riddle, 2005: Ch. 10). To the extent that they fall on geodesic paths between other pairs in the network, betweenness centrality views an actor as one in a favoured position (Hanneman and Riddle, 2005: Ch. 10). Actors with a high degree of betweenness centrality are considered significant or powerful in a network. The assumption is that the more dependent actors are on others to make connections, the more opportunities and alternatives they have. A weakness of betweenness centrality is its assumption of geodesic paths. For instance, two actors connected by several paths may not use the geodesic path because these two actors do not use the connection path in the geodesic path. Thus, the other indicator - structural holes - may measure the brokerage capability of policy actors in the NHI policy domain more accurately.

A structural hole is a buffer: a space between you and the people you are connected to. According to the structural hole theory (Seiber *et al.*, 2001: 3), it is advantageous for individuals to be connected to many alters who are themselves unconnected to the other alters in an ego's network. Individuals located in positions of structural holes may have more chances to manipulate collective outcomes and create positive individual performance (Cross and Cummings, 2004), because actors who take structural positions have more unique and timely access to information, greater bargaining power and thus control over resources and outcomes, and greater visibility and opportunities throughout the social system (Seibert *et al.*, 2001: 221).

Structural holes are measured using the UCINET algorithm produces an effective score. Not counting ego ties, "effective size" is the number of alters minus the average

ties of alters within the ego network. In other words, conceptually, it is the number of people to whom the ego is connected, minus the redundancy in the network. Thus, it avoids non-redundant elements in the network. Greater effective size indicates that actors take positions wherever there are greater structural holes. The normalised effective size starts from 0. A larger score means that the actor is more autonomous in the network.

It is clear from Table 6-5 that the three social network variables have distinct distributions over the policy participants. In the information transmission network, the administrative sectors A1 (the DoH), A8 (the Taipei City Government), and A10 (the BNHI), have the highest betweenness centrality and effective size scores, indicating more opportunities to intermediate or control information flows. In addition, policy actors of intermediate groups such as G1 to G4 are the most popular mass media entities in Taiwan and also have advantaged positions in terms of collecting and transmitting information. Regarding in-degree centrality and core/periphery model, in addition to public actors (A1 and A10), mass media (G1 to G4) stand out in terms of prominence, brokerage units also share information sharing and transmission. This finding reveals that the characteristics of inter-sector ties among mass media allow information to be mobilised and coordinated among the stakeholders. The interview with the informant of the Daily News (G2) can support the above analytical result. He said:

“I think the role of the media is mainly concerned with balanced reporting and delivering information to the people. To obtain information, we frequently contact the BNHI, medical groups, labour associations, welfare NGOs and those legislators who involve deeply in the NHI affairs. We play a very active role in managing and delivering information, especially on the issue of the 2G-NHI financing scheme. However, it is also true that different media groups have

different political affiliations. Thus, you may sometimes smell that some media report some news on purpose... ” (Intermediate group G2)

Table 6-5. Brokerage Ability Measures for Individuals within the Networks – Highest-Ranked Actors

Actor		Relational networks					
		Information N.		Resource exchange N.		Action-set coalition	
		Betweenns.	Structural holes	Betweenns.	Structural holes	Betweenns.	Structural holes
Admin. Sector	A1	31.66	40.63	26.01	40.24	28.94	27.25
	A2	0.02	9.39	0.04	2.50	0	1.00
	A3	0.01	6.14	0.04	3.10	3.42	4.43
	A4	0.01	3.56	0	1.33	0.38	3.33
	A5	2.58	20.50	2.43	8.08	0	1.00
	A6	0	3.25	0	2.50	0	1.00
	A7	1.28	3.10	0	1.00	0	.00
	A8	10.51	32.12	1.21	17.59	10.40	17.38
	A9	0.01	1.50	0.02	1.40	0.04	2.00
	A10	13.66	37.05	4.70	22.80	7.36	15.29
Legis. Sector	B1	0	1.00	0	1.00	0.23	4.00
	B2	0	1.50	0	2.00	0.72	5.44
	B3	0	4.54	0	1.80	0.70	4.14
	B4	1.00	2.13	2.02	3.00	1.99	5.60
	B5	0.02	2.71	0	1.00	0.78	3.67
	B6	0	4.00	0.19	5.14	5.81	10.14
	B7	0	2.36	0.26	3.06	5.40	9.00
	B8	0	2.36	0.01	1.94	6.14	8.50
	B9	0	1.00	0	1.21	1.00	4.25
Employ er Assoc. s.	C1	0	2.19	0	3.00	1.02	3.00
	C2	0	3.33	0.04	3.50	0.09	1.67
	C3	0	7.58	0	1.83	2.67	4.20
	C4	0.09	3.00	0	2.33	0.57	2.33
	C5	0.01	2.38	0	4.00	4.50	5.57
Employ ee	D1	0.22	4.35	1.55	8.20	3.90	9.86
	D2	0.13	7.00	2.85	9.67	1.10	5.60

Actor	Relational networks						
	Information N.		Resource exchange N.		Action-set coalition		
	Betweenns.	Structural holes	Betweenns.	Structural holes	Betweenns.	Structural holes	
Assocs.	D3	0	1.80	0.37	3.00	0.32	4.00
	D4	0	2.00	0	2.50	0.72	3.67
	D5	0	2.00	0	.00	0	1.00
	D6	0.05	4.65	0.05	4.67	0.03	2.00
	D7	0	1.67	0	2.50	6.03	13.24
	D8	0.01	1.83	0.01	2.60	1.46	6.64
Welfare NGOs	E1	0	3.29	0	5.00	3.40	6.33
	E2	0.38	6.38	6.95	13.86	2.08	9.00
	E3	1.43	6.32	4.33	10.50	0.14	3.00
	E4	0	4.06	0.32	4.81	0.48	3.33
Medical Assocs.	F1	0.14	5.07	0.53	6.41	0.74	4.60
	F2	0.05	4.04	0.11	2.50	4.08	5.22
	F3	0.06	3.80	0.79	5.69	0	1.00
	F4	0.02	2.56	0.15	2.70	0.12	2.14
	F5	0.60	8.03	1.19	8.18	0.46	4.33
	F6	0.04	4.18	9.50	7.11	3.04	8.57
Intermediate groups	G1	1.88	22.88	0.12	4.28	0	.00
	G2	11.28	30.46	3.06	14.09	0	.00
	G3	6.75	22.96	3.18	8.89	0	.00
	G4	1.69	14.80	0.13	7.77	0	.00
	G5	6.61	18.52	1.71	6.85	3.37	6.60
	G6	0	2.38	0	1.00	0	1.00
	G7	0	1.00	0	.00	0	1.00
	G8	0.18	9.93	0.96	2.60	1.99	8.33
Scholars	H1	0	6.35	0	3.17	0.01	1.50
	H2	0	2.00	0	1.00	0	1.00
	H3	0	5.85	0	4.33	0.83	2.33
	H4	0	4.19	0	3.00	0.04	1.67
	H5	0	4.17	0	5.00	0.20	2.00
	H6	0	1.33	0	2.00	0	1.00
	H7	0	1.20	0	1.25	0	1.00

Actor	Relational networks					
	Information N.		Resource exchange N.		Action-set coalition	
	Betweenns.	Structural holes	Betweenns.	Structural holes	Betweenns.	Structural holes
H8	0.01	3.75	0	1.33	0.12	1.50
H9	0	.00	0	1.00	0	1.00
H10	0	1.00	0	1.33	0	1.00
H11	0	1.33	0	1.00	0	1.00
H12	0	1.50	0	2.00	0	1.00
Mean	1.490	6.870	1.207	4.954	1.883	4.366
Std Dev	4.746	9.056	3.623	6.246	4.099	4.775
Centralisation	30.66%		25.21%		27.50%	

Source: the author

In addition, G5 (DPP sector) is the think tank of the ruling party for the 2G-NHI examinations run between 2001 and 2004. This actor was important in the evaluation of the reform proposal and made suggestions to the ruling party and the caucus in the parliament. Moreover, only a few representatives of the administrative sectors and intermediate groups have had opportunities to dominate information flows in the NHI policy domain.

Comparatively speaking, the brokerage role of the intermediate groups (G1 to G5) is not apparent in the resource exchange network. This can be interpreted as follows. Although they can be brokers in facilitating or obstructing information sharing among policy actors, they are not important in intermediating the political resource exchange relationship. However, the information transmission and resource exchange networks also share similarities, the most obvious of which is that A1, A8, and A10 occupy the most important brokerage positions, not only in information but also in resource flows. Moreover, it can be seen that the action-set coalition network and the resource exchange network share similar structures in the allocation of brokerage roles. These public

sectors are successfully coordinating collective actions among these policy actors or obstructers, thus diminishing the possibilities for collective collaboration.

In sum, based on the betweenness centrality and structural holes indicators, the DoH (A1), the Taipei City government (A8), and the BNHI (A10) are the three top policy actors with the most opportunities for brokering information transmission, resource intermediation and collective coordination and collaboration. It has been demonstrated that these administrative sectors hold strategic positions in the promotion of NHI financial reforms. This may account for the previous analytical result that the DoH and BNHI, with large in-degree centrality scores, enjoy high level of prominence and prestige in the three relational networks and the decision-making network.

6-6. Conclusion

This chapter has explored the nature of policy-making environments. The roles of the policy participants in the NHI policy domain have been identified by applying SNA (see Table 6-6). Some fundamental and obvious rules can be identified. First, based on the relational perspective, the interactive pattern between the policy actors can be helpful in creating a collective atmosphere reflecting a social norm-based, interactive or casting couch culture, which can be seen as a kind of informal institution constraining policy actors' behaviours so as to make policy outcomes more predictable and acceptable. Being located in strategic brokerage positions in dealing with NHI affairs, the BNHI (A10) and the DoH (A1) are not only the most influential policy actors in the information transmission, resource exchange and action-set coalition networks but also the policy brokers. This also means that these two policy actors, owing to the valued

information and political resources they command, play an important role in sharing information and exchanging resources with others in the NHI policy domain. On the contrary, most scholars, employer associations, employee associations, welfare NGOs (except for E2) and most intermediate groups stand on the periphery of the NHI policy domain. Compared with the core policy actors, the number of periphery actors is large, so consensus is not easily reached. The analytical results demonstrate that these peripheral policy actors can be seen as forming an issue network (Marsh and Rhodes, 1992: 251) but without the influence to determine policy outcomes and implementation.

Table 6-6. Policy Actors' Influence and Positions in the NHI Policy Domain

Network positions	Policy actors
Core	<ul style="list-style-type: none"> ■ Administrative sectors A1 (DoH) and A10 (BNHI) ■ Legislative sectors B6, B7, and B8's reputational attribution in decision-making network ■ Some medical associations: F1 (Taiwan Medical Association), F5 (Taiwan Hospital Association), and F6 (Taiwan Community Hospital Association) in resource exchange relations ■ Some intermediate groups G1 (United Daily News), G2 (Daily News), G3 (China Times), and G4 (Liberty Times) in information sharing and transmission network
Semi-periphery	Welfare NGO E2 (Taiwan Health Reform Foundation)
Periphery	Most scholars, most employee associations, most employer associations, most welfare NGOs except E2 (Taiwan Health Reform Foundation), most intermediate groups except for G1, G2, G3, and G4 in information transmission
Brokerage	A1 (DoH), A8 (Taipei City Government), and A10 (BNHI); Some intermediate groups G1 (United Daily News), G2 (Daily News), G3 (China Times), and G4 (Liberty Times) in information sharing and transmission network

Source: the author

Furthermore, based on the in-degree centrality scores, the DoH (A1) and the BNHI

(A10) possess the greatest influential power among the policy actors of the public sector, and some actors in the other categories as well. This shows that policies related to the NHI sustainability are mainly directed by the official authorities. Since these two public actors are also powerful policy brokers with huge brokerage profiles, they may have more opportunities to lead the promotion of the NHI reform. In addition, the Taiwan Medical Association (F1) and Taiwan Hospital Association (F5) possess higher in-degree centrality figures than the other medical organisations. This indicates that, in addition to the DoH and the BNHI, these medical associations are more influential and active in the NHI affairs. It is also clear that few medical organisations in the policy elite hold peripheral positions. Therefore, all the three entities can be seen as a stable policy community (Marsh and Rhodes, 1992: 251) that has substantial influence over NHI policymaking. To achieve desired policy goals, more organised and institutionalised collaboration is necessary for successful collective action. It is important to build a cohesive policy community. If the alliance were to develop into a policy community there has to be a high degree of consensus on policy aims and the rules of interaction and resource exchange. This alliance may build the rules of game to govern how participants have to behave if they are to gain access to the network. This also makes it easier for the government to manage the network, resolve conflicts and build consensus with the providers in the NHI policy domain. It is evident from Table 6-4 that the policy community has the advantage of professional knowledge asymmetry in medical services and financial controls.

The labour force representatives (e.g., National Farmers' Association (D5), National Fishermen's Association (D4), The League of Welfare Organisations for the Disabled (E3), and the Taiwan Labour Legislative Union (D8)) and employer

representatives (e.g., the National Association of Small and Medium Enterprises (C4), the Chinese National Federation of Industries (C1)), and various experts and scholars, are the peripheral actors that focus on relational and decision-making networks. They are obviously not in the member list of the NHI policy community. Furthermore, the social welfare organisations (e.g., Consumers' Foundation (E1), Taiwan Healthcare Reform Foundation (E2), Taiwan Disability Welfare Association (E3) and the NHI Supervision League (E4)) are positioned between the core and the periphery. Although they are not considered to be a part of the policy-making community network formed by the alliance among the BNHI, the DoH and the medical organisations, neither do they belong with those focusing on relational and decision-making networks that have minor influence. The reason is that social welfare organisations can appropriately utilise resources outside of their system (e.g., media and social movements) to reflect their opinions on the NHI policy, support the legislators whose standpoints are close to their own, thus forcing the BNHI, the DoH and the medical organisations to respond to their demands.

We have already presented the central findings from a more theoretical perspective based on the analytical results from the above four networks. The policy actors more central in resource exchange networks were (1) seen by others NHI policy stakeholders as being more influential in the NHI affairs; (2) more likely to become active in the NHI controversies; and (3) more likely to achieve their desired outcomes (Galakiewicz, 1979; Knoke, 1994a). In contrast, brokerage activities paint a picture similar to that derived from the analysis of in-degree centrality. Brokers wheel and deal primarily within communication and resource exchange networks. Hence they are connected with influence rather than domination forms of power (Knoke, 1994a: 144). Thus, both the

DoH (A1) the BNHI (A10) are not only influential but are also dominant while dealing with NHI affairs using the relational approach.

Combined with the discussion in Chapter 3, it seems that the government (the BNHI and the DoH) is the most influential policy actor in both formal and informal institutional NHI policy environments. There is no doubt that some legislators and party caucuses occupy institutionally advantageous positions and can be treated as “veto players” with influence over reform promotion. Although the government plays an important role in dealing with NHI affairs, it is also difficult to say whether the government has been strong enough to completely manipulate the policy-making process in an interest-fragmented policy network. Even though the public sectors and the medical associations have built policy communities within the NHI policy domain, the promotion of the 2G-NHI financing scheme has faced great resistance and has not succeeded so far. The SNA indicators used in this chapter have focused on individuals’ relational levels, but they may have ignored the macro factors of social networks and policy networks. Thus, in order to get more comprehensive understanding of power distribution in the NHI policy domain, it is necessary to integrate the analytical results of Chapter 5 and Chapter 6 during interpretation and explanation.

Combined with the finding in Chapter 5, it can be surmised that another important feature of the power structure in Taiwan’s universal healthcare system is the obvious existence of a political cleavage between the insured and the alliance between the government (a single payer) and the provider (medical associations). Moreover, the groups of insured lack a channel to access and mobilise political resources for policy advocacy and interest intermediation. It seems that the peak employee association and

the welfare NGOs play necessary roles without influential power in the NHI policy domain; they lack access to other powerful policy participants. Thus, with regard to more general aspects of the political system, election outcomes, which determine party control of national legislature and administration, are crucial for understanding interest intermediation and authoritative decision making in Taiwan's NHI policy domain. It can be anticipated that the alliance between the public sector and the medical associations may provide more opportunities to achieve their policy goals than other stakeholders if they can gain political support from the majority of the Congress. Unfortunately, the DPP government was under the political environment of divided government between 2000 and 2008.

Chapter 7. Do Social Networks Matter in Determining Policy Outcomes? The Case of the 2G-NHI Financing Scheme*

Policy network analysis seeks to identify the important actors - governmental and nongovernmental organisations, interest groups, and other individual policy actors - involved while describing and explaining the structure of their interactions during policy-making processes. They are also useful in explaining and predicting collective policy decisions and outcomes. With these objectives, policy theorists and empirical researchers have applied several network analytical perspectives and, in the process, have defined a host of concepts, principles and propositions. Some have explained how the structure of policy networks affects policy outcomes (Marsh, 1998: 10). Networks reflect interactional patterns and resource exchanges between policy actors, and it is these resource exchanges that determine outcomes (Dowding, 1995: 42). In this chapter, I explore the question of how the NHI policy networks, including policy stakeholders' social relationships and their collective actions impact policy outcomes. I do so with reference to the recent high profile case of the 2G-NHI financing scheme reform.

Thomas and Gilson (2004: 279) have observed that healthcare reform is an inherently political process within which, sound technical analysis is never enough to guarantee the adoption of policy. This observation is also applicable in the context of

* Part of the contents of this chapter appeared in the author's article - (2013). The Application of Social Network Analysis on Power Pathway Measurement in Public Policy: The Case Study of National Health Insurance's Crucial Policy Events. *Public Administration & Policy* (TSSCI listed, peer reviewed), (57), 37-90.

Taiwan, where several attempts at healthcare reform have fallen by the wayside for reasons related to the political process (Wong, 2003). Hence, in order to arrive at appropriate network management strategies for the public sectors to reduce resistance to reform, a systematical SNA analysis of the proposals for political feasibility is necessary for reform promotion.

Nevertheless, questions arise as to what methods might be adopted to systematically evaluate the political feasibilities of the various proposals, and whether the results of the political feasibility analyses adopted actually reflect health politics in the real world. It also remains unclear whether political feasibility analyses actually enhance the adoption of the policy proposals. Deviating from the previous two analytical chapters, this chapter sets out to address these questions by presenting the results of such an analysis of policy process of the new NHI financing scheme.

7-1. Background and Content of the Reform Proposal

As mentioned previously, in terms of its unbalanced financial status, the NHI's financial reform has not been that successful. Faced with the continuing problems, the Executive Yuan (the DPP was in power) in Taiwan launched a comprehensive project, covering the period from July 2001 to October 2004, which aimed at restructuring the current NHI programme into the so-called the 2G-NHI programme (see page 30-32 for more details). This initiative was carried out by the NHI Taskforce based at the DoH, with around 120 scholars and experts from diverse fields, including economics, sociology, law, public health, public administration, and social welfare.

The Taskforce was divided into five groups: (i) Policy Evaluation and Organisational Systems; (ii) Economics and Financing; (iii) Healthcare Distribution; (iv) Citizen Participation; and (v) Statistical Analysis (DoH, 2004). The Taskforce set out to thoroughly investigate the problems encountered by the NHI programme, ranging from the financing system underpinning the scheme, to public participation, and subsequently went on to propose systematic suggestions for solutions in various areas.

In August 2004, the 2G-NHI Taskforce published its final report “*Toward an Accountable NHI: Quality, Equity and Participation*,” a report which was based on values that are somewhat different from those specified in 1990, during the planning stage of the NHI programme. At that time, greater attention was paid to universal coverage, adequate care, cost containment and efficient use of healthcare resources (CEPD, 1990: 12). In other words, although equity remains an important issue within the 2G-NHI programme, the values of accountability, quality and participation are recent important additions.

As in the implementation of the national health insurance system of many countries throughout the world, the NHI in Taiwan is financed primarily by payroll taxes collected from both employers and employees. However, the government also plays a prominent role in subsidising the premiums, with variations in the subsidy rates for different categories of insured persons.

As shown in Table 7-1, the NHI financing scheme is divided in terms of six categories of insured persons, with the shares of the premiums payable by the insured parties varying from one category to another. Thus, the insurance status of individuals changes as a result of a change in job, moving house or getting married. Their

share of the premiums will also be adjusted.

Table 7-1. Share of NHI Premiums

Category	Beneficiary Category	Share (%)			No. of the Insured and Dependents
		Insured	Employer	Government	
1	Civil servants or government employees	40	–	60	11,780,375
	Self-employed persons; employers	100	–	–	
	Employees of public or private enterprises	30	60	10	
2	Members of occupational associations without specific employers; seamen serving on foreign vessels	60	–	40	3,683,993
3	Members of Farmers' or Fishermen's Associations	30	–	70	2,629,808
4	Military personnel	–	–	100	579,318
5	Low-income households	–	–	100	204,218
6	Veterans	–	–	100	3,256,558
	Veterans' dependents	30	–	70	
	Other individuals	60	–	40	
Amount					22,134,270

Source: DoH, 2004: 19

As opposed to being based on personal income, the current NHI premiums are calculated according to the levels of insurable income reported by all insured parties (which may well have been under-reported). In Taiwan, the definition of insurable income differs from that of personal income, with the former referring to regular income received from an employer, and which is self-reported by the employer or the employee, whilst the latter includes all income that a person may acquire from both their main employer and any other sources, such as income from other side jobs. Some commentators therefore argue that the current arrangement may provide a loophole

whereby individuals can avoid paying higher premiums by joining a category with a lower share of premium.

Since the implementation of the NHI scheme, medical costs in Taiwan have increased dramatically, the growth in insurance revenue has not kept pace with the rise in medical costs. The 2G-NHI Taskforce has estimated that the funding based upon insurable income is smaller than that based upon personal income; for example, between 1996 and 2001, the overall rate of growth in medical expenditure was 28.27 percent, whereas the average growth in personal income was 19.56 percent, and the average growth in insurable income was 17.44 percent (2G-NHI Taskforce, 2003).

In order to address the problems of insufficiency and inequity with regard to the current NHI financing scheme, the Economics and Financing Group of the 2G-NHI Taskforce submitted an NHI funding reform proposal, with the major objective of the proposal being the achievement of a balance between medical expenditure and the revenue obtained from premiums. Other objectives included the assurance of a relatively equitable share of premiums, the simplification of the administrative procedures and the creation of a financing scheme that could be more affordable and sustainable. As a result, five general principles were laid down based upon these major policy objectives (2G-NHI Taskforce, 2003):

- (i) The share of the premiums for employers and the government are calculated in accordance with fixed formulae, including certain parameters, such as the percentage of personnel fees for employers, and the growth rates in GDP and medical costs for the government.
- (ii) Representatives of the insured are mandated to decide collectively the scope

of benefits, as well as the level of premiums.

- (iii) Insured persons do not have to report to the Bureau of the NHI any changes in their insurance status due to changes in job, residence, or other matters.
- (iv) The current rates of contribution shares, as well as the ratios of government subsidisation amongst beneficiary categories, are to be eliminated.
- (v) The NHI contributions of insured parties are to be calculated according to their personal income rather than their insurable income.

In short, since the announcement of the results of the 2G-NHI plan in 2004, the financing scheme of the 2G-NHI transformed from a classification-based system (i.e., the premium was typically divided into six categories and 14 items) to a system that is based on the total income of a household. The promotion of the 2G-NHI financing scheme is the most important policy goal to sustain the NHI operation since that time. From that moment on, numerous obstacles were encountered during the process of promoting the new financing scheme, and losses continued to increase. Nevertheless, despite the fact that the 2G-NHI plan was submitted by numerous directors of the DoH and even the chief of the BNHI⁶ for approval by the Parliament, the reform plan was finally accepted in 2012 when the former director of the DoH, Mr. Chi-Liang Yang, and the former Premier of the Executive Yuan in Taiwan, Chun (Sean) Chen, reconciled most political conflicts among different policy stakeholders in the Congress. However, the most crucial aspect of the 2G-NHI system - the new financing scheme (i.e., the calculation of premiums based on the total income of a household) was not approved unconditionally because this scheme would hugely impact the insurance contribution

⁶ The BNHI changed its name to the National Health Insurance Administration (NHIA) on January 1, 2010.

rate of the insured. To replace this and in order to sustain the current NHI programme, an expedient scheme, called the 1.5G-NHI financing scheme, was added with an extra fee (i.e., supplementary the NHI premium) to the current six categories and 14 items. This additional fee led to an, as yet, unresolved dispute among politicians, resulting in a series of political effects. The interviewee from the DoH indicated the cause of the compromised policy outcome and is disappointed with the final policy outcome but he also stands on the positive perspective on it. He said:

“The subtle differences in the relationship between the Executive Yuan and the Legislative Yuan mean that the opposition ruling the majority in the latter makes it difficult to derive support for the 2G-NHI reform spearheaded by the DoH, which operates under the auspices of the former. Thus, it was very hard for the DPP to promote an unpopular reform proposal under the political arena divided government. As expected, the 2G-NHI reform only conditionally passed legislation in 2012 when the KMT was in power and made up the majority in the Parliament. You have to be aware that the adoption of the new financing scheme is not unconditional, right? It still faced a huge political struggle in the environment of unified government. ...mm...However, in the face of opposition, the proposed 2G-NHI financing scheme was not fully implemented, but was instead compromised as for its 1.5G counterpart. This, however, still serves as an important milestone in the sustainable management of the healthcare system. I think I can live with that!”
(Administrative sector A1)

The final policy outcome of the promotion of the 2G-NHI financing scheme is that the lower limit of the supplementing premium has increased from the original NT\$ 2,000 (= £ 40) to NT\$ 5,000 (= £ 100). Compared to the 1G-NHI financing scheme, the consequent change is not huge for all the policy stakeholders, and there is less impact on the insured. Despite the adoption of the 1.5G NHI financing scheme in 2012, the financial sustainable ability has not improved much (NHIA, 2015). Thus, the wicked financial unsustainability of the NHI has continued to worsen day by day.

7-2. Policy Preferences and Positions

Eight specific major issues regarding the 2G-NHI financing scheme were selected for enquiry to 61 policy participants in this study (one scholar passed away while this reform proposal was approved conditionally in 2012). Table 7-2 summarizes the eight issues, along with one additional questionnaire item aimed at measuring their overall degree of support. The eight issues were the items in the social network questionnaire for investigating the policy actors' perception and attitudes of the 2G-NHI financing scheme and related issues. Each of these eight core issues received at least a 65 percent positive response rate, general support was discernible for these issues.

There were two relatively controversial issues involving Q3 (whether the premiums should be pre-deducted on the basis of a hypothetical contribution rate), and Q4 (whether the representatives of the insured should be authorised to decide the scope of the benefits and the premium levels). The design of both of these items received around 26 percent opposition from interviewees. In addition, Q7, on whether government contribution should be based on formulae with fixed parameters, including growth rates in GDP and medical expenditure, also received more than 20 percent opposition from interviewees.

Table 7-2. Major Issues and Interviewees' Attitudes towards the 2G-NHI (n = 61)

Items	Strongly Disagree (1)		Disagree (2)		Neutral (3)		Agree (4)		Strongly Agree (5)	
	No.	%	No.	%	No.	%	No.	%	No.	%
Q1. The classification system should be eliminated.	–	–	6	10.3	6	10.3	31	51.3	18	28.2
Q2. Premiums should be calculated according to taxable income.	2	2.6	11	18.4	5	7.9	32	52.6	11	18.4
Q3. Premiums should be pre-deducted on the basis of a hypothetical contribution rate.	2	2.6	14	23.7	5	7.9	34	55.3	6	10.5
Q4. Representatives of the insured should collectively decide the scope of benefits and the level of premiums.	6	10.5	10	15.8	5	7.9	24	39.5	16	26.3
Q5. A top limit should be set for NHI premiums.	–	–	8	13.5	2	2.7	33	54.1	18	29.7
Q6. A bottom limit should be set for NHI premiums.	–	–	8	12.8	9	15.4	36	59.0	8	12.8
Q7. The government's contribution should be calculated based on formulae with fixed parameters, including growth rates in GDP and medical expenditure.	2	2.6	11	18.4	3	5.3	31	50.0	14	23.7
Q8. The employers' contribution should be based on a certain percentage of personnel fees in firms.	2	2.8	8	13.9	5	8.3	32	52.8	14	22.2
Overall level of support for the 2G-NHI initiative*	5	8.1	13	21.6	–	–	38	62.2	5	8.1

Source: the author

Note: * The options and codes of the items were: (1) no changes at all to the current system; (2) minor changes based upon the current system; (3) major changes based upon the 2G-NHI initiative; and (4) all changes to be adopted for the 2G-NHI initiative.

As shown in Table 7-3, the single item measuring the overall degree of support for the 2G-NHI initiative appears to be consistent with the mean score for the eight core issues. This is despite the fact that the positions of employee associations vary dramatically between “least support” with regard to the itemised questions, to

“moderate support” based upon the overall question. Accordingly, the mean scores of Q1-Q8, employee associations (3.04) take the lowest position. On the contrary, the legislative sector (4.25) seems to “strongly agree” with these eight cores, reform issues. Further, compared with other groups, welfare NGOs get the lowest score in terms of the overall level of support, suggesting that welfare NGOs are unhappy with the content of the reform proposal. The results based on all subjects confirmed that there were more mixed reactions to Q4 and Q7, followed by Q2, on whether the premiums of the insured parties should be calculated based upon taxable income.

Table 7-3. Descriptive Statistics and Group Differences (n=61)^a

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Mean Score Q1-Q8	Overall Level of Support ^b
Panel A: All Subjects (N=61)										
Mean	3.97	3.66	3.47	3.55	4.00	3.72	3.74	3.78	3.73	2.70
Std. Dev.	0.90	1.07	1.06	1.33	0.94	0.86	1.11	1.05	0.65	0.74
Panel B: Administrative Sector (N = 10)										
Mean	4.11	3.63	3.75	4.00	4.22	3.78	4.22	4.22	4.00	3.00
Std. Dev.	0.60	0.74	0.46	0.93	0.44	0.44	0.67	0.67	0.34	0.50
Panel C: Legislative Sector (N = 9)										
Mean	4.33	4.00	4.00	4.33	4.67	4.00	4.33	4.33	4.25	3.00
Std. Dev.	0.58	0.00	0.00	0.58	0.58	1.00	0.58	0.58	0.33	1.00
Panel D: Employer Associations (N = 5)										
Mean	3.60	3.00	3.00	4.40	4.00	3.20	3.80	3.00	3.45	2.50
Std. Dev.	0.89	1.41	1.87	0.55	1.41	1.30	1.10	1.58	0.88	0.58
Panel E: Employee Associations (N = 6)										
Mean	3.17	3.33	3.33	2.50	3.00	3.33	2.67	2.80	3.04	2.83
Std. Dev.	0.98	1.03	1.03	1.23	1.10	1.03	1.03	1.10	0.72	0.98
Panel F: Welfare NGOs (N = 4)										
Mean	4.50	4.50	3.00	1.00	3.00	3.00	3.00	3.00	3.13	1.50
Std. Dev.	0.71	0.71	1.41	0.00	1.41	1.41	1.41	1.41	0.00	0.71
Panel G: Medical Associations (N = 6)										
Mean	4.00	3.50	3.33	3.33	4.60	4.33	4.00	4.40	3.89	2.50
Std. Dev.	1.10	1.64	1.21	1.51	0.55	0.52	1.55	0.89	0.47	0.84
Panel H: Intermediate Groups (N = 8)										
Mean	4.40	3.80	3.60	3.80	3.80	3.80	4.00	4.00	3.88	2.50
Std. Dev.	0.89	0.84	0.89	1.10	0.45	0.45	0.82	0.00	0.35	0.58
Panel I: Individual Scholars (N = 11)										
Mean	4.33	4.67	3.67	4.00	4.67	4.00	3.33	4.00	4.08	3.00
Std. Dev.	1.16	0.58	1.53	1.73	0.58	1.00	1.16	0.00	0.85	0.00

Source: the author

Notes:

^a The items in bold text are the means for the eight stakeholder groups. These are below the grand means.

^b The options and codes of the items were: (1) no changes at all to the current system; (2) minor changes based upon the current system; (3) major changes based upon the 2G-NHI initiative; and (4) all changes to be adopted for the 2G-NHI initiative.

Furthermore, a further examination of the differences between the eight stakeholder groups contributed further insights into the overall political feasibility. A quick general impression can be gained from the numbers highlighted in bold in Table 7-3, which provides a clear indication that the mean scores of these items are below the grand means for the stakeholder groups. For example, all legislators interviewed provided greater support for all of the major issues than the mean scores for all subjects. As for holding veto power to legalise these reform proposals under the constitution in Taiwan, the KMT government had a better chance than the DPP government to promote the 2G-NHI financing scheme under a unified-government environment. Despite the fact that the final result was still politically compromised, the great support from the Legislative Yuan can be seen as a determinant factor for the adoption of the 1.5G-NHI. The informant of the DoH has many experiences to communicate and interact with these legislators. He mentioned:

“During the period of the DPP government, the political atmosphere under a divided government was unfriendly to the ruling party. The legislators of the KMT tried their best to obstruct most bills proposed by the DPP government. The 2G-NHI reform proposal spearheaded by the DoH was obviously gotten less support from the Legislative Yuan. Thus, although the 2G-NHI initiative was organised by the DPP government, the reform proposal has not been passed in the Congress till party turnover in 2008. As expected, the 2G-NHI reform only passed legislation in 2012 when the KMT was in power and made up the majority in the Parliament.”
(Administrative sector A1)

In addition, as compared to the other stakeholder categories, individual scholars and public administrators showed above average support for most of these major issues. The informant of the DoH and two leading scholars in designing the 2G-NHI programme said:

“There is no doubt that the 2G-NHI initiative is very important for NHI’s sustainability. Overcoming all difficulties in promotion of the reform proposal, especially the new financing scheme, is our main administrative goal.”
(Administrative sector A1)

“The 2G-NHI programme has made profound achievements in the views of numerous experts and scholars’ efforts. We did not work for any party, we don’t have any political ideology. Thus, it is unfair to label us as “fellow traveler” of any Party. All we want to do is to pursue citizen’s health by making the NHI programme more sustainable.” (Scholar H1)

“The 2G healthcare programme is a culmination of the work of numerous scholars and should be passed to ensure the sustainability of the healthcare system.” (Scholar H2)

Medical associations seem to agree with most of the measures in the 2G-NHI financing scheme; however, given that they are mainly healthcare providers as opposed to insurance contributors, they have a lesser stake in the financing scheme. The informant from the Taiwan Community Hospital Association indicated that for these medical associations, changes in the payment system may arouse greater concerns.

“I think medical groups support the new financing scheme but we prefer not to make strong assertions. We are more concerned with the GBP system, because this affects us more.” (Medical association F6)

On the other hand, the insured including welfare NGOs and employee associations showed lower average support for most of these major issues. The opinions expressed by the NHI Supervision League and the Chinese Federation of Labour in the interviews support the analytical results of these items. They mentioned:

“I think that the new financing scheme for most employees is a burden. In the

past two decades, because of the imbalance between the rising price and decreasing monthly minimum wage, I believe that the living expenses have become a big burden for salaried men. Thus, the 2G-NHI financing scheme that might raise the contribution rate of the general insured, should be considered carefully with regard to its negative effects on the employee. I also appeal that the government should sustain the NHI programme by shifting attention to control the expenditures.” (Employee association D1)

“I know the sustainability of the NHI is quite important, but I do not agree with the new financing scheme. First, under my observation, the healthcare providers in Taiwan enjoy the benefit of little risk and high profits under the GBP system; why should we have to pay more for supporting their benefit? Second, the design of the new financing scheme is still controversial. How should we believe that the scheme could bring a better medical care service for us? Third, the change of financing method may increase our financial burden. Are these policy planners really aware of the difficulties being encountered by the masses? ...” (Welfare NGOs E4)

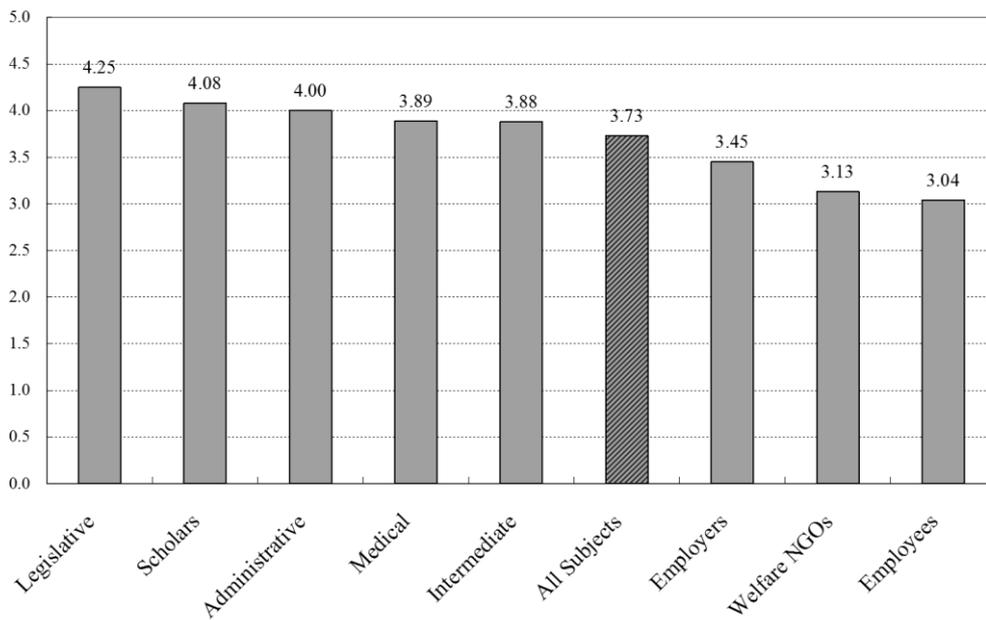
The statement reproduced below, perhaps is the most representative of the interviewees’ opinions related to the disputes on the new financing scheme from the insured groups. Their opinion shows that knowledge asymmetry is a serious factor impacting the people’s policy acceptance levels.

“To tell the truth, our understanding of the NHI programme cannot rival that of medical associations and thus are often ignored by the BNHI and the DoH. The same can be said of our resources-especially manpower and financial resources, thus rendering us unable to conduct a systematic study of healthcare policies. We are not fully informed about the new financing scheme, so we maintain a conservative stance on the issue.” (Employee association D7)

“No one in our group really understands the new financing scheme. We simply think that a higher premium may increase pressure on the part of the insured, so we don’t fully support the new financing scheme.” (Welfare NGOs E3)

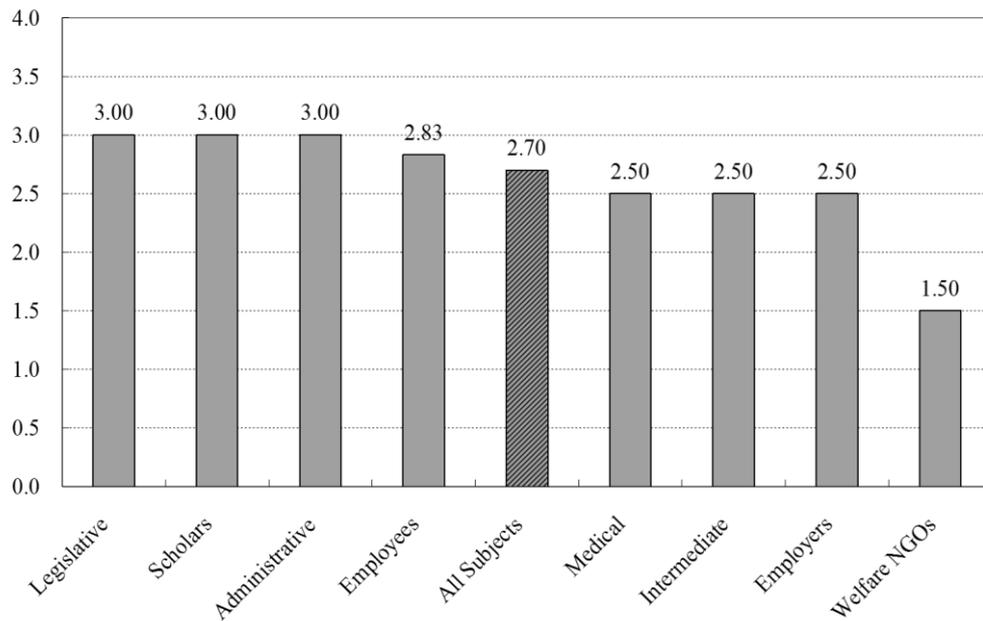
The broad impression gained from an examination of Table 7-3 is further substantiated by Figure 7-1, which plots the mean score responses for all stakeholder groups against overall attitudes towards the items, and Figure 7-2 which plots the mean score responses against the overall level of support for the NHI reform. These two figures further demonstrate these groups' perceptions regarding the reform proposals.

Figure 7-1. Mean Score of All Items for 2G-NHI Reform by Stakeholder Groups



Source: the author

Figure 7-2. Overall Support Degree for 2G-NHI Reform by Stakeholder Groups



Source: the author

As discussed within the reform proposal, the ideas of sustainability, equity and responsibility are embedded within the 2G-NHI financing proposal. According to the results from the interviews, the eight issues introduced in the new scheme received a certain level of support from the players, particularly those relating to the elimination of insured categories and the establishment of upper and lower limits for the NHI premiums. However, according to policy actor D4 (#D4 in Table 4-2), the vested interest groups, such as the Taiwan Provincial Fishermen’s Association, did not agree with the cancellation of insured categories based upon occupation. The informant from the Taiwan Provincial Fishermen’s Association said:

“Why don’t we support the proposal? It is very simple. The design of 2G-NHI financing scheme will damage the rights and interests of fishermen. In the original financing method, fishermen can pay NHI premiums at a lower contribution rate. We of course do not support it.” (Employee association D4)

All members of the welfare NGOs (E1, E2, E3, and E4) were also opposed to the setting of either upper or lower premium limits, since they felt that premium limits would undermine one of the primary aims of the financing reform: “equity”. Despite most respondents agreeing to the setting of a lower limit for premiums, many felt that those who could not afford the minimum premiums should be subsidised by the government through the social welfare system (Administrative sector A8 and A9; Employee association D1; Medical association F5 and F6).

Changes in the basis upon which premiums were to be calculated, along with the shifting of financial responsibility to the insured parties, were the least popular measures amongst those interviewed. Although there was some discernible support for extending the funding base from insurable income to taxable income, many of the respondents questioned the feasibility of collecting premiums on the basis of taxable income largely because of concerns over the definition of taxable income and the procedure to be used for collecting individual contributions (Administrative sector A3; Legislative sector B2 and B7; Employer association C2 and C3; Employee association D2 and D4; Welfare NGOs E3; Medical association F6, and Intermediate group G5).

The equitable sharing of NHI contributions between employers, employees and the government remained a troublesome subject, since many of the respondents disagreed with the notion that the insured party alone had to bear the responsibility for the fluctuations in medical expenditure. Furthermore, some of the respondents questioned the validity of the mechanism which essentially required representatives of the insured parties to collectively decide the benefits and the premium levels. Some argued that the system under which the NHI representatives were identified was unclear and difficult to

operationalise (Administrative sector A1 and A10; Employer association C5; Employee association D3 and D4, and Welfare NGOs E2). It is also a typical difficulty of network management for the public sectors. The statement from the informant of the BNHI demonstrated below is the most representative opinion received from representatives of the insured groups.

“Okay, to tell the truth, the invitation of delegates from different groups for participating the NHI policy formulation and decision in formal channel is a tough task for the BNHI. There are numerous groups or NGOs in Taiwan. Most of these social groups claim that they have strong will to join whichever NHI committees and can represent more people’s interests. However, the position of committee members is limited. These social groups always do not satisfy the lists of every committee members in the NHI policy domain. Balancing the representatives and interests among multiple social groups is a political art...” (Administrative sector A10)

Some medical groups argued that the insured parties had neither the professional knowledge to enable them to reach decisions appropriate to medical coverage, nor the necessary budgets to enable them to purchase such services (Medical association F1, F2, F3, F4, and F6). They also argued that the societal groups are usually hostile to them for no reason. It seems that the societal groups distrust them in the NHI policy domain. Three presidents of three different medical associations indicated this by claiming:

“I agree with that the participation of the groups representing the insured is important and necessary in coping with NHI affairs. However, I think their participation has led to the discussion and decision with low quality as well. The most important reason is that most of these delegates are not professional in medical care and NHI finance. They usually just blindly object reform proposals and our suggestions. The knowledge asymmetry leads to a serious cognitive gap between the insured and the provider.” (Medical association F1)

“In fact, all hospitals have contracts with the BNHI under the NHI programme should respond to public demands and government mandates. Moreover, if we fail to meet the targets, many interests will be affected. I may not be able to pinpoint which specific measure we care most about, but basically it is a synergy effect. To tell the truth, the GBP system has not provided enough incentive to us given the huge size of our revenue. Thus, we always try our best to provide medical services with high-quality by cost control method. We are not selfish and just benefit-orientation. It is unfair for the societal groups merely discredit us.”
(Medical association F5)

Finally, the intermediate groups show some support for the new scheme, albeit not with any real degree of strength. As previously mentioned, one informant of the mass media expressed that the report about the new financing scheme should balance positive and negative perspectives. Sometimes, for facilitating the people’s common sense and monitoring the government’s administration, critical comments on reform proposals should be faithfully reported:

“I think the media is mainly concerned with balanced reporting and delivering information to the people. However, the media tackles the new financing scheme from a critical standpoint. As for most people, they do not have enough professional knowledge to understand the new financing scheme fully. The public has a right to information, and the government has the responsibility to ease their concerns.” (Intermediate group F1)

7-3. Network Structure and Policy Outcome: Centrality Perspective

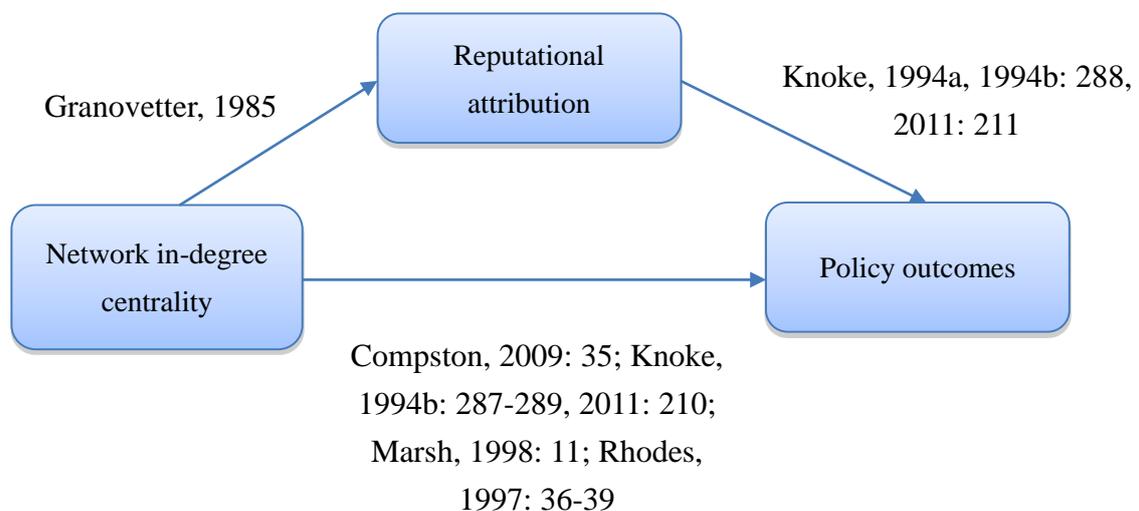
Based on the power approach of policy process theories, the basic assumption behind the causal relationship between policy-making processes and outcomes is that powerful or influential actors are more likely to dominate the policy outcomes during a

policy-making process. Policy network theory refers to the patterns of interaction among policy actors in policy domains in which the structure of policy networks influences policy outcomes (Compston, 2009: 35; Knoke, 1994b: 287-289, 2011: 210; Marsh, 1998: 11; Peterson and Bomberg, 1999: 8). Moreover, the structure of policy participants' relational networks are important for understanding how they become involved in policy influence activities. In the case of Laumann and Knoke's research on the U.S. energy and health policy domains, influence occurs when one actor intentionally transmits valued information or political resources to another that alters the latter's actions (Knoke, 1994b: 3, 163). Thus, these relationship models and positions of actors within policy networks simultaneously determine the power and network structures of policy community members. In other words, the basic units of any complex political system are not individuals, but positions or roles occupied by social actors and the relations or connections between these positions.

The interactions and communications in policy networks can be conceptualised as a system of exchanges in which actors seek to realise their own goals (Pappi and Henning, 1998). Policy network approaches emphasise the actions and structures resulting from policy outcomes and how actions and interactive structures between policy actors generate influence and determine policy outcomes (Knoke, 1994b: 288, 2011: 211). According to Granovetter (1985), the existence of influence or power among actors is embedded in the networks of social relations. Also, influence is possible when communication occurs between policy actors. Based on the indicators of SNA, policy actors with higher in-degree centralities in information transmission or resource exchange networks are more likely to influence other actors' perceptions and behaviours. In decision-making networks, the core policy actors may have greater

influence compared to those placed in periphery positions, and are more likely to be able to dominate the decision processes (Knoke, 1994a, 1994b, 2011). In summary, as the model of collective action system in Figure 4-2 shows, social relations among policy actors do not only to shape the power structure of policy networks, but also directly or indirectly affect policy outcomes. Consequently, these effects form a relational network of information transmission, resource exchange and action-set coalition that determines the position and influence of the actors involved, thereby influencing policy outcomes. Hence, based on the model of Figure 4-2, the modified model depicted in Figure 7-3 shows that influential reputational attribution mediates between the policy actor's relational networks and policy outcomes.

Figure 7-3. Power Pathway and Policy Outcome Model



Source: the author

In order to avoid the possibility of collinearity in the network data, Pearson correlation analysis was conducted to examine the relationship among various independent variables (i.e., information transmission, material resource exchange, action-set coalitions, and policy participants' reputation attributions in decision-

makings). According to Table 7-4, a positive correlation exists among the three relational networks and the reputational attributions on decision-makings, indicating that actors who are popular in social relation networks might influence policy processes significantly (Knoke *et al.*, 1996; Laumann and Knoke, 1987; Marsh, 1998). However, for social network data, it is expected that the correlations between the action-set coalition network and the resource exchange network (0.674^{**}) and between the information transmission network and the resource exchange network (0.758^{**}) are high, implying the possibility of statistic collinearity. Therefore, the resource exchange network might not be applicable for subsequent analyses. Previous policy network studies have asserted that effective communications among policy actors mitigate policy conflicts and contribute to achieving not only a consensus but also effective collective actions in the policy-making and implementation processes. In addition, because they have more opportunities to dominate the valued information or communication channels in policy networks, actors with high level of in-degree centrality in information transmission can significantly influence policy outcomes (Knoke *et al.*, 1996; Laumann and Knoke, 1987, 1989; Marsden and Laumann, 1977). Moreover, the relationship between each relational network and the reputational attribution of the decision-making network shows that, in contrast to the information transmission network (0.594^{**}), the correlation between the resource exchange network and the reputational attribution network is higher (0.797^{**}), which might suggest collinearity between these two variables. Therefore, two relational network variables, information transmission network and action-set coalition network, were retained for subsequent regression analysis.

Table 7-4. Correlations among Key Network Centrality Variables (n=61)

	Information transmission	Resource exchange	Action-set coalition	Reputational attribution
Information transmission	1	0.758**	0.386**	0.594**
Resource exchange		1	0.674**	0.797**
Action-set coalition			1	0.600**
Reputational attribution				1

Source: the author (*, p<0.05; **, p<0.01)

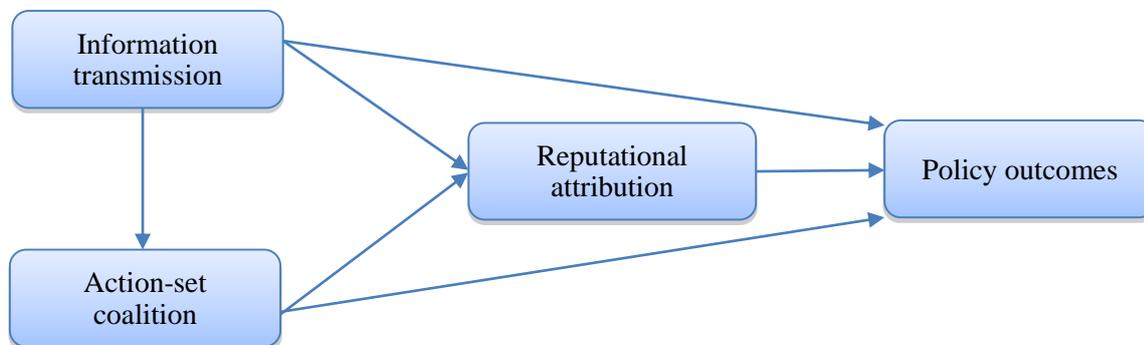
Path analysis is used in statistics to describe directed dependencies among a set of variables. To determine whether social relations among policy actors and their influence-related reputational attributions have affected policy outcomes, I use the pathway model diagram illustrated in Figure 7-4 based on the in-degree centrality of the information transmission network, action-set coalition network, their influential reputational attributions, and policy outcomes. Since the information transmission network and the action-set coalition network may influence each other, Laumann and Knoke (1987) and Knoke *et al.* (1996) have suggested that effective communications among policy stakeholders lead to successful, collective actions. Therefore, the following possible interpretation between power pathways and policy outcomes seems to be plausible:

- (a) The in-degree centrality of information transmission network influences the policy outcomes through four pathways: the in-degree centrality directly influences the policy outcome. It also influences the effects and influential power of policy actors in a network-like surrounding. All this is captured in the following influence pathway: the information transmission network → the policy outcomes → the

action-set coalition network → information transmission network (again); → policy outcomes through personal reputational attributions.

(b) The in-degree centrality of the action-set coalition network influences policy outcomes through two pathways: the in-degree centrality of action-set coalition network directly influences policy outcomes; and the networks of action-set coalitions directly influence the personal influential reputational attribution of policy actors in a decision-making network, and then influence policy outcomes. In other words, the prestige of the information transmission network, action-set coalition network, and reputational attribution network directly associates with policy outcomes. Moreover, the in-degree centrality of information transmission network and action-set coalition network directly and indirectly influence policy outcomes.

Figure 7-4. Modified Power Pathway and Policy Outcome Model



Source: adapted from Knoke *et al.*, 1996: 106

The results of the regression analysis are shown in Table 7-5. The analytical result of pathway model diagram in Figure 7-4 can be demonstrated as Figure 7-5, which illustrates a causal model capable of better explaining the failure of promoting the 2G-NHI financing scheme within the network variables adopted in this study. The

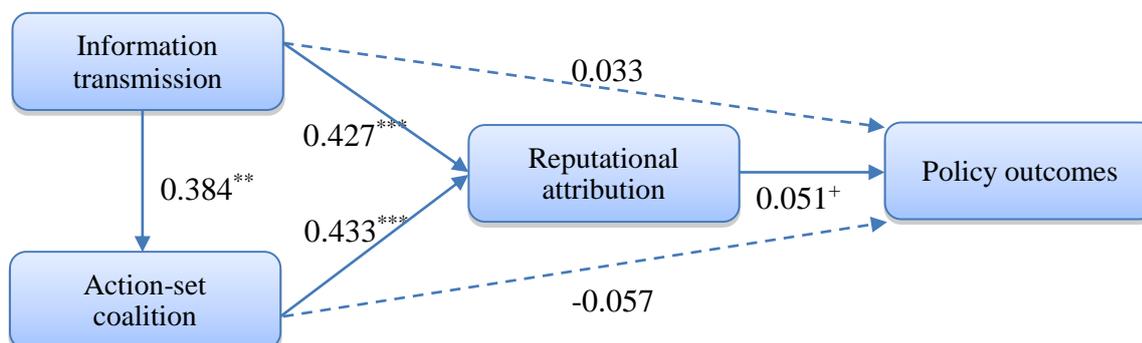
influential reputational prominence influences the desired policy outcome only slightly ($\beta=0.051$, $p=0.058<0.1$). The information transmission interactions of actors is associated with the influential reputation of decision-making networks positively and significantly ($\beta=0.427$, $p<0.001$). The action-set coalition network affects actors' influential reputation attribution in the decision-making network directly, positively and significantly ($\beta=0.433$, $p<0.001$). Greater information transmission connections among policy participants positively facilitate the policy actors' collective actions ($\beta=0.384$, $p<0.01$). Based on these pathways of direct influences in this model, the influence power of each actor in the decision-making network is an essential feature affecting policy outcomes. Conversely, no significant and direct correlation exists among the information transmission network, the action-set coalition, and the failure in promoting the 2G-NHI financing scheme. Moreover, a policy actor with great in-degree centrality of the information transmission network and the action-set coalition network positively affects their influential attributions in policy-making processes. In other words, prominence in communication and collaborative activities substantially raises policy actors' influential power in the NHI policy domain. This finding receives support from Granovetter's (1985) idea of social embeddedness as well as Laumann and Knoke's (1987) policy domain model. In addition, the action-set coalition relationship of these policy actors is dependent on effective communications while reducing conflicts and achieving consensus during the promotion process of the 2G-NHI financing scheme. Therefore, the policy actors who substantially depend on others in the information transmission relations in the reform policy network must collaborate with others to achieve their policy goals.

Table 7-5. Regression Model for the Total Household Income System (n=61)

Dependent variables \ Independent variables	Model 1		Model 2		Model 3	
	Policy outcomes		Reputational attribution		Action-set coalition	
	β	exp (β)	β	VIF	β	VIF
Information transmission	0.033	1.033	0.427***	1.173	0.384**	1.000
Action-set coalition	-0.057	0.944	0.433***	1.173		
Reputational attribution	0.051 ⁺	1.052				
Adjusted R-S	0.151 ⁺ (Cox & Snell)		0.495***		0.133**	
-2 log likelihood	70.861					

Source: the author (⁺, p<0.1; *, p<0.05; **, p<0.01; ***, p<0.001)

Figure 7-5. Centrality Network Pathway Model for Policy Outcomes



Source: the author

Regarding direct influences between variables in the pathway model, the information transmission network, action-set coalition network, influential reputational attribution of policy actors, and the final policy outcome exhibited a noteworthy statistical relationship. Based on the pathway model shown in Figure 7-5, the influential reputation attribution of these policy actors is the mediator variable among the informational transmission relationship, the action-set coalition network, and the final policy outcome. In other words, the information transmission, and the action-set

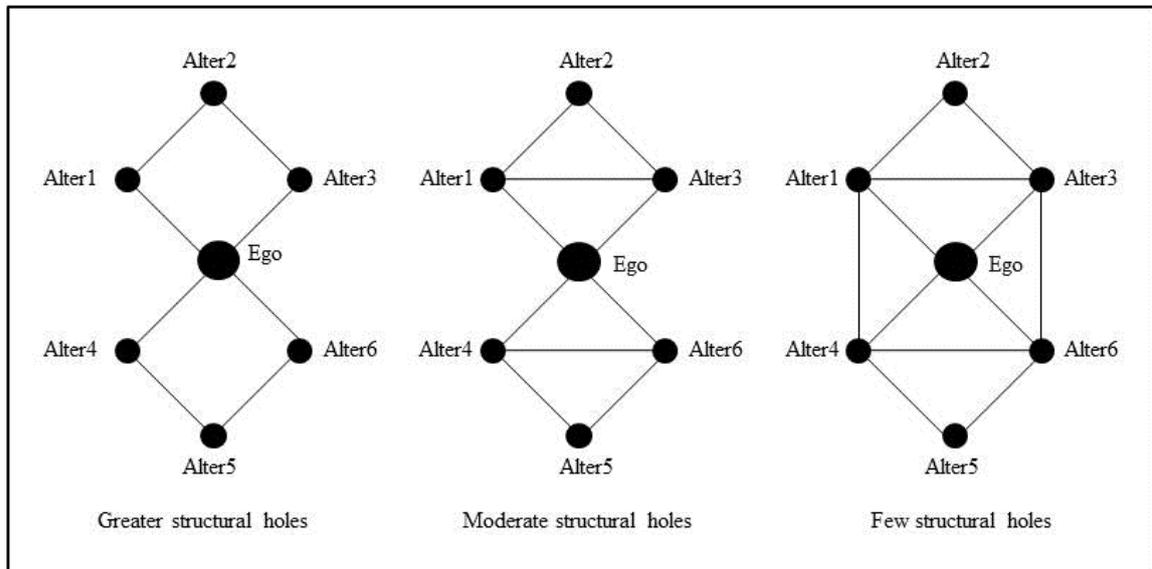
coalition relationship among the policy actors in this case did not directly affect the result of the policy outcome. Rather, these factors affected the policy outcome through the influence-power that the policy actors had on the promotion process of the reform proposal. However, because the total adjusted R^2 for this power pathway and policy outcome model suggests that the overall goodness of fit was not high, the causal relationship should be explained conservatively.

7-4. Network Structure and Policy Outcome: Brokerage-role Perspective

Several researchers (Burt, 1992, 2001, 2004; Granovetter, 1973; Homans, 1951, 1974; Marsden, 1982, 1983) have stressed the importance of actors occupying strategic positions in social networks to explain aspects of the diffusion processes in social structures. If contact between two parties is possible only through a third party, the latter can be regarded as being in control of resource flow. This strategic position can be seen as a structural hole between two actors unconnected to each other. The role of structural holes in policy networks is presented in Figure 7-6. The ego can be seen as oneself and alter refers to the person's network members in this figure. When an ego takes the network position of greater structural holes (see the leftmost network diagram in Figure 7-6), it is linked to fragmented social groups. In this case, the ego enjoys structural autonomy, which means to become less dependent and non-substitutable (Burt, 1992). This network structure demonstrates that the ego has more opportunities to control information exchange or resource flow and does not readily build mutual trust relationships with others within a network (Klijn and Teisman, 2000: 97-98; Knoke and Yang, 2008: 67). Structural autonomy, or a non-substitutable role, serves as an incentive

for the ego to feel a greater sense of self-control, which enhances the ego's sense of significance and competency within the policy network.

Figure 7-6. Hypothetical Network Diagram for Structural Holes



Source: Lee and Kim, 2011: 210

In contrast, fewer structural holes (see the rightmost network diagram in Figure 7-6) produce a greater number of mutual parties, which serves as incentive mechanisms for the ego to collaborate with others in a network (Coleman, 1988). For instance, if Alter 1 is tied with Alter 4, they may have access to the same type of social support (e.g., same information). It also means that the ego is less likely to manipulate the information flow between them. Moreover, the ego may be concerned that his or her opportunistic behaviors will spread quickly in dense networks. Furthermore, the ego is more likely to be pressured to feel a sense of obligation to share social support with others. For example, in moderate structural holes, the ego's opportunistic behavior can be oppressed if Alter 1 is connected to Alters 2 and 3. In this case, all actors share the ego and this could serve as a constraint mechanism at times when the ego may not want

others to know about its reactive commitment behaviour.

Interest intermediation is integral to the policy-making processes of most policy domains. In his structural hole theory, Burt (1992) emphasised the importance of the brokerage roles of the actors in a social network. If there are lots of structural holes in a policy network, there will also be lots of brokerage opportunities for some actors in the policy-making processes. The research of Fernandez and Gould (1994) on the U.S. national health policy domain shows that occupancy of brokerage positions in a policy domain's communication network is a crucial determinant of influence. In the NHI policy domain, the network with more structural holes may increase the ego's autonomy to manipulate resource and informal flows in the policy processes and may have more opportunities to influence policy outcomes. Thus, the power pathway and policy outcome models shown in Figure 7-3 can be verified by the theory of structural holes.

The indicator of effective size was adopted as a measure of structural holes (Burt, 1992). Conceptually, "effective size" is the number of people the ego is connected to, minus the redundancy in the network. That is, it reduces non-redundant elements in the network. A greater effective size indicates that actors take positions where there are greater structural holes.

Table 7-6 shows the correlation matrix between the effective sizes of the structural holes in the three relational network variables and the in-degree centrality of the reputational attribution network (reputational attribution of actors should be measured by the indicator of in-degree centrality). This indicates that all variables are statistically significant and positive. Most of the correlation coefficients are at the medium level, with the highest being 0.83 ($p < 0.01$). The information transmission network and

resource exchange network are positively correlated. The resource exchange network and action-set coalition network are also positively correlated ($r=0.72$, $p<0.01$), while the resource exchange network and personal influential reputation attribution are positively corrected ($r=0.64$, $p<0.01$) as well. It is reasonable for personal influential reputation attribution to have a positive correlation with the information transmission network ($r=0.41$, $p<0.01$) and action-set coalition network ($r=0.62$, $p<0.01$). Moreover, the high correlation between the resource exchange network and other network variables indicates that there are collinearities among these variables. Thus, for the same reasons as mentioned in previous section (see page 279-280 for more details), two relational network variables, the structural hole of information transmission network and action-set coalition network, were retained in subsequent regression analyses.

Table 7-6. Correlations among Key Structural-hole Variables (n=61)

	Information transmission	Resource exchange	Action-set coalition	Reputational attribution
Information transmission	1	0.830**	0.489**	0.407**
Resource exchange		1	0.724**	0.635**
Action-set coalition			1	0.619**
Reputational attribution				1

Source: the author (*, $p<.05$; **, $p<.01$)

The results of the regression analysis are shown in Table 7-7. The pathway model in the figure illustrates the optimal model that explains the failure of promoting the 2G-NHI financing scheme within the variables by the perspective of structure hole. As with the previous model, prominence of these policy actors' influential attributions increases the chances of desired policy outcomes only slightly. The brokerage role of collective

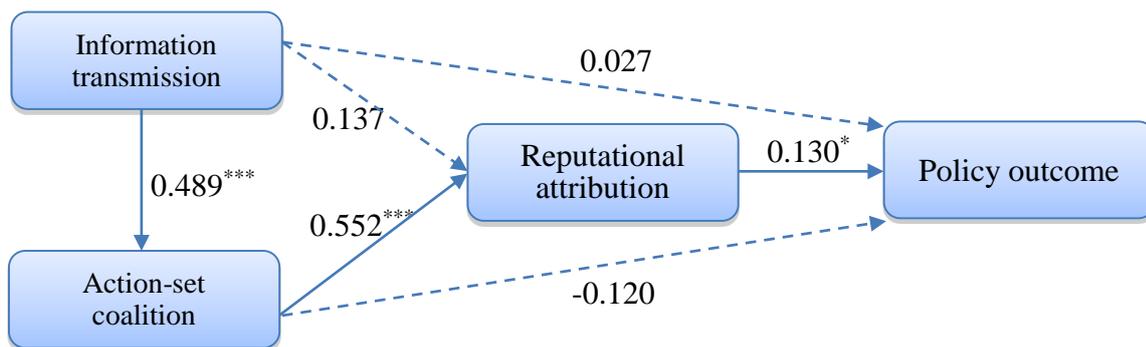
action among policy actors significantly increases their influential reputation attribution of the decision-making network ($\beta=0.552$, $p<0.001$). By contrast, the information transmission interactions among the actors are not statistically significant probably because of the influential reputation of the decision-making networks. A higher effective size of the information transmission network (more brokering opportunities) positively associates with the brokerage role of the action-set coalition network ($\beta=0.489$, $p<0.001$). Based on these pathways of direct influences, the actor who holds strategic positions with high effective size of structural holes in the decision-making network is an essential factor that affects policy outcomes. Conversely, no significant and direct correlations exist among the information transmission network, action-set coalition network, and the failure of promoting the 2G-NHI financing scheme. Moreover, the structural holes of action-set coalition network positively affect the influential power of policy participants involved in the NHI policy. In addition, the action-set coalition of these policy actors is dependent on the possibility of controlling the communication channel (the information transmission network) to manipulate valued information or achieve consensus in the promotion process of the 2G-NHI financing scheme. Therefore, the policy actors who have greater effective sizes in terms of structural roles have greater chances to take up brokerage roles in these social relations with respect to the 2G-NHI financing scheme policy network in achieving their policy goals.

Table 7-7. Regression Model for the Total Household Income System (n=61)

Dependent variable \ Independent variable	Model 1		Model 2		Model 3	
	Policy outcome		Reputational attribution		Action-set coalition	
	β	exp (β)	β	VIF	β	VIF
Information transmission	0.027	1.027	0.137	1.314	0.489***	1.000
Action-set coalition	-0.120	0.886	0.552***	1.314		
Reputational attribution	0.130*	1.139				
Adjusted R-S	0.138* (Cox & Snell)		0.495***		0.226***	
-2 log likelihood	71.751					

Source: the author (+, $p < 0.1$; *, $p < 0.05$; **, $p < 0.01$; ***, $p < 0.001$)

Figure 7-7. Structural Hole Pathway Model for Policy Outcomes



Source: the author

Regarding direct influences in the pathway model, the brokerage role of the information transmission network, action-set coalition network, influential reputational attribution of policy actors, and the final policy outcome exhibited statistically significant relationships. As is evident from Figure 7-7, the influence-reputations of these policy actors are the mediating variable among the structural holes in the action-set coalition network and the final policy outcomes. In other words, a policy participant plays a strong brokerage role in the information transmission network, and the action-

set coalition network does not directly affect the result of the policy outcome. Instead, these factors affect the policy outcome under the influence of the policy actors had on the policy network. Thus, the policy actors who have greater structural holes in the information transmission network and the action-set coalition network will have more influence to determine policy outcomes. However, the adjusted R² for the pathway model suggests that the overall goodness of fit is slightly low, and that the causal relationship should be conservatively explained.

7-5. Conclusion

Deviating from the previous two chapters, this chapter used the 2G-NHI financing scheme as the case to investigate the causal relationships among policy actors' social networks and policy outcomes. Despite its popularity, there have been ongoing reforms in the NHI Programme ever since its initial implementation. A major attempt at the structural reform of the programme was made between 2001 and 2004 (2G-NHI), carried out by a Taskforce under the Executive Yuan in Taiwan. According to the findings, the 2G-NHI financing reform proposal has received a certain level of support from policy stakeholders, with most of the respondents recognising the ideas of equity and sustainability with regard to the overall proposal, and therefore demonstrating their intention to support such measures as eliminating the system of classifying the insured parties (that had existed since the establishment of the Taiwanese Labour Insurance in 1950), and expanding the funding base for the programme. Nevertheless, since most insured persons believe that the government must play a significant role in financing the programme, plans for sharing the contributions between the insured, the employed and

the government have remained controversial.

Furthermore, mechanisms for deciding the insurance revenue and medical costs amongst the representatives of the insured had not yet been spelt out. It is also clear that few employer associations had agreed with the design of the system for calculating each employer's share of the contributions. Since the employment relationship between employers and employees in Taiwan has become more flexible and diversified, it has been difficult to estimate the exact personnel fees in firms. Therefore, it was difficult to fit them into the reform proposals.

With respect to the policy preferences of key players, there was strong support for the reform proposal as a whole amongst the legislative, administrative elite and scholars. However, this may be attributable to some individuals or organisations within the internal group being simply more familiar with the proposal. Given that the insurance deficits have been an issue of major concern for many years, they may also have been attracted by the potential of the reform proposal to reduce the overall financial burden on the government.

Employee associations and welfare groups appear to be skeptical of the reform proposals, particularly with respect to the placing of financial responsibility on the insured parties. Likewise, the employer associations also had some issues with the proposed scheme: disagreement with expanding the funding base from insurable income to taxable income, and the calculation of contributions based on personnel fees.

Medical associations appear to have been in agreement with most of the measures in the reform proposal. However, given that they are mainly healthcare providers as

opposed to insurance contributors, they had smaller stakes in the financing scheme. It seems that changes in the payment system may arouse greater concerns for these associations.

Finally, the role of mass media is just to report the issue faithfully and raise the awareness of the people's right. Intermediate groups showed some support for the new scheme, albeit not with any real degree of strength.

Based on the analytical results from my path analysis, the influence of the NHI policy actors as a group on decision-making depends on their positions and relations in the three relational networks. Correlations were found with the relationships between the original social network matrices and the personal influence-based reputational attributions of policy actors in the decision-making network. All the relational networks, irrespective of whether they are from the perspectives of in-degree centrality or brokerage role, have significantly led to these policy actors' influential power while promoting the 2G-NHI financing scheme. This result shows that the policy actors who maintain higher levels of ties with other policy actors are more likely to achieve their desired policy outcomes in the NHI policy domain (Knoke, 1994a; Laumann and Knoke, 1987, 1989). On the other hand, a policy actor with more structural holes in the three relational networks also had more opportunities to manipulate the information and resource flow among these policy participants (Fernandez and Gould, 1994). According to previous studies (Klijn and Teisman, 2000: 97-98; Knoke and Yang, 2008: 67), actors in a fragmented network structure tend to focus on their own ambitions and interests rather than collective goals. Owing to the autonomy of these network positions, actors with greater structure holes may have more chances to destroy the collective goals

which are different from theirs. This finding reveals that policy actors who occupy network positions embedded in greater structural holes could lead the reform towards their desired policy outcomes.

It is important to note that the multiple regression analysis in both pathway models shows that the policy actors' influential reputational attribution in the decision-making network is significantly correlated with their information transmission and resource dependency activities. This result also indicates that policy actors who are prestigious or hold more structural holes in communication and resource dependency relations have a considerably higher influence in the NHI decision-making processes, which support previous empirical findings (Laumann and Knoke, 1987, 1989; Knoke *et al.*, 1996)

In policy process theories, decision-making is a political game rather than technical one. Nevertheless, the most important thing is that they can be used to effectively depict the image of power allocation for political games and investigate the relationship between power pathways and policy outcomes in real scenarios (Compston, 2009; Marsh and Rhodes, 1992; Sandström, 2008). The analytical results presented here offer a more nuanced picture where higher influential reputation in a decision-making process had greater influence on the policy outcome as far as the 2G-NHI financing is concerned. Moreover, the rich relationships among and the structural holes between the information transmission and action-set coalition networks among the policy actors influences the policy outcome because they have greater influential power than others in the policy processes. It looks as if the policy actors in the 2G-NHI financing scheme policy network, who were influential, controlled substantial information or resources, and were independent of others, opposed the proposal for the total household income

system. What is most interesting, is that the leading policy actors (the DoH and the BNHI) in this case could not still dominate the policy process to their desired policy outcome, instead, resulted in the outcome wherein the compromised scheme - the supplementary NHI premium - was added to the original fees of the six categories and 14 items. This compromise reveals that although the policy actors of the welfare NGOs, the Employer Associations and Employee Associations stand on the relative periphery position with less influence in policy processes; the government and the representatives of the medical associations could not still ignore their questions and opposition to the reform proposals.

By integrating the finding of this chapter and previous two chapters, it may be concluded that the SNA approach is a useful tool in subsequent policy promotion activities. As an analytical tool, SNA can systematically evaluate an actor's chances and capacity to influence policy outcomes by analysing their interdependency relationships and social positions in a network structure. The analytical results could lead to an effective network management strategy that takes into account political expediency. Acting as a core policy maker and broker in the policy domain, the government has more abilities to promote full communications and interflow among all participants, sidestep conflicts, and reach a consensus. This also means that a government with a strong in-degree centrality and brokerage profile in resource exchange relationships can have more strategic opportunities to be an initiator and coordinator mobilising and manipulating political resources in the policy network. However, if the government is not a part of the policy community or a policy broker with a strong brokerage profile, public managers should try to establish a close and robust connection with the core actors or coordinators to assure their support in the policy-making processes.

Chapter 8. Conclusions, Limitations, and Implications

This chapter summarises the theoretical contributions of this study. Policy implications are drawn on the basis of the findings. Finally, suggestions for further study are explicated based on the theoretical and methodological limitations of this study.

8-1. Summary of Findings

8-1-1. Who are the Key Players in the NHI Policy Domain and What are Their Interests

Based on documentary analysis and careful consultations, my findings show that there is high overlap between the policy participants in the three crucial policy events examined. This shows that, in the NHI policy domain, decision-making power is very concentrated in a few and stable policy actors. This research has identified 62 NHI policy participants, which include both organisations and individuals and can be classified into eight categories including 10 in the administrative units, 9 legislators involved in the affairs of the NHI on behalf of the Parliament, 5 major employer's associations (business associations), 8 major employee's associations (labour unions), 4 prominent welfare NGOs involved in the NHI financial affairs, 6 medical associations, 8 other intermediate participants such as those drawn from mass media and political parties, and 12 scholars exhibiting different standpoints. All participants were from

Taiwan and were engaged continually with the affairs of the NHI.

Since the adoption of the NHI in Taiwan in 1995, the system has been a government-run, single-player national health insurance scheme. The NHI governance mechanism can be seen as a triangular partnership among the government, the insured and the provider. Administrative sectors occupy institutionally advantageous positions in the NHI policy domain. However, the ruling party is also responsible for sustainable operation in the domain. With a view to making sure that the NHI operates smoothly and operates with the lowest cost possible, most of the administrative units, especially the DoH and the BNHI, rely upon the NHI programme to provide the best possible healthcare service which not only satisfies the insured but also involves both providers and the insured alike in sharing its resources and responsibilities.

Due to the divided government and the drastic increase in political competition between 2000 and 2008, the relationship between the central government and the ruling party (the DPP) and a majority in the Parliament (the KMT) presented more conflicts on policy legislative procedures. As for the ruling party and its legislators, the first priority is to continue its rule by ensuring that it wins the next elections. Policy achievements are necessary for being re-elected. For the DPP government, passing its NHI reform proposals in the Legislative Yuan is among the most important achievements in increasing its own governance legitimacy and popularity. Likewise, in accordance with their respective party standpoints, opposition parties have been persistently driving the reform of the NHI in other directions.

According to the NHI Act, as major contributors to the premium scheme that partly finances the NHI, employer associations are highly sensitive to increases in the cost of

running the NHI. By contrast, the first priority of the representatives of the employee associations is to protect the rights and interests of all employees and exert their right to speak on behalf of the interests of labour. Likewise, the priority of the representatives from welfare NGOs is to articulate the preferences of the insured, monitor NHI's performance and negotiate the contribution rate and the distribution of the global budget payment in the NHI policy domain.

With a view to providing comprehensive medical care, the NHI covers Western medicine, Chinese medicine, dental care, and hospital care as well as preventive health and child delivery services. Western medicine is further divided into three levels of healthcare providers: Taiwan Hospital Associations, Taiwan Community Hospital Associations, and the National Union of Pharmacist Association. All these providers seek more income for themselves coupled with less service pressure while running the NHI system. They do want the public to be highly satisfied with their efforts, but they also want the maximum possible monetary returns for themselves.

Intermediate groups are not institutional participants in NHI's affairs, but they sometimes play important roles by arousing people's awareness of issues threatening their own rights and interests. Therefore, I included their behaviour in my analysis.

Some prominent scholars with professional knowledge and good reputation were also invited by the DoH and BNHI to be official committee members to consult with. Some of these members served as the CEO of the BNHI or the minister of the DoH to direct and plan the reform proposals for the ruling party (the DPP) during 2000-2008. These scholars with high professional knowledge have been deeply involved in NHI affairs since the adoption of the NHI in 1995.

The above policy stakeholders are the key players in the three different policy events. Furthermore, in the case of the promotion of the 2G-NHI financing scheme, these key players also pursue their own preferences by influencing collective outcomes. As can be seen in the analysis in Chapter 7, it seems that all legislators and party caucus representatives have been providing greater support for all major issues involved in promoting the 2G-NHI programme than the mean scores for all subjects. In addition, when compared to the other stakeholder groups, individual scholars and public administrators showed above average support for most of these major issues. On the other hand, the insured, including welfare NGOs and employee associations, showed lesser than average support for this reform proposal. The remainder, such as medical associations, employer associations and intermediate groups, adopted a neutral stance.

8-1-2. Structure and Characteristics of the NHI Policy Domain

SNA was employed to identify the compositions, interrelationships and perceived influences of the NHI reform participants in Taiwan with the goal of understanding the reform process. Some fundamental and obvious rules in the NHI policy domain have been found. First, based on the relational perspective, the interactive pattern between these policy actors may set up a collective atmosphere such as social norm or interactive culture which can be seen as a kind of informal institution constraining policy actors' behaviours, It also makes the policy outcome become more predictable and acceptable. In comparison to information transmission and resource exchange networks, policy actors have more frequent information transmission relationships than in resource exchange in Taiwan's NHI policy domain. This finding receives support from Laumann and Knoke's (1987: 212-215; Knoke, 1994a: 164) argument on policy domain: "at the

heart of every policy domain analysis is the structure of its policy communication network". Although resource exchange relationships in the NHI domain are more likely to be concentrated around certain core policy actors, there do exist other isolated actors without any relationship with others.

The second main conclusion is that in addition to the administrative sector, the medical associations have also been playing important roles. Although they do not seem to have frequent mutual communicative connections with the leading actors, the DoH and the BNHI, have not been influential in the resource exchange network. By contrast, medical associations retained a crucial position by interacting reciprocally with influential actors (the DoH, the BNHI and some legislators) in the resource exchange network. This suggests that that they may be more capable in mobilising and manipulating valued political discourse to advocate for and reach their policy goals than other categories of policy stakeholders. From the indicators of the in-degree centrality value of professional knowledge and the participative initiative network showed in Table 6-4, they seem not only to be enjoying information asymmetry but also be involved actively in coping with NHI issues. The composition of the policy community (Marsh and Rhodes, 1992: 251) with high influence in policy processes is based on the triangular, reciprocal interactions between the government, the legislative sector (especially some legislators backed by the medical groups) and the medical associations.

The third main finding is that most insured participants such as the employee associations, employer associations, welfare NGOs, the scholars and the intermediate groups appear to be peripheral and minimally influential. An exception is one of the

welfare NGOs (#E2, the Taiwan Health Reform Foundation) who, although perceived to be highly influential in the resource exchange network, didn't seem to have frequent reciprocal connections with the policy community. Some of these policy stakeholders were isolated in the resource exchange; they were essentially inactive or expressed little interest in NHI issues. The roles of these in the issue network (Marsh and Rhodes, 1992: 251) pointed to little influence in the NHI policy domain.

From the analytical perspective of global network approach (positional approach), these 62 policy actors were categorised into eight structurally equivalent roles. The social distances between the eight blocks are not great, most blocks are located close to each other. With the exception of block F and most of the members of block H, they are all adjacent to block A, which includes influential key players such as administrative sectors of the DoH and the BNHI and medical associations. It seems that, with the exception of blocks F and H, all the blocks exhibit a very high degree of boundary penetration. This clearly shows that the power distribution in Taiwan's NHI policy domain has a fragmented and complicated interaction structure (with interest intermediation surrounding block A), a rather hierarchical or isolated arrangement among the blocks. Thus, both the relational and positional network analyses have confirmed that the administrative sector (the DoH and the BNHI) and the medical association are both leading key players in the NHI policy domain.

In sum, a major feature of Taiwan's universal healthcare system is the apparent existence of political cleavage between the insured (the employee associations, employer associations and welfare NGOs) and the alliance between the government (single payer), the legislators (some legislators backed by the medical groups) and the

providers (medical associations). Moreover, the insured lack appropriate channels to access and mobilise political resources for policy advocacy and interest intermediation. It seems that, although they do not have influence-power, employees associations and the welfare NGOs play their roles quite appropriate. Further, some legislators can be “veto players”. A more general feature of the political system is that election outcomes, which determine party control of national legislature and administration, are crucial in understanding interest intermediation and authoritative decision-making in Taiwan’s NHI policy domain. It seems that the interest intermediation can be maintained continuously if the alliance between the public sector and the medical associations are able to gain political support from the majority of the Parliament.

8-1-3. Role of the Government and the Political Obstacles of Reform Promotion

This study has been able to locate strategically significant key players, both at group level (e.g. a broker block or a gate role block referred to in Chapter 5) and the individual level (e.g. as mentioned in Chapter 6, efficient actors are those who can reach all other actors along the shortest path characterised by low cost and fewer brokers). The BNHI and the DoH (a representative of the government) are not only the most influential policy actors but are also well connected with most policy actors in the information transmission network, the resource exchange network and the action-set coalition. Furthermore, the indicators of betweenness centrality and structural holes suggests the DoH and the BNHI are also top policy actors as they possess most opportunities for brokering information transmission, resource intermediation and collective coordination and collaboration in the NHI policy domain. It also means that these two policy actors with professional NHI knowledge play the most important role

of leading and brokerage in sharing information, exchange resource and collaborate with others in the NHI policy domain. The environment of the NHI policy domain in Taiwan is essentially executive-led. By contrast, the 2G-NHI financing scheme and the double raise scheme have faced such a great resistance that they have not seen any success so far. Although the government plays an important role in managing NHI affairs, one cannot say that the government is strong enough to be able to manipulate the policy-making process in such an interest-fragmented policy network.

In Chapter 5, “image roles” were used to reveal more specific and clearer power patterns among blocks so as to reveal more details about the power distribution between these participants. It is seen that this approach enables more general interpretations (beyond empirically accurate descriptions) of the power structures at a given moment. One general conclusion is that the public actors (the DoH and the BNHI) and all of the medical associations not only have strong reciprocal connections in their information/resource exchange relationships but have also been playing very important roles in NHI reform. Their interaction in the NHI policy domain seems to have resulted in a “stable policy community (Marsh and Rhodes, 1992: 251)” made up of core leading actors in the policy reform. In addition, because of their position as veto players under Taiwan’s constitution the legislative sectors are important.

In Taiwan’s case, the public sector (the BNHI and the DoH) is the only authorised body with public power to maintain the operation of the NHI. They have more regulatory power to keep an eye on producers, and making procedural and, on occasion, substantive proposals. Based on their high in-degree centrality value, they can be seen as network activators arranging the interactions necessary to solve particular problems

or to achieve specific goals. Also, because of their high betweenness centrality and great structural holes, they can be seen as policy brokers while facilitating information communication and resource exchange or integrating different values and interests impinging on the policy processes. In collaborative action, they may have the ability to covenant, monitor and evaluate to achieve the positive outcomes of policy processes in a network-like environment.

Another important feature of the power structure in Taiwan's universal healthcare system is the obvious political cleavage between the insured (the peak employee and employer associations and welfare NGOs) and the alliance between the government (as the role of a single payer in running the NHI programme) and the providers (medical associations). Moreover, the insured lack effective channels to access and mobilise political resources for policy advocacy and interest intermediation. Employee associations and the welfare NGOs might be playing important roles but, because of their lack of access to other powerful policy participants, they do so without influence-power. In addition, a more general aspect of the political system, election outcomes, which determine party control of national legislature and administration, are crucial for understanding interest intermediation and authoritative decision-making in Taiwan's NHI domain. It is plausible that the interest intermediaries can be consolidated if the alliance between the public sector and the medical associations can gain political support from the majority of the congress.

8-1-4. Why the Promotion of the 2G-NHI Financing Scheme Failed

It seems that changes in the financing system arouse great concerns among all policy stakeholders. We have already noted that social networks among key players

have statistically significant consequences on reform promotion. According to the findings in Chapter 7, the 2G-NHI financing reform proposal has received a certain level of support from policy stakeholders, with most of the respondents recognising the ideas of equity and sustainability with regard to the overall proposal. This demonstrates their intention to support such measures as eliminating the system of classifying the insured parties (that have existed since the establishment of the Taiwanese Labour Insurance in 1950), and expanding the funding base for the NHI. Nevertheless, since most insured persons believe that the government must play a significant role in financing the NHI, the plans for sharing the contributions between the insured, the employed and the government have remained controversial.

Furthermore, mechanisms for deciding the insurance revenue and medical costs amongst the representatives of the insured have not yet been spelt out. It is also clear that very few employer associations agreed with the design of the new financing scheme with respect to calculating an employer's share of the contributions. In view of the fact that the employment relationship between employers and employees in Taiwan has become more flexible and diversified, it has become difficult to estimate the exact personnel fees of firms, and therefore difficult to fit this in with other reform proposals. It appears that this reform proposal exacerbates the conflict between the employer and employee.

As for the policy preferences of key players, as a whole, there was strong support for the reform proposal amongst the legislative and administrative policy actors who serve as core policy actors or brokers in coping with NHI affairs. However, this may be attributable to certain individuals simply being more familiar with the proposal than

others in these groups. Given that the insurance deficits have been an issue of major concern for many years, they may also have been attracted by the potential of the reform proposal in reducing the overall financial burden on the government.

Being in alliance with the administrative sectors, medical associations naturally agree with most of the measures in the reform proposal (see Chapter 7). However, given that they are mainly healthcare providers as opposed to insurance contributors, they have smaller stakes in the financing scheme. Healthcare providers in Taiwan are usually cohesive and share same policy preferences in the NHI policy domain. As for the medical associations, they all focus on the operating benefits derivable via healthcare provision. Thus, more than the new financing scheme, they are concerned with the cost containment mechanism - the GBP system. Intermediate groups play a crucial role in information transmission and mostly support the new financing scheme, albeit not with any real degree of strength.

Employee associations and welfare groups appear to be sceptical of the financing reform proposals, particularly that of placing financial responsibility on the insured parties. They have many issues with the proposed scheme. For example, disagree with the proposal to expand the funding, increasing insurable income at the expense of taxable income, as well as of how contributions based on personnel fees are calculated. Although they are in the periphery position and do not have influence- power in the NHI policy domain, the symbolical significance of their participation and representativeness of the insured may increase the political leverage they have to secure Parliament's support while resisting reform proposals.

In the case of the 2G-NHI financing scheme, the knowledge asymmetry related to

medical service and NHI finance between the insured groups and the providers may have been a serious problem. Some interviewees from the medical associations complained that the representatives of some insured groups are not professional enough to be able to cope with the NHI issues. They usually blindly oppose what they want to oppose; in particular, suggestions made by the providers. Some interviewees from the insured have reported negatively on many benefit-oriented proposals initiated by the providers. However, some interviewees from the insured groups also recognised that they did not have enough resources to study the reform proposals systematically. It is likely that they were unable to fully understand the contents of the reform proposals and, hence, had no idea how to strive for their own rights. According to the findings of Chapter 7, the representatives from the insured groups are often against the reform proposals based on their intuition that the new contribution rate of premium will increase their financial burden.

8-2. Policy and Theoretical Implications

8-2-1. Policy Implications

As for reform promotion, the evaluation of political feasibility of the reform proposal is a necessary and important stage. In assessing the political feasibility of reform proposals, I found that Taiwan's NHI programme had become an involved system encompassing a multiplicity of interests, so its promotion was facing challenges from several exclusive societal actors. As previously mentioned, engaging all policy stakeholders to participate in the policy process on an equal basis is a deciding factor in

getting a policy to be successfully adopted in a democratic society. Under the NHI Act, the triangular governance regime with equal partnership between the BNHI, the insured and the providers is at the core of NHI operations. However, the current power structure in the NHI domain seems to be obstructing the reform proposals and, in the process, damaging the welfare of the general public - especially of the disadvantaged minority in Taiwan. For instance, the reform in cost containment could be successfully updated to the GBP system, because this policy does not increase the burden on the general public and there are unimpeded communications and resource exchange channels between the government and the medical associations to achieve mutual agreement. However, the reform proposals related to increasing income for the NHI programme, which increase the general public's financial burden, are still being opposed intensely by the employee- and employer-associations and the welfare NGOs; there is also much negative public opinion reported by the mass media. Thus, from the viewpoint of network analysis, although both administrators and medical associations are the leading actors in the NHI reform (not including most other societal actors in the policy community), the promotion of the 2G-NHI financing scheme has so far ended in failure. In particular, owing to the political cleavage, the double raise scheme has been facing profound resistance from the general public and the Parliament.

Also, this study has crucial implications for public managers who are responsible for the operation of the NHI programme. As previously mentioned, the administrative agencies responsible for running the NHI sustainably can be looked upon as public managers of the NHI policy domain. My study has determined that public managers in question are DoH and the BNHI. Public managers need to acknowledge the complexity of social and policy networks and pay more attention to understanding the resulting

opportunities and drawbacks in promoting reform proposal, especially in network-like policy process environment. For instance, this study has found that policy actors with greater network in-degree centrality are in a strategic position from which they can access and mobilise more information and social support resources, which provide them with the direct access needed to increase their influence-power within the NHI policy domain.

In pursuing later-stage health reform, SNA is a useful research tool which can help to identify key players, or even key clusters of players, so that the public managers can be more focused and efficient in enhancing the overall political feasibility of the reform. However, to work effectively in the complex political environment surrounding the NHI reform, it is crucial for the network manager to balance the interests of the provider against those of the insured, especially when the manager is not in alliance with the provider and, hence, appears to be ignoring the insured's demands. Therefore, increasing the number of delegates from the insured and strengthening their right to speak through formal channels is a reform direction for the 2G-NHI system. It can be anticipated that the representativeness and legitimacy of collective decision-making can be improved by letting in more representatives of the insured in the policy community of the NHI domain. It is therefore pleasing that, with a view to promoting the 2G- NHI system, the government of Taiwan has recently taken action to form a new, triangular committee (namely the National Health Insurance Committee, the NHI committee) that includes the public sector, the insured and the provider. This move can be seen as an adoption of collaborative and equal partnership with a view to increase social consensus and accountability while linking NHI revenues and expenditures for sustainability. An interviewee from the DoH had this to say:

“The government has been aware the importance of social groups’ participation for expanding the legitimacy of reform promotions. The DoH has instituted a plan to establish the NHI committee to increase the representativeness of labour and social welfare groups. Future budgetary distribution and healthcare policies will be negotiated between medical groups and the insured in person to ensure the representativeness of the latter.” (Administrative sector A1)

All future reform proposals and expenditure negotiations will be discussed and planned in this committee. It can be anticipated that the new committee will reflect the greater institutionalisation among the triangular participants than the present. In converting this anticipation into reality, the public sector would need more managers with strong collaborative skills to engage with more social agencies and work together for achieving policy goals. Improved communications between the insured and the providers can be expected to moderate the political cleavage between the insured and the alliance between the government and the provider.

If the NHI programme is to be run by the NHI committee in the future, it is very important for the public sector to deal with uncertainties in the collaborative network in the NHI committee. Multiple stakeholders with diverse interests with respect to NHI affairs and their interactions will exacerbate the complexities and uncertainties associated with collaborative management and collective decision-making in the committee. It is important for public managers to be equipped with tools to regulate these. For example, if interactions within networks are systematically evaluated as inadequate, there may be something wrong at the network level. Evaluating network management is a necessary step for network managers in limiting interaction costs, building consensus and achieving a win-win situation and successful collective action.

Enhancing interactions within networks are sometimes viewed as a way of increasing the effectiveness of policies as well coming up with an effective method of problem solving (Glazbergen, 1995; Scharpf, 1978). To better understand the complexity and dynamics of committee members' networks, it is proposed that BNHI and DoH representatives develop the capability of mapping and understanding the network structure of the NHI committee not only by using social network techniques but also by applying frequent informal and formal feedback meetings with individual representatives. On the other hand, the network management strategies of the BNHI and the DoH committee members are necessary to manage uncertainties and decrease collective risks. A formal and institutionalised communication platform can be expected to facilitate frequent interactions between the representatives to mitigate information asymmetry and interest conflicts; thus building greater trust, collaboration and consensus in the committee. According to network theory, a frequent and cohesive interaction is one of the most important key elements of trust that can reach successful collective action (Klijn and Teisman, 2000: 97-98). Further, trust-building should be embedded in a stable and equal network environment (Klijn and Teisman, 2000: 97-98; Schuppert, 2011: 293).

In addition, the finding in Chapters 6 and 7 suggests that the knowledge gap between the insured and the providers had led to unfair participation. In order improve the effectiveness of the new, equal triangular NHI committee, the government should first increase the professional competence of the insured groups. One way of doing this is to allocate more financial and manpower resources to the delegates of the insured groups. In addition, since the public has a right for information and the government has the responsibility to ease related concerns, the government should try harder to deepen

the people's understanding of NHI operations and the logic behind the financial reform.

In conclusion, SNA is a useful research tool to display power maps and interdependency patterns among policy stakeholders. It is also as an excellent analytical method for systematically evaluating the political feasibility of policy-making and implementation. If the government occupies a central role in a policy network, it becomes easier for public managers to exercise their influence on other stakeholders in a cohesive manner. Once the government has achieved a significantly higher value of the structural-hole indicator, public managers will have more chances to manipulate valued information and political resource flow to redress the asymmetry in the participation of the committee members. On the contrary, if the government continues to maintain a peripheral position (like an issue network without influence in a policy network), the public managers should try to strategically access or collaborate with other influential stakeholders to promote reform proposals in policy processes. My finding is that SNA can be helpful for public managers who need to be a more skilful boundary-spanner with the objective of enabling a quicker and more productive consensus in a collective-action policy environment.

8-2-2. Theoretical Implications

Policy networks can be seen as social networks demonstrating how participants in the policy domain get involved in policy-influencing activities (Knoke, 1994a: 167, 2011: 211). Most past studies on policy networks utilised descriptive analyses and certain concepts drawn from typology. Most of these have been criticised for reducing the issues at hand to mere metaphors for describing the complex structure of a policy network (Dowding, 1995, 2001). Complicated political forces are depicted using SNA

in the social network structures of interest alignment and resource exchange in this study. The causal relationship between policy network structure (such as tight network community and loose issue network) can be systematically investigated by applying SNA. In my study, SNA has provided an understanding of the power pathways dominating in the policy process that is superior to that derivable from traditional state policy process approaches such as Marxism, pluralism, elitism, or corporatism while analysing the actors' interconnected exchange relationships in the policy domain. The associated social network mapping can be useful for examining how NHI policy makers in Taiwan interact and influence each other. The visual nature and systematic approach underpinning social network mapping is capable of providing meaningful insights for policy makers and programme managers regarding how one could implement strategies for engaging important stakeholders or managing interactions of particular significance in collaboration with other stakeholders. Both issue interests and stakeholder influences significantly affect their communication, resource exchange and collaborative network position; those with broader policy interests and higher influence reputations are found to be located in more prominent positions in the NHI network. Compared with the traditional state policy process approaches, SNA provides a flexible and scientific research method for assessing political feasibility from the perspective of social structure, which has to be taken into account in order to fully understand how a policy network structure operates.

Despite the fact that SNA benefits and expands the use of policy network theory, it is worth noting that the application of SNA in policy network studies also faced some criticism. First, network analysis has proven to be inadequate in providing fully determined causal analysis of particular networks in structural terms (Dowding, 1995:

158). According to the discussion of Coleman's structure-agency link model, there may be a mediating mechanism (like how network structure shapes individuals' brief and strategic behaviours in a network) between network structure and collective outcome. Second, methodological concerns about the selection of the members in a network, the reliability of the responses and bias in the application of technologies may be a big issue in the application of SNA. For instance, some previous studies on organisational behaviour revealed that the investigators may face the risk that the respondents incidentally mix up or confuse the measurements of instrumental and expressive relationships in the survey (Krackhardt and Hanson, 1993; Karckhardt and Stern, 1988). It may also lead to a theoretical problem while clarifying the differences and effects between them. Third, although network structure is stable (Knoke, 2011; Laumann and Knoke, 1987, 1989), SNA merely shows a narrow snapshot of interactions among key players rather than the complex dynamics of policy processes. Thus, it is really hard to get the whole picture between the change of network structure and policy outcome.

All the criticisms discussed above may be the limitations in applying SNA. However, like other research methods, researchers must take care in identifying the network and its boundaries and samples, be aware about changes over time and use their knowledge about the research context to make sensible judgments (John, 2004: 147-148). In studying network structure, applying SNA techniques is better than not just running computer and statistical software involving Likert scales measuring network perceptions but also carrying out rough interviews in present policy network studies (John, 2004: 147-148). This thesis may therefore provide a methodological invention for empirically gauging political networks through SNA.

Second, those scholars studying the role of state in welfare and health policy reforms have mostly depended on analyses based on Marxism, pluralism, corporatism, or a historical perspective. Further, very few academics have studied the policy domain in Taiwan. Policy outcomes are not products limited by the social class or the macro historical force structure. Rather than reflecting just the class interests, historical legacies and the clarity or otherwise the limited bargaining-negotiation system, my research sees policies as resulting from contradictions and collaborations among multiple stakeholders embedded in the scenario of collective action. This thesis has contributed to the literature on the studies of healthcare reform by responding to the persistent calls for the integration of the policy network model into SNA (John, 2004; König). The goal was to clarify collective participating activities and relationships, and thus deepen the understanding of how healthcare financial sustainability in Taiwan is influenced by interactive forces between state power and other societal stakeholders. For instance, I have empirically verified that the triangle governance mechanism in the NHI operation is not balanced and equal. I have also shown that the representatives of the insured, especially some employee's associations and welfare NGOs, are weak in impacting policy outcomes. In all this, I acknowledge that the participations and opinion expressions by all the stakeholders continue to be necessary for increasing governmental legitimacy while maintaining the NHI programme. This contention is supported by empirical finding that the largest stakeholders in the NHI operation, the seemingly weak insured, can become much stronger if the various recommendations I have made are implemented. The third theoretical contribution of this thesis lies in the proposed alternative approach to the study of healthcare policy reforms in East Asian societies, and in Taiwan in particular. Firstly, because of the political sensitivities

associated with healthcare politics, this is something rarely attempted by Taiwanese scholars. My analytical results can increase the understanding of current reform deadlock in the NHI policy domain. Secondly, as empirically illustrated in this thesis, state power in Taiwan has been heavily influencing the NHI reform policy domain at both the institutional and network levels. This situation has many similarities with healthcare operations experimented with in other East Asian countries such as South Korea and Japan. Most of these countries had faced a need for welfare state expansion in the 1990s; and they were all seen as developmental states experiencing analogous political developments and economic growth patterns (Ng, 2008).

The patterns of state-society relations in most East Asian states are fundamentally different from those in the West. As discussed in section 1-2-1, most East Asian states can be seen as developmental welfare states; where the lines between public and private, government and market, often get blurred (Ng, 2008). The authoritarian governments in Taiwan, South Korea and Japan attempted to legitimise their rule through successful economic development and welfare expansion since 1980s. This is why Taiwan and other East Asian countries favoured state intervention, instead of letting the market do the job. As for economic growth, the states established incentives and disincentives to direct private investment. In turn, the resulting success reinforced state legitimacy and maintained social order. It seems that state legitimation stems from its policy achievements, rather than the way it came to power. The Taiwan government had established incentives to encourage the medical associations to play the roles of healthcare providers. Successful healthcare provision in turn reinforced the legitimacy of the government. The development of social welfare in Japan and South Korea expansion between 1990s and 2000s followed a similar path (Kwon, 2007; Peng and

Wong, 2004). The lesson from Taiwan's experience may have pointers for other renowned but traditional welfare systems in these developmental state nations.

8-3. Limitations and Suggestions for Future Studies

Although the insights gained from this study are important, it displays severe limitations. The results cannot be generalised due to the research context and the small sample size. The latter might be the reason that network centrality approached only a marginal significance level in the regression model in Chapter 7. This also indicates that I cannot make claims about the direction of causation. Furthermore, the data was collected from three important policy events as a policy domain in Taiwan. Future studies will do well to verify the findings from studies involving much larger samples collected from different research contexts. Further, more comparative studies in other countries should be useful in determining if larger context factors such as culture, society or political institutions influence the relationships between social networks and collective effectiveness in the policy outcomes in different policy domains.

Secondly, as mentioned above, the regression and pathway model of social networks and the policy outcome of the 2G-NHI financing scheme has raised another methodological problem. In this context, the discussion of these social networks among policy stakeholders was collected from the participants in three important NHI financial reform events between 2000 and 2008 when the DPP was in power whereas my interviews were conducted between 2010 and 2011. Also, the comprised policy outcome of the 1.5G-NHI financing scheme was known much later in 2012. Although these participants are the same policy actors, policy domain approach assumes that the

interaction among policy participants, their interests and strategies are stable. The robust network-like policy environment (not easy to change during a period of the ruling party was in power) has a significant impact on the collective policy outcomes (Laumann and Knoke, 1987, 1989; Knoke, 1994a, 2011), the time gap between the data collection of social networks and the result of policy outcomes will damage the explanatory power of the model. This methodological issue should be noted in further network research.

Thirdly, as indicated in Chapter 4, it is necessary to address the limitation of “self-reported network data” that can, at times, reflect a “far-from-complete correspondence between survey reports of interaction frequencies (“cognitive” data) and contemporaneous observations (“behavioural” data) (Marsden, 2005). Albeit with caution, we may assume that self-reported network relationships are accurate and valid. Although my network survey was conducted in person, the network data were gleaned from self-reported interactions with other participants in my interview list. Romney and Weller (1984: 59-77) discovered that as the reliability of the informant increases, so too does the accuracy of the responses. Corman and Bradford (1993), however, found that highly connected actors, with numerous interactions, were more apt to inaccurately report their social relationships. Unfortunately, although it is impossible to eliminate inaccuracies entirely in self-reporting, it is important to bear in mind that responses about relationships given by each actor in a network are more valid than those given by third-party informants. This is the reason why SNA seems looser and more flexible compared to other quantitative or qualitative methods (Bondonio, 1998; Carley and Krackhardt, 1996; Kilduff and Krackhardt, 1994; Killworth and Bernard, 1976; Mouton *et al.*, 1955a, b).

Some limitations of this study are related to the measurement of social networks in the policy processes. Research on national or local community political systems suggests that three generic relationships are especially significant in identifying social structure in the policy domain: information transmission, resource transactions and boundary penetration (Laumann and Knoke, 1987, 1989). Although this research focuses on the effects of communications, resource exchanges and collaborative interactions among participants, other crucial relational concepts such as mutual trust and professional consultation in the NHI affairs are also significant in policy processes and activities and should be considered in future studies.

Another possible limitation of this study relates to boundary identification. Since I had sampled 62 key participants by applying the event participation approach in combination with the positional and reputational approaches, I might have missed some key persons or organisations such as the prime minister and the president between 2000 and 2008. It is not improbable that these persons had exerted significant influence on NHI's. However, two reasons prompted me to neglect their roles: (1) the DoH and the BNHI are supervised by the Executive Yuan and the president, and can be assumed to stand on the same policy stance; (2) it is very hard to interview previous premiers and presidents; one of the previous presidents has been convicted for embezzlement and is in prison right now. The lesson is that the influential political elites should be considered whenever they are accessible.

My interview list had not included broadcast media, which may have played important roles in information transmission between the public and the policy actors. There were two reasons for the exclusion: (1) no official and unofficial documents and

the participants in the interview list indicated that broadcast media were important, in practice, to NHI reform; (2) there were more than 100 channels and 15 news stations in broadcast media in Taiwan - their interviews could well have complicated my research unduly. In view of the large-scale of Taiwan's broadcast media, it is very hard to interview all of them. Further, it is often said that, because they play such an important role in determining the fortunes of political candidates and issues, mass media can be viewed as the fourth branch of the government. Access to information is essential to the health of a democracy, especially on major policy issues involving well-informed professionals. It ensures that citizens make responsible, informed choices rather than acting out of ignorance or misinformation. The investigation of broadcast media should be considered in similar future surveys.

Finally, future studies are likely to do well by collecting time-series data throwing light on interactive activities in policy processes. A policy domain can be seen as a set of actors with major concerns about the substantive area, whose preferences and actions on policy events must be taken into account by other domain participants (Laumann and Knoke, 1987, 1989). A policy domain can be seen as a bounded system whose members are interconnected by multiple policy networks (Knoke, 2011: 211). The network data collected from the three different policy events cover three different periods in the NHI policy domain that may have the potential to misinterpret the stable interactions observed among the key players during the period in question (the period of the DPP government). However, one important criticism is that network data, by themselves, show no more than a narrow snapshot of the interactions among key players rather than providing real information about time-serial dynamics of network structures. Further, the policy domain approach cannot clarify the dynamics of these three different policy

events taking place in distinct environments. The lesson is that future studies should collect time-series data of dynamic features of policy network studies.

8-4. Conclusion

It goes without saying that the most suitable descriptions of welfare politics in the national healthcare system are “limited resources and unlimited wants”. Due to competitive political structures and financial crisis, the planning of the 2G- NHI reform programme and other financially sustainable proposals arose immediately after the transition from the first ruling political party in 2000. This transformation of political structure had not only created differences in policies but also affected the transition in the governance structure of the NHI of the moment. On the other hand, as for the NHI governance structure, the entire implementation of the global budget system in Taiwan since 2002 has been based on collective negotiations between the healthcare providers and the government, in order to reasonably restrain the medical expenditures involved in carrying out the NHI obligations. This meant that the original NHI financial system, especially on the expenditure side, which was controlled by the government, got successfully transformed into a co-governance pattern, with the state and healthcare organisations sharing in the responsibility.

In the meantime, the other financial reforms, the double raise scheme and the new financing scheme, attempted to sustain the NHI financially by improving the co-payment and revenue mechanisms, which were in the process of planning but were subjected to more political pressure from numerous policy stakeholders. As Laumann and Knoke (1987: 5) argue, state policies are the product of complex interactions among

government and nongovernment organisations, each seeking to influence collectively binding decisions that have consequences in light of their own interests. Hence, it would be a mistake to look at the issue of financial sustainability in isolation. While the public sector remains dominant in many of the areas in healthcare provision, it is not inconceivable that they are better off playing smaller roles in some cases. In other words, different policy domains have specific rules of game and different governance mechanisms can be shaped in unique policy scenarios. Thus, it should be clear that there is little possibility for the public sector embedded in distinct policy environments to maintain consistent influence and power in these different cases. In the case of the NHI policy domain, the participants of the insured with disadvantaged positions can obstruct the intention of strong and powerful alliance between the public sectors and the providers. It also means that, in order to promote the NHI financial reform smoothly, the participation and opinions of the insured should not be excluded while designing the institutional setting.

Finally, the issue of healthcare sustainability is rarely a finished business. The use of SNA can facilitate a systematic evaluation of political feasibility and benefit collaboration, resource generation and support extension in the course of the reform processes. Influence networks revealed by SNA can shed light on who is actually driving the decision-making. Such knowledge can foster faster adoption of the new 2G-NHI programme in a manner consistent with the country's priorities. It should be useful if the findings could also be applied in the management of issues and stakeholders while pursuing a more sustainable universal healthcare system - in real politics.

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Appendix 1. Network Questionnaire

Personal and Confidential: Your name is a required field for computer analysis. However, confidentiality of your responses will be strictly maintained. All results will be shared in summary form only. Individual responses will remain anonymous; only one researcher (Guang-Xu Wang) will have access to your information.

Gender: F M

Age: _____

Education level:

(1) Undergraduation completed (2) Postgraduation completed (3) PhD completed

The major of the highest level:

(1) Art (2) Law (3) Social Science (4) Business
(5) Science and Engineering (6) Medical Science (7) Others

Experience of study abroad: (1) No (2) Yes

For how long did you attend the policy event: _____ / month

Did you have any formal position or office in the NHI committee or the DoH and the BNHI between 2000 and 2008: (1) No (2) Yes

Do you have any formal position or office in the NHI committee or the DoH and the BNHI at this moment: (1) No (2) Yes

Section: Perception and Attitude on the General NHI Affairs

1. The NHI system should be totally “physically examined” .

- (1) Strongly Disagree
- (2) Disagree
- (3) Neutral
- (4) Agree
- (5) Strongly Agree

2. The imbalance between revenue and expenditure of the NHI system is an abominable issue for it to sustain.

- (1) Strongly Disagree
- (2) Disagree

-
- (3) Neutral
 - (4) Agree
 - (5) Strongly Agree
-

3. In order to sustain the NHI system, the NHI financing scheme should be reviewed and redesigned.

- (1) Strongly Disagree
 - (2) Disagree
 - (3) Neutral
 - (4) Agree
 - (5) Strongly Agree
-

4. In order to sustain the NHI system, the GBP system should be reviewed and redesigned.

- (1) Strongly Disagree
 - (2) Disagree
 - (3) Neutral
 - (4) Agree
 - (5) Strongly Agree
-

5. In order to sustain the NHI system, the co-payment scheme should be reviewed and redesigned.

- (1) Strongly Disagree
 - (2) Disagree
 - (3) Neutral
 - (4) Agree
 - (5) Strongly Agree
-

6. The NHI reform in Taiwan has always been a political issue rather than a technique.

- (1) Strongly Disagree
 - (2) Disagree
 - (3) Neutral
 - (4) Agree
 - (5) Strongly Agree
-

Section: Perception and Attitude on the 2G-NHI Financing Scheme

1. The classification system should be eliminated.

- (1) Strongly Disagree
- (2) Disagree
- (3) Neutral
- (4) Agree
- (5) Strongly Agree

2. Premiums should be calculated according to taxable income.

- (1) Strongly Disagree
 - (2) Disagree
 - (3) Neutral
 - (4) Agree
 - (5) Strongly Agree
-

3. Premiums should be pre-deducted on the basis of a hypothetical contribution rate.

- (1) Strongly Disagree
 - (2) Disagree
 - (3) Neutral
 - (4) Agree
 - (5) Strongly Agree
-

4. Representatives of the insured should collectively decide the scope of benefits and the level of premiums.

- (1) Strongly Disagree
 - (2) Disagree
 - (3) Neutral
 - (4) Agree
 - (5) Strongly Agree
-

5. A top limit should be set for NHI premiums.

- (1) Strongly Disagree
 - (2) Disagree
 - (3) Neutral
 - (4) Agree
 - (5) Strongly Agree
-

6. A bottom limit should be set for NHI premiums.

- (1) Strongly Disagree
 - (2) Disagree
 - (3) Neutral
 - (4) Agree
 - (5) Strongly Agree
-

7. The government's contribution should be calculated based on formulae with fixed parameters, including growth rates in GDP and medical expenditure.

- (1) Strongly Disagree
 - (2) Disagree
 - (3) Neutral
 - (4) Agree
 - (5) Strongly Agree
-

8. The employers' contribution should be based on a certain percentage of personnel fees in firms.

- (1) Strongly Disagree

-
- (2) Disagree
 - (3) Neutral
 - (4) Agree
 - (5) Strongly Agree
-

Section: Network Survey

From memory: Please select names of up to 5 people or organisations that are important in the following three connection type from the list I show you. (show the list like Card A to respondent: explain this list shows the participants in three important policy events between 2000 and 2008 (show the event list like Card B), and ask them to tick up to five actors in the following questions)

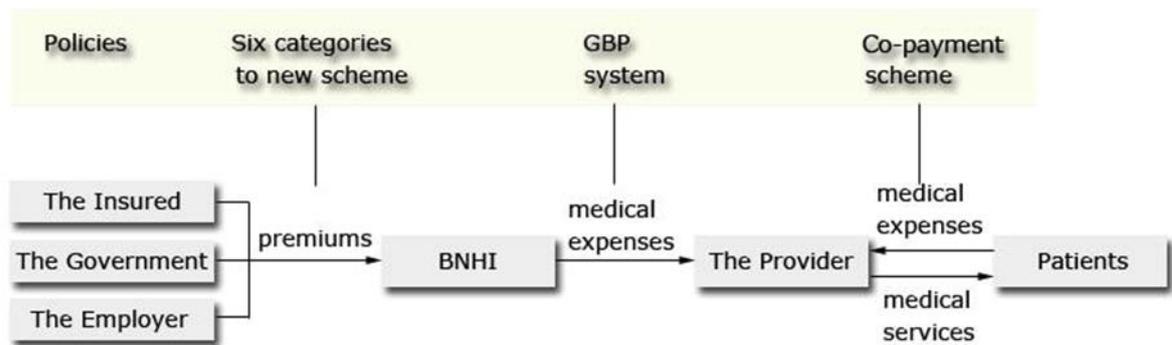
1. The people (organisations) on the list are important in providing you with information or exchange information with you.
(1)._____ (2)._____ (3). _____ (4). _____ (5). _____
2. The people (organisations) on the list can support your activities such as voting for your proposal under a reciprocal principal.
(1)._____ (2)._____ (3). _____ (4). _____ (5). _____
3. The people (organisations) on the list can collectively act with you for achieving common goals of the NHI policy formulation and implementation.
(1)._____ (2)._____ (3). _____ (4). _____ (5). _____
4. Please select up to five people (organisations) who are most influential in the NHI policy domain or three policy events (specify the event).
(1)._____ (2)._____ (3). _____ (4). _____ (5). _____
5. Please select up to five people (organisations) who most motivated (actively participate and get deeply involved in the NHI policy domain) or three policy events (specify the events).
(1)._____ (2)._____ (3). _____ (4). _____ (5). _____
6. Please select up to five people (organisations) who are most knowledgeable (who has comprehensive understanding about the policy issue) in the NHI policy domain or three policy events (specify the event).
(1)._____ (2)._____ (3). _____ (4). _____ (5). _____

Card A: Major Policy Participants in the NHI Policy Domain

Category	No	Title	Category	No	Title
Administrative Sector	A1	Department of Health	Welfare NGOs	D8	Taiwan Labour Union
	A2	Ministry of Civil Service		E1	Consumers' Foundation
	A3	Ministry of the Interior		E2	Taiwan Health Reform Foundation
	A4	Ministry of Finance		E3	League of Disable Groups
	A5	Council of Labour Affairs	E4	NHI Supervision League	
	A6	Directorate General of Budget, Accounting and Statistics	Medical Associations	F1	Taiwan Medical Association
	A7	Ministry of Economic Affairs		F2	The National Union of Pharmacist Associations
	A8	Taipei City Government		F3	China Dental Association
	A9	Kaohsiung City Government		F4	The National Union of Chinese Medical Doctors' Associations
	A10	Bureau of the NHI		F5	Taiwan Hospital Association
				F6	Taiwan Community Hospital Association
Legislative Sector	B1	Legislator A	Intermediate Groups	G1	United Daily News
	B2	Legislator B		G2	Daily News
	B3	Legislator C		G3	China Times
	B4	Legislator E		G4	Liberty Times
	B5	Legislator F		G5	DPP Policy Section
	B6	Democratic Progressive Party (DPP) Caucus		G6	KMT Policy Section
	B7	Kuomintang (KMT) Caucus		G7	PFP Policy Section
	B8	People First Party (PFP) Caucus		G8	Alliance of Fairness and Justice
	B9	Taiwan Solidarity Union (TSU) Caucus			
Employer Associations	C1	The Chinese National Federation of Industries	Scholars	H1	Prof. A
	C2	The Chinese National Federation of Commerce		H2	Prof. B
	C3	The Chinese National Association of Industry and Commerce		H3	Prof. C
	C4	National Association of Small and Medium Enterprises		H4	Prof. D
	C5	Association of Public Enterprises		H5	Prof. E
Employee Associations	D1	Chinese Federation of Labour		H6	Prof. F
	D2	Taiwan Confederation of Trade Unions		H7	Prof. G
	D3	Chinese General Federation of Craft Unions		H8	Prof. H
	D4	Taiwan Provincial Fishermen's Association		H9	Prof. I
	D5	Taiwan Provincial Farmers' Association		H10	Prof. J
	D6	Committee of Action for Labour Legislation		H11	Prof. K
	D7	Chinese General Labour League		H12	Prof. L

Card B: Three Important Event List

1. Promotion of the 2G-NHI financing scheme
2. The Global Budget Payment System implementation
3. Promotion of the new co-payment scheme (can also be called double raise scheme)



Note: In order to get more valid information to maintain consistency among all interview participants, please answer these items with reference to your attendance experiences during the DPP government, in particular.

Appendix 2. Interview Procedure Guide for Network Survey

Interview format

(The following are some tips to conduct a good interview. However these can be modified to use in a semi-structured interview).

1. Introduce yourself.
2. Explain to them the reason for the interview.
3. Confidentiality re-statement – Tell them you are not going to record any names.
4. Be prepared. Have the interview questions ready and phrase them so that you obtain as much information as possible.
5. Make them feel comfortable and encourage them to open up and feel free.

Introduction

Thank you very much for accepting my interview. I hope you will find this conversation about social networks interesting, and I am confident that what we learn from this research will help all individuals who are directly affected by the healthcare policy of Taiwan and hopefully, the research findings can help modify the terms of the service in such a way that all citizens can enjoy an improved healthcare service.

Personal details

I am a doctoral student and a researcher in the research team of the HNI financing reform project sponsored by the BNHI, the DoH and the NSC. In this project, my role is to assist the principal investigator to design the research, collect and analyse data, in particular, I am coming in to study the policy networks among policy participants in this case. ‘Network refers to everyone who might be involved in the policy process and intend to construct a stable interactive relationship to advocate their own interests and relevant activities.

(When I talk about the “network”, I will show the network diagram of their network so they can picture networks as relationships)

Objective

The reason behind the interviews is to gather information on how networks and communications work in the policy process of NHI policy domain, specifically to find out if there are any specific behaviours that encourage or discourage networking. Our objective for this interview is to find out about your involvement in NHI policy making - your observations and experiences about policy-making and implementation process. We are not going to focus on networking tools like instant messaging. Instead, we want to focus on the attitudes and behaviours that you have observed and experienced.

Confidentiality

I will be interviewing 62 people in total, and the information from all the interviewees will be compiled into one report. Nothing you say will ever be used against you. All information obtained will be treated with utmost confidentiality. If you have any questions or doubts you want to clear before the interview, please feel free to ask.

(Wait 30 seconds to see if they have any questions. Then turn on the recorder)

Questionnaires

Let us start to read the questionnaire. As you can see, the questionnaire focuses on the issue of the NHI financial affairs and attempts to understand your opinion on this issue. Also, and the most important part, is network questionnaire to explore the interactive relationships among policy actors in the policy process. In order to answer this part of the question, you should have a look at the participant list and tick the appropriate participant who has a close relationship with you. These relationships can be information transmission relationship, resource-exchange relationship (like voting), and action-set coalition network.

(Explain more about some words if the interviewee cannot understand or find them to be sensitive to answer).

Examples of Interview questions

- Please describe some specific attitudes or behaviours, which you have observed or experienced in policy process of the 2G-NHI financing scheme case or others.
- What encourages or discourages people's behaviours from getting involved in policy networks?
- Of the topics we have discussed around interactive network in policy process, what

attitudes or behaviours do participants who are involved in the policy making demonstrate most often?

- Is there a culture in this policy domain that supports *going to others for information*, and what have you observed or experienced that leads you to believe that?
- Is networking among the stakeholders an important factor to impact the policy outcome?
- In your opinion, have you ever been influenced because of the relationship you have with others in the group? How does your colleague react with your standpoint and decision on this issue? What impact does he have on your decision making?
- What are your feelings about giving or getting information from others on this issue?

Appendix 3. Demographic Characteristics of Respondents

This research identified policy makers including official actors, unofficial actors and mediators as the population. Comparisons based on gender and age are made. Among the subjects, female are 17.74% (11), male are 82.26% (51). This means that male members occupied a dominant role in the policy-making process. With regard to age, there is no respondent under age 20. Subjects from ages 21-30 are 1.61% (1), 31-40 are 14.52% (9), 41-50 are 25.81% (16), 51-60 are 40.32% (25) and above 60 are 17.74% (11). In terms of educational level, doctorate level are 19.35% (12) are at a doctorate level; 46.77% (29) are at a master's level; undergraduate level are 33.87% (21). Looking from the point of highest degree obtained and comparing areas of study, 1.61% (1) is from the Arts field, 16.13% (10) from Law, 30.65% (19) from social Sciences, 8.06% (5) from Business, 4.84% (3) from Science and Engineering, 33.87% (21) from Medical Sciences and 4.84% (3) from other areas. When comparing subjects who had overseas study experience with those who do not, only 33.87% (21) had overseas education and 66.13% (41) studied locally.

Demographic Characteristics of Respondents (n=62)

	Category	Frequency	Percentage
Sex	Males	51	82.26
	Females	11	17.74
Age	21-30	1	1.61
	31-40	9	14.52
	41-50	16	25.81
	51-60	25	40.32
	Upper 60	11	17.74
Education level	Completed undergraduate	21	33.87
	Postgraduate completed	29	46.77
	PhD degree	12	19.35
Highest degree	Art	1	1.61
	Law	10	16.13
	Social Science	19	30.65
	Business	5	8.06
	Science and Engineering	3	4.84
	Medical Science	21	33.87
	Others	3	4.84
Experience of study abroad	No	41	66.13
	Yes	21	33.87

Source: author

Appendix 4. Research Ethic Checklist

School of Sociology & Social Policy

Research ethics checklist for staff and students

This form must be completed for all research projects, research assignments or dissertations/theses which are conducted within the School and involve human subjects. You must not begin data collection or approach potential research participants until you have completed this form, received ethical clearance, and submitted this form for retention with the appropriate administrative staff.

If the study is based only on a review of documentary sources and involves NO fieldwork of any sort, then this form does not need to be completed.

Completing the form includes providing a brief summary of the research in Section 2 and ticking some boxes in Section 4. Ticking a shaded box in Section 4 requires further action by the researcher. Two things need to be stressed:

- Ticking one or more shaded boxes does not mean that you cannot conduct your research as currently anticipated; however, it does mean that further questions will need to be asked and addressed, further discussions will need to take place, and alternatives may need to be considered or additional actions undertaken.
- Avoiding the shaded boxes does not mean that ethical considerations can subsequently be 'forgotten'; on the contrary, research ethics need to be informed - for everyone and in every project – an ongoing process of reflection and debate.

The following checklist is a starting point for an ongoing process of reflection about the ethical issues concerning your study.

SECTION 1: THE RESEARCHER(S)

To be completed in all cases

Title of project:

Name of principal researcher: Guang-Xu Wang

- Status: Undergraduate student
 Postgraduate taught student
 Postgraduate research student
 Staff

Email address: guangxu.wang@gmail.com

Names of other project members:

To be completed by students only:

Student ID number: 4067105

Degree programme: PhD in Social Policy and Administration

Module name/number:

Supervisor/module leader or tutor: Prof. Ian Shaw and Prof. Lina Song

SECTION 2: RESEARCH WITHIN OR INVOLVING THE NHS OR SOCIAL CARE

Does this research involve the recruitment of patients, staff, records or other data through the NHS or involve NHS sites or other property?

- Yes
- No

If you have answered YES to the above question, ethical approval MUST be sought from the relevant NHS research ethics committee. Evidence of approval from such a committee MUST be lodged with the School office prior to the commencement of data collection.

Does this research involve the recruitment of users, staff, records or other data through social service authorities (children and adult services) or involve social service sites or other property?

- Yes
- No

If you have answered YES to the above question, then you must check whether or not the relevant social service authority has its own ethical scrutiny procedures. If appropriate, evidence of approval from such an authority MUST be lodged with the School office prior to the commencement of data collection.

Where external ethical approval has been obtained from a NHS committee or social service authority completion of this form is optional.

SECTION 3: THE RESEARCH

Please provide brief details (50-150 words) about your proposed research, as indicated in each section

1. Research question(s) or aim(s)

The research endeavours to explore political cleavages and power relations through examining three representative cases of the NHI domain in financial reform. By doing so, the study aims to assess the NHI's financial reform in the past decade and provide possible policy recommendations to manage these policy networks. Furthermore, looking at it from the network perspective, it is essential to inquire how these reform proposals, embedded in a complex communicative and resource-exchange structure of interdependencies; has been affected by interaction among the government bureaus, healthcare associations, employers, mass media, pharmaceutical associations, labour unions, congressional committees, academia, and so on. In particular how do policy networks form, work and affect the policy outcome.

2. Method(s) of data collection

1. Documentary literature collection
2. Social network questionnaires
3. Semi-structured interviews

3. Proposed site(s) of data collection
1. For documentary literatures, the sites of data collection are the BNHI and DoH libraries, Taiwanese National Library, digital databases.
 2. For social network data, in participants' office or the place they arrange for the network survey.
 3. For semi-structured interviews, in participants' office or the place they arrange for the interview.

4. How will access to participants be gained?
- Three ways will be adopted:
1. Personal direct relationships, by phone or e-mail.
 2. Other interviewees' personal relationships to introduce other appropriate participants.
 3. Ask help from the staffs in the DoH and BNHI and access to participants by official channels.

SECTION 4: ETHICAL CONSIDERATIONS

Please answer each question by ticking the appropriate box. All questions in section 4 must be answered.

4.1 General issues

	Yes	No
Will this research involve any participants who are known to be vulnerable due to: Being aged under 18? Residing in institutional care (permanently or temporarily)? Having a learning disability? Having a mental health condition? Having physical or sensory impairments? Previous life experiences (e.g. victims of abuse)? Other (please specify)...		v
Will this research place participants at any greater physical or emotional risk than they experience during their normal lifestyles?		v
Will this research involve any physically invasive procedures or the collection of bodily samples?		v
Will this research expose the researcher to any significant risk of physical or emotional harm?		v
Will this research involve deception of any kind?		v
Will this research involve access to personal information about identifiable individuals without their knowledge or consent?		v
I will inform immediately the School's Ethics Officer if I change the method(s) of data collection, the proposed sites of data collection, the means by which participants are	v	

accessed, or make any other significant changes to my research inquiry		
--	--	--

4.2 Before starting data collection

	Yes	No
I have read the <i>Research Code of Conduct</i> guidelines of the University of Nottingham, in particular sections 3 and 4, and agree to abide by them: http://www.nottingham.ac.uk/ris/local/research-strategy-and-policy/research-governance.php	v	
I have read the <i>Data Protection Policy and Guidelines</i> of the University of Nottingham and agree to abide by them: Policy - http://www.nottingham.ac.uk/%7Ebrzdpa/local/dp-policy.doc Guidelines - http://www.nottingham.ac.uk/~brzdpa/local/dp-guidance.doc	v	
My full identity will be revealed to all research participants	v	
All participants will be given accurate information about the nature of the research and the purposes to which the data will be put	v	
All participants will freely consent to take part, and this will be confirmed by use of a consent form. (An example of a consent form is available for you to amend and use.)	v	
One signed copy of the consent form will be held by the researcher and another will be retained by the participant	v	
It will be made clear that declining to participate will have no negative consequences for the individual	v	
It will be made clear that participation is unlikely to be of direct personal benefit to the individual	v	
Participants will be asked for permission for quotations (from data) to be used in research outputs where this is intended	v	
Incentives (other than basic expenses) are offered to potential participants as an inducement to participate in the research. (Here any incentives include cash payments and non-cash items such as vouchers and book tokens.)		v
For research conducted within, or concerning, organisations (e.g. universities, schools, hospitals, care homes, etc) I will gain authorisation in advance from an appropriate committee or individual. (This is in addition to any research ethics procedures required by those organisations, particularly health and social care agencies – see Section 2.)	v	

4.3 During the process of data collection

	Yes	No
I will provide participants with my University contact details, and those of my supervisor, so that they may make get in touch about any aspect of the research if they wish to do so	v	
Participants will be guaranteed anonymity only insofar as they do not disclose any illegal activities	v	

Anonymity will not be guaranteed where there is disclosure or evidence of significant harm, abuse, neglect or danger to participants or to others	v	
All participants will be free to withdraw from the study at any time, including withdrawing data following its collection	v	
Data collection will take place only in public and/or professional spaces (e.g. in a work setting). If fieldwork takes place in the respondent's home please outline in Section 6 what steps will be taken to ensure your safety. You may wish to consult the SRA researcher safety guidelines: http://www.the-sra.org.uk/staying_safe.htm	v	
Research participants will be informed when observations and/or recording is taking place	v	
Participants will be treated with dignity and respect at all times	v	

4.4 After collection of data

	Yes	No
Where anonymity has been agreed with the participant, data will be anonymised as soon as possible after collection	v	
All data collected will be stored in accordance with the requirements of the Data Protection Act 1998	v	
Data will only be used for the purposes outlined within the participant information sheet and consent form	v	
Details which could identify individual participants will not be disclosed to anyone other than the researcher, their supervisor and (if necessary) internal and/or external examiners without their explicit consent	v	
I will inform my supervisor and/or the School's research ethics officer and (if necessary) statutory services of any incidents of actual or suspected harm of children or vulnerable adults which are disclosed to me during the course of data collection	v	

4.5 After completion of research

	Yes	No
Participants will be given the opportunity to know about the overall research findings	v	
Data must be submitted to the School office and will be retained (in a secure location) for 7 years from the date of any publication based upon them, after which time it will be destroyed.	v	
All hard copies of data collection tools and data which enable the identification of individual participants will be destroyed	v	

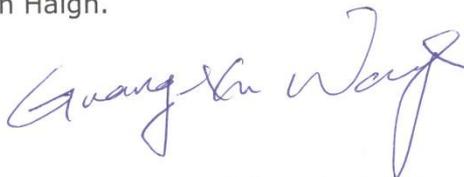
SECTION 5: ETHICAL APPROVAL

Declaration of ethical research

1. **If you did not tick any of the shaded boxes in section 4 of this form**, please sign and date below **and** get the checklist countersigned (see below).

Keep one copy of this form for your personal records and hand another to Alison Haigh in the School office who will keep it on file.

By signing this form you are agreeing to work within the protocol which you have outlined and to abide by the University of Nottingham's Code of Research Ethics. If you make changes to your protocol which in turn would change your answers to any of the above questions then you **must** complete a new form and submit a copy to Alison Haigh.

Signed 

Date 07/05/2009

2. **If you ticked any of the shaded boxes in section 4 of this form, then you must complete SECTION 6 (overleaf).** You must then discuss all ethical issues arising, record the outcome and have this form countersigned (see below)

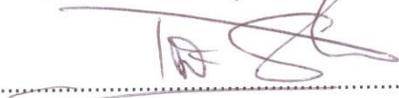
Authorisation

This section **must** be completed in **all** cases – by type of investigator the form must be countersigned by the following personnel:

- Undergraduate student → module convenor or tutor/project supervisor
- Postgraduate taught student → dissertation supervisor
- Postgraduate research student → supervisor/upgrade panel
- Staff → School Research Ethics Officer (REO)

Having reviewed the ethical issues arising from the proposed research:

- I am happy for the research to go ahead as planned.
- I have requested that changes be made to the research protocol. The principal researcher must complete and submit a revised form which integrates these changes
- This project must be referred on for more detailed ethical scrutiny. Please forward a hard copy to the School's REO
- This project is to be referred to Research Development Group for consideration (this option is for School REO only)

Signed 

Date 14th May 2009.

Designation

School REO.....

Date

Appendix 5. Informed Consent (in Chinese)

敬愛的受訪者您好：

感謝您參與本研究。此同意書主要是提供您本研究之相關資訊，以便您決定是否參加本研究。我會為您說明研究內容並回答您的疑問。您可以提出任何和此研究有關的問題，在您的問題尚未獲得滿意的答覆之前，請不要簽署此同意書。如果您願意參與本研究，此文件將視為您的同意紀錄。不過在您同意後，您也可以隨時退出本研究不需任何理由。

我是英國諾丁漢大學的社會學暨社會政策學系的博士生，指導教授為 Prof. Ian Shaw 與 Prof. Lina Song，目前也正在國立臺南大學行政管理學系任教（出示學生證與國立臺南大學教職員證），此研究為我在英國博士論文的一部份，並配和國家科學委員會的計畫一同執行，計畫編號為 NSC 100-2410-H-024-001。本研究的研究主題是台灣健康保險財務改革的政策網絡分析，最主要的目的，就是透過網絡分析方法，瞭解台灣過去十多年來的健保財務改革經驗，並進一步瞭解為何二代健保的財務改革為何會失敗。您之所以會被本研究訪談，最主要的原因是您過去十多年來，無論是代表一個組織或是個人，您皆一直持續不斷的參與臺灣健保的改革事務，因此您的回答對本研究至關重要。有關社會網絡的問卷，最主要是要分析這些政策參與者（出示政策參與者列表如卡 A）間，是否會因為對健保政策的積極參與，而具有穩定的資訊交流關係、資源交換關係以及集體行動的關係。此外，本問卷也包含了測量您對二代健保保費新制政策的看法，採用李克特量表五點尺度，請您依照您的想法勾選合適的答案即可。而在您回答問卷的過程當中，我也會跟您進行訪談的互動，回答整個問卷與面訪約需花費一個小時到兩個小時的時間，問卷與訪談的內容與您的個人資料僅做為研究之用，絕對不會洩漏您個人的隱私，研究的分析與結果之呈現，也會遵守匿名與保密的原則，絕不透露您任何工作上的職稱與訊息，請您放心。

如果您瞭解研究的目的也同意接受訪問，麻煩您在下方簽名。若您仍對此研究有任何的疑問，都可以與我聯絡（出示聯絡方式），我會盡力地回答您的問題。衷心感謝您能夠參與這次的訪問研究，在此向您致上最誠摯的謝意。

■ 我願意接受網絡問卷與訪談的調查：_____（簽名）

年 月 日