

CHAPTER 1. INTRODUCTION

1.1 Research Background

In the 1993 election for county magistrates and city mayors, the Democratic Progressive Party (DPP) took social welfare policy as one of their main policies. The DPP granted the old age pension for people to strive for votes. What is more, the DPP announced a white book of welfare policy and advocated that the government should be responsible for the social welfare issues for the whole society.¹ Not to be outdone, the Kuomintang (KMT) also granted the old pension for people. Besides, the KMT addressed to increase the living subsidy for low-income senior in order to win more votes as well. Since then, social welfare policy has become an election tactic in Taiwan. Thus, issues about social welfare have been widely talked about and the social welfare spending has had a rising trend.

Except for 2001, 2002 and 2004, social welfare spending of Taiwan all showed an increasing trend from 1990 to 2006. And it even increased 47.38% from 1994 to 1995, and 160.82% from 1999 to 2000. These two great increases are probably because of the implement of *National Health Insurance* in 1995 and the 921 earthquake in 1999. As for the proportion of social welfare spending to total central expenditure of Taiwan, it did not show increasing trends that often from 1990 to 2006, but it still has shown increasing trends from 2002 to 2006 continuously (see Table 1).

Apart from the increasing social welfare spending, the income gap between the rich and the poor in Taiwan is also expanding as time went by (see Table 1). Gini index had increased from 31.2% to 33.9% from 1990 to 2006 in Taiwan.² Though

¹ Democratic Progressive Party (1993), "Fair and Rightful Welfare State: Social Welfare Policy of the Democratic Progressive Party."

² Gini index is the Gini coefficient expressed as a percentage. That is, Gini index is equal to the Gini

Table1: Gini Index and Social Welfare Spending of Central Government

Year	Gini Index (%)	Social Welfare Spending (thousand NT)	Proportion of Social Welfare Spending to Total Central Expenditure (%)
1990	31.2	56,914,541	8.45
1991	30.8	65,826,575	8.18
1992	31.2	84,576,475	8.95
1993	31.6	89,834,167	8.71
1994	31.8	91,045,775	8.89
1995	31.7	134,181,819	13.46
1996	31.7	143,737,355	13.25
1997	32.0	150,020,499	13.03
1998	32.4	150,151,921	12.65
1999	32.5	157,587,864	12.29
2000	32.6	411,022,531	18.43
2001	35.0	293,348,938	18.81
2002	34.5	262,241,197	16.90
2003	34.3	284,364,678	17.57
2004	33.8	279,849,374	17.88
2005	34.0	285,690,811	18.23
2006	33.9	303,325,489	19.83

Source: Government Finance Statistics Yearbook, Report on the Survey of Family Income & Expenditure.

Note: Gini index is the Gini coefficient expressed as a percentage. That is, Gini index is equal to the Gini coefficient multiplied by 100.

Table 1 shows that Gini index has decreased in recent years, the value of it still keeps high. Because of the increasing social welfare spending and income inequality mentioned above, issues about income inequality and social welfare spending have been widely discussed.

This study is interested in the influence of income inequality on social welfare spending of Taiwan. The reason that stirs up our interests is that the theoretical arguments about this issue are inconclusive. Moreover, data of Taiwan shows positive

coefficient multiplied by 100.

links between income inequality and social welfare in some regions/ years and negative links between them in other regions/ years. Take the data of Table 1 for example. Gini index and the proportion of social welfare spending to total central expenditure show positive link in 1991, 1992, 1994, 1996, 2000, 2001 and 2005 from 1990 to 2006, and negative link in other years.

On the one hand, the cross-section data of 23 counties and cities of Taiwan in 2006 tells us that high Gini index goes with low social welfare spending to total local spending (SW) in Yilan county, Hsinchu city, Miaoli county, Nantou county, Chiayi city and Kaohsiung city,³ and low Gini index goes with high SW in Keelung city, Taipei city, Hsinchu county and Pingtung county (see Figure1). The data of cities and counties mentioned above all shows a negative link between income inequality and social welfare. As for the other 13 counties and cities, the Gini index and the SW are both low in Taipei county, Taoyuan county, Taichung county, Taichung city and Tainan city, and high in Changhua county, Yunlin county, Chiayi county, Tainan county, Kaohsiung county, Penghu county, Taitung county and Hualien county. That is, the data of the 13 counties and cities shows a positive link between income inequality and social welfare. Hence, the cross-section data does not tend to support a positive link or a negative link between income inequality and social welfare.

On the other hand, the time-series data of Taiwan from 1994 to 2006 tells us that Gini index and the proportion of social welfare spending to total central spending went opposite ways in 1995, 1997, 1998, 1999, 2001, 2003, 2004 and 2006 (see Figure2). That is, Gini index went up (down) and the proportion of social welfare spending to total central spending went down (up) at the same time. In addition, Gini

³ Means of Gini index and the proportion of social welfare spending to total local spending of the counties and cities of Taiwan in 2006 is 30.45% and 11.36 respectively. This study takes values, which are below means, as low value, and values, which are above means, as high value.

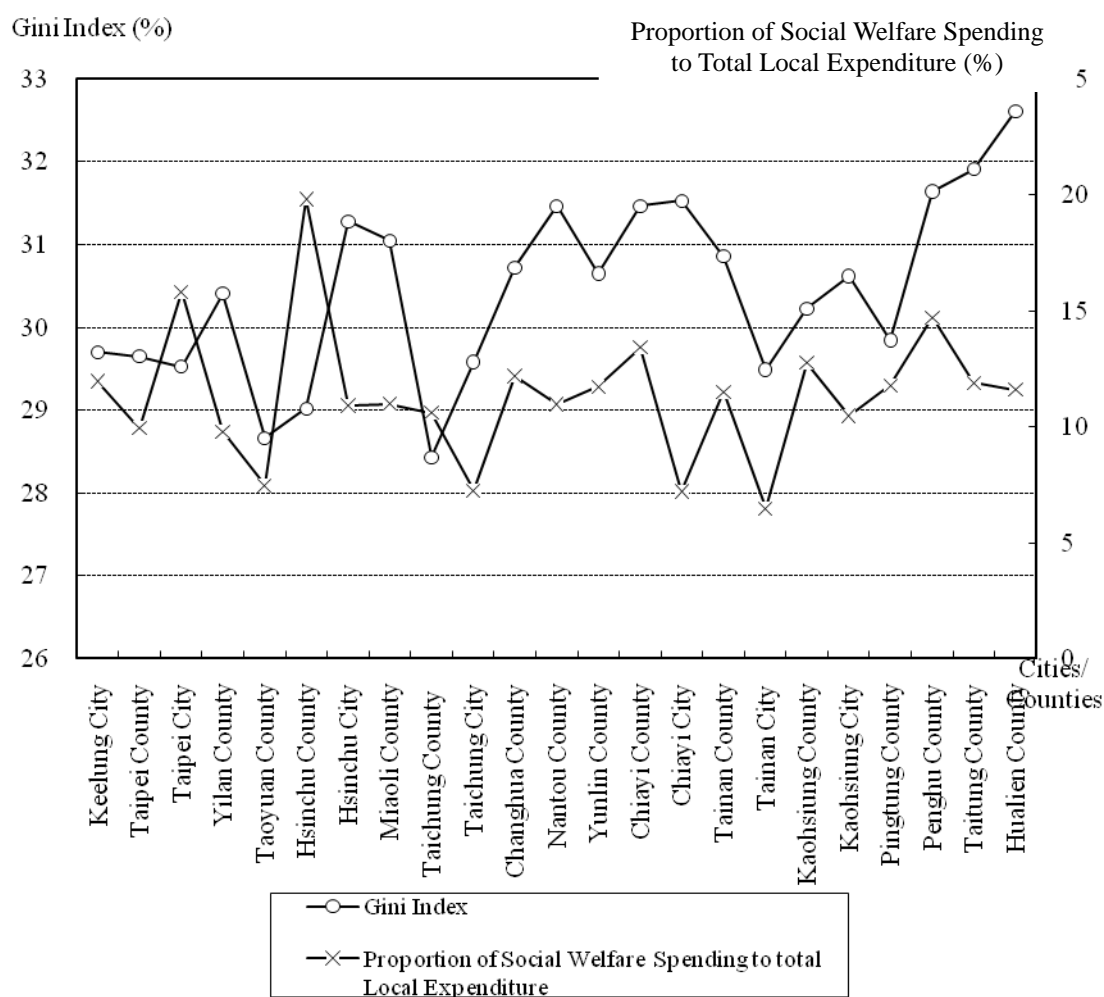


Figure1: Gini Index and Social Welfare Spending of Cities and Counties of Taiwan (2006)

Source: Report on the Survey of Family Income and Expenditure and Ministry of Audit, Republic of China.

index and the proportion of social welfare spending to total central spending went same way in 1996, 2000, 2002 and 2005. In consequence, the time-series data tends to support a negative impact of income inequality on social welfare spending in Taiwan.

Whether the more unequal societies will spend less or more on social welfare? The 2006 cross-section data of some counties and cities of Taiwan indicates less, while data of some counties and cities indicates more at the same time. In addition, theoretical arguments on this issue are also inconclusive. Those who support median voter hypothesis deem that income inequality has a positive impact on social welfare

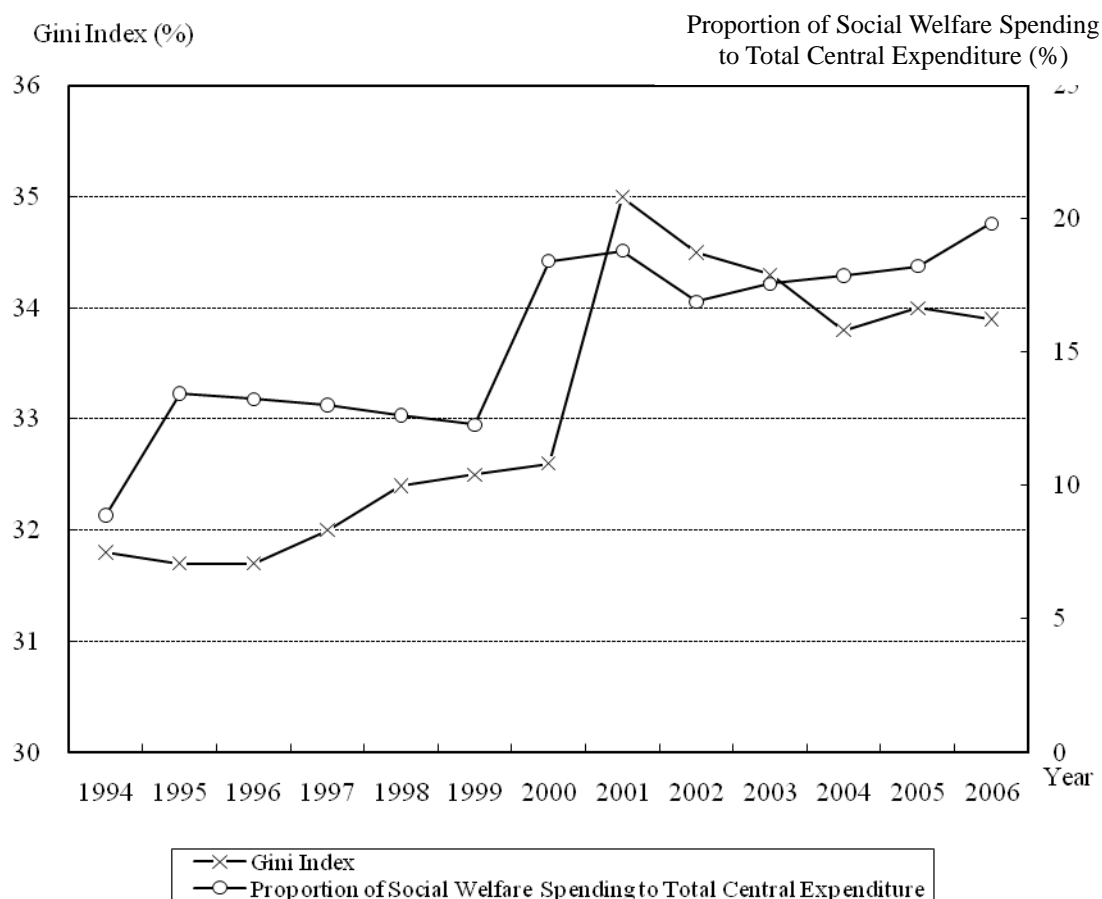


Figure2: Gini Index and Social Welfare Spending of the Central Government of Taiwan

Source: *Report on the Survey of Family Income and Expenditure* and Ministry of Audit, Republic of China.

spending, while those who support capital market imperfections deem that income inequality has a negative impact on social welfare spending.⁴

The explanation brought up by those who are in favor of median voter hypothesis is that median voters' income will be lower, relative to the mean income, in a more unequal society. It will cause the situation that there will be more pressure on redistributive policies in more unequal societies. As a result, more unequal

⁴ The necessary conditions for perfect capital markets brought up by Copeland, Weston and Shastri (2003) are as follows. 1. Markets are frictionless; there are no transaction costs or taxes, all assets are perfectly divisible and marketable, and there are no constraining regulations. 2. There is perfect competition in securities markets. This means that in securities markets all participants are price takers. 3. Markets are informationally efficient; that is, information is costless, and received simultaneously by all individuals. 4. All individuals are rational expected utility maximizers.

societies will tend to spend more on redistributive spending.

The theory of capital market imperfections says that there are two mechanisms which will arise naturally in the absence of complete capital market. First, redistribution which would increase ex ante welfare gains less support in an unequal society than in a homogenous society. It is because the redistribution will bring positive ex ante welfare to those who will get benefit from the redistribution, but negative ex ante welfare to those who will lose because of the redistribution. Therefore, those who can get positive ex ante welfare will support redistribution policies, but those who get negative ex ante welfare will oppose to redistribution policies. However, in a homogenous society, people feel the same way about redistribution since everyone is the same in a homogenous society, so no one will oppose to redistribution policies. Second, capital market imperfections make it easier to become richer for the rich and then make the society more unequal. Consequently, the political support on redistribution will decrease with inequality in the societies with capital market imperfections.

Debates between median voter hypothesis and capital market imperfections have given rise to a lot of empirical analyses. Nevertheless, there has been no analysis be done by examining the county-and-city panel data of Taiwan. And that is what this study will do.

1.2 Research Objectives

As the background mentioned above, issues about the impact of income inequality on social welfare spending have been kept an eye on in recent years and theoretical arguments about this issue are also inconclusive. As a result, the purpose of this study is to examine whether the median voter hypothesis or the theory of capital market imperfections holds in the cities and counties of Taiwan.

Furthermore, this study provides more accurate county-and-city Gini index data of Taiwan. Though Huang and Liu (2005) estimated county-and-city Gini coefficient data of Taiwan,⁵ this study estimates it in a more accurate way by taking weight into consideration.⁶ Therefore, Gini index this study use fit better in with the real situation. Finally, for the sake of avoiding the endogeneity problem, this study constructs a two-stage least squares (2SLS) model to make the model reliable.

1.3 Expected Research Results and Research Framework

1.3.1 Expected Research Results

According to the purpose of this research, this study expects to achieve the following results:

(1) The main purpose of this study is to use county-and-city data of Taiwan to examine whether the impact of income inequality on the proportion of social welfare spending to total local expenditure of counties and cities of Taiwan (SW) is positive or negative.

(2) This study uses data to compute Gini index of each city/ county of Taiwan. The importance of the estimation is that this study takes weight into consideration when computing Gini coefficients.

(3) In the empirical model, this study adopts a two-stage least squares (2SLS) model to solve the endogeneity problem and make the model more reliable

(4) In addition, this study considers the square term of Gini index in the empirical model to confirm whether there exists a nonlinear relationship between Gini

⁵ Gini coefficient is equal to Gini index divided by 100.

⁶ The weight means how many households are the same with an observation. Namely, if the weight equals to 10, it means that the observation represents 10 households and the income status of those 10 households are the same.

index and the proportion of social welfare spending to total local expenditure (SW).

(5) Finally, this study performs various econometric tests to check the reliability of the empirical model. Those tests also offer strong evidence for the conclusion.

1.3.2 Research Framework

The primary issue of this study is whether there is a positive or negative impact of income inequality on social welfare spending in Taiwan after the 1993 election for county magistrates and city mayors. Hence, after discussing the research background, purpose and structure, this study reviews literatures about Gini index as a measurement of income inequality, theoretical and empirical literature of the impact of income inequality on redistribution,⁷ and the determinants of social welfare spending. Then, the situation of income inequality and social welfare in Taiwan will be introduced.

Subsequently, this study calculates the Gini index of 23 counties and cities of Taiwan, collects other research data, and constructs a two-stage least squares model to examine the impact of income inequality on the proportion of social welfare spending to total local expenditure in Taiwan at the same time. Then, the regression conclusion will be tested by several econometric methods. Finally, this study provides several policy implications on the basis of the regression result. The research steps are illustrated in the research framework, which is depicted in Figure 3.

⁷ Social welfare spending is a kind of redistribution.

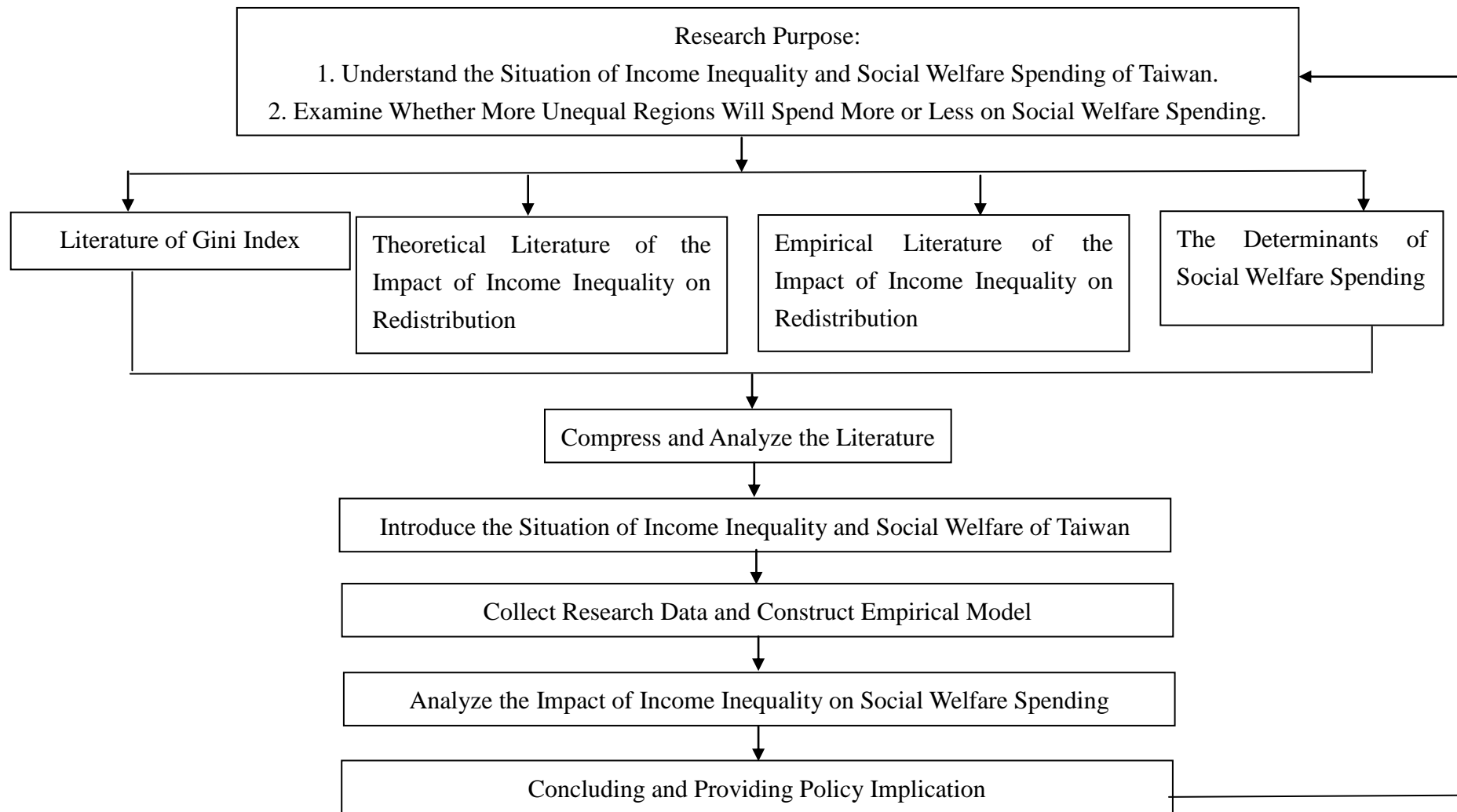


Figure 3: Research Framework