

The Effects of Population Aging, the Ruling Political Party, and Local Governments on Welfare Spending in Taiwan: 1993-2007

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There are many studies that investigate whether population aging leads to a larger welfare state. In a democratic country like Taiwan, we would expect public spending, especially on welfare items, to be influenced by changes demographic structure and political power. Taiwan is an aging society, and there has been a unique connection between welfare for the elderly and which political party is in power since 1993. We apply demographic variables and political factors to the empirical models to explore their effects on the size of local government welfare spending. A panel data model for twenty-one counties and cities from 1993 to 2007 is used in our investigation. The results of this study show that the elderly are not the main determinant of the growth of welfare expenditures, nor do the polit-

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ical parties completely carry out their campaign promises to increase old age welfare after winning office. Instead, central government transfers are the main factor affecting the level of local government welfare spending. This also shows that decentralization is limited in Taiwan.

KEYWORDS: population aging; ruling political party; local government; intergovernmental transfer; social welfare spending.

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In a democratic country, political parties win elections by forging a connection between popular preferences and public policy. As populations age across the world, countries facing the challenges of population aging have begun to establish welfare systems. Because the overwhelming majority of elderly people usually demand and support the provision of social welfare, a government or a political party in an aging economy may win the support of older voters by providing them with welfare benefits.

Taiwan has been an aging society since 1993, when its aged population reached 7.1 percent of the total.¹ Since then, the elderly have become one of the most important groups of voters that the main political parties—the Kuomintang (KMT, 國民黨) and the Democratic Progressive Party (DPP, 民進黨)—have to please. Old age welfare has become a policy priority in election campaigns for both parties. DPP candidates were the first to promote elderly welfare when running for local government office. In the 1993 elections for city mayors and county magistrates, the DPP candidates collectively advocated the introduction of old age allowances,² and this strategy was almost certainly instrumental in securing victory in

¹A country in which more than 7 percent of the population is aged sixty-five or over is defined by the United Nations as having an aging society.

²Proposals for old age welfare have featured in campaigns since 1993, although the first time such a policy proposal was made as part of an election campaign was in 1991. In that year, the opposition DPP issued a program of "social rights" during the election for the National Assembly, and although their campaign was unsuccessful, it showed that Taiwan was reaching a stage when the promotion of social welfare would be the main campaign strategy of the political parties. See Wan-I Lin, *Taiwan de shehui fuli* (Social welfare in Taiwan) (Taipei: Wunan, 2006), 267.

six contests for the DPP.³ The revision of the Senior Citizens (Old-age) Welfare Act around the same time was also mainly driven by the DPP. "An equal and just welfare state" was the party's core social welfare objective, and it was incorporated into the DPP's guiding principles in 1993. The establishment of a welfare state and the provision of old age allowances subsequently became the party's main welfare policies.

As exemplified by Downs' spatial model, or median voter theorem, candidates and parties gain votes by maximizing their proximity to voters on the left-right dimension. Candidates and parties tend to move to the center of the public's policy preferences. As the public's preferences change from year to year, parties and politicians have reason to anticipate these preferences and adopt policies accordingly.⁴ This theory predicts a connection between the development of welfare policies and political parties in Taiwan. For example, the KMT was not particularly concerned about old age welfare issues until it realized that the provision of old age allowances was popular among senior citizens in central and southern Taiwan. The party then changed its policy priorities and began to promote welfare for the elderly poor. When the KMT government was in office, it was always opposed to a universal old age allowance. After the party was defeated in the 2000 presidential election, it reversed this policy and began to support the idea of old age allowances.⁵ Even though the basic political ideologies of the KMT and the DPP were very different from each other, in an effort to attract older voters, both parties openly and collectively declared that old age welfare was one of their policy priorities.⁶

³The six local governments won by the DPP were Taipei County, Ilan County, Hsinchu County, Tainan County, Kaohsiung County, and Penghu County. KMT candidates were elected in another thirteen.

⁴Anthony Downs, *An Economic Theory of Democracy* (New York: Harper and Row, 1957); Robert S. Erikson, Michael B. Mackuen, and James A. Stimson, *The Macro Polity* (Cambridge: Cambridge University Press, 2002), 256.

⁵Lin, *Social Welfare in Taiwan*, 271.

⁶For example, after the 1993 election, Tainan City, which was ruled by the KMT, introduced an old age allowance similar to that advocated by the DPP. Moreover, in the 1994 gubernatorial election and the 1997 city and county mayoral elections, the old age allowance was the main campaign policy of candidates of both parties.

While the KMT continuously criticized the DPP's policy as being inequitable and a burden on the fiscal budget, it gradually increased welfare benefits for the elderly by extending eligibility for "middle and lower income old age pensions."⁷ To attract more votes, the government did not work out the costs of their policies when dealing with elderly welfare issues.⁸ This shows that fiscal policy was actually influenced by the program of the political party in power, but there was a failure to give full consideration to the implications involved. The development of an old age welfare policy thus provides us with an insight into the way political parties seek to win the support of the elderly. This kind of competition between the two parties led to the 1990s being termed the "golden decade" of social welfare in Taiwan.

The 1999 revision of the Act Governing the Allocation of Government Revenues and Expenditures brought about an institutional change in the way city and county government revenues and expenditures are handled. The relationship between central and local governments has had a huge influence on welfare expenditure, although the act stipulates that the division of power and responsibility for expenditure between the levels of governments is decided by the legislative and executive branches of the central government. As expenditure needs to be coordinated by at least two levels of government, regardless of what these levels are, it should be shared in proportion.⁹ This shows that even though the final accounting of welfare

⁷The KMT progressively relaxed restrictions on applying for "middle and lower income old age pensions" in 1994, 1995, 1996, and 2004. There was no law governing eligibility until 1997. During the election for the provincial governor, the KMT-controlled central government even asked local governments to simplify the application process and verification standards. See Lin, *Social Welfare in Taiwan*, 267-68; Chien-Chung Sun, "Shehui jintie shishi jingyan de fanxing: yi jinglao jintie wei li" (Reflections on the implementation of social allowance in Taiwan: the case of old age allowance), *Shehui zhengce yu gongzuo xuekan* (Social Policy & Social Work) (Taipei) 1, no. 1 (June 1997): 92-93.

⁸The DPP found it difficult to maintain its old age allowance policy in 1994. Although it was implemented in the cities and counties governed by the DPP, it was financially unsustainable. With the exception of Hsinchu County, the other DPP-controlled counties (Taipei, Tainan, Kaohsiung, Ilan, and Penghu) could not afford to continue to implement the welfare policy.

⁹See article 37, chapter 3 of the Act Governing the Allocation of Government Revenues and Expenditures.

spending is decided interdependently by different levels of government, it still reflects the specific demands of local governments.

The first purpose of this study is to investigate and test whether there is a positive correlation between population aging and welfare spending. It is clear that welfare has expanded in Taiwan over the past two decades, but whether or not this is due to the aging population needs to be explored in more detail.

While politicians in Taiwan seek to please voters by promising to increase welfare payments or extend the range of social welfare provision, the media usually lament that too many campaign promises of this kind are made.¹⁰ Another purpose of this study, therefore, is to investigate whether these promises to increase old age welfare have been fulfilled by the political parties after taking office.

As was mentioned above, the welfare policy orientations of the DPP and the KMT appear to have converged. But because the DPP was an earlier advocate of old age welfare and supported more universal provision, it is frequently assumed to focus more effort on social welfare than the KMT. Based on the hypothesis that there is no spillover effect in relation to public expenditure, our final objective is to discuss the difference between the KMT and the DPP in terms of the promotion of social welfare. We will also use a research method to analyze empirically the issue of the systematic change in the financial arrangements between different levels of government.

The remainder of this paper is organized as follows. In section 2, we review the relevant literature and explore different views regarding population aging, political parties, and public welfare expenditure. Section 3 introduces the data and methods used in this paper. The empirical results are presented and discussed in section 4, and in section 5 we draw conclusions from these results.

¹⁰Lin, *Social Welfare in Taiwan*, 35.

Literature Review

The age composition of the population is a crucial factor for a government in deciding its fiscal budget allocations. Changes in the demographic structure of a society also call for a redefinition of the main welfare functions, distributive priorities, and the core institutional characteristics of current public welfare arrangements.¹¹ However, whether or not an aging population results in a larger welfare state still remains a matter of speculation in the literature.

Razin et al. suggest that a growing population of older people gives rise to a smaller welfare state;¹² however, this argument has been contested in several other studies. Bryant claims that if the variable is appropriately measured, aging has a net positive association with the size of the welfare state. Razin et al. also support this argument.¹³ For the Nordic countries, particularly over the next few decades, population aging will exert even greater pressure on the existing welfare state. However, there are other considerations regarding the survival and reform of the welfare system under such pressure.¹⁴ Rattsø and Sørensen further find that all age groups seek more resource allocation with regard to welfare services.¹⁵ It is therefore by no means certain that an aging population will lead to the growth of the welfare state.

¹¹Julia Lynch, *Age in the Welfare State: The Origins of Social Spending on Pensioners, Workers, and Children* (Cambridge: Cambridge University Press, 2006); Anton Hemerijck, *In Search of a New Welfare State* (Oxford: Oxford University Press, 2010).

¹²Assaf Razin, Efraim Sadka, and Phillip Swagel, "The Aging Population and the Size of the Welfare State," *Journal of Political Economy* 110, no. 4 (August 2002): 900-18.

¹³John Bryant, "Modelling the Effect of Population Ageing on Government Social Expenditures," *New Zealand Treasury Working Paper*, 03/15 (2003); Assaf Razin and Efraim Sadka, "Aging Population: The Complex Effect of Fiscal Leakages on the Politico-Economic Equilibrium," *European Journal of Political Economy* 23, no. 2 (June 2007): 564-75; Cameron A. Shelton, "The Aging Population and the Size of the Welfare State: Is There a Puzzle?" *Journal of Public Economics* 92, no. 3-4 (April 2008): 647-51.

¹⁴Tommy Bengtsson, ed., *Population Ageing - A Threat to the Welfare State? The Case of Sweden* (Heidelberg: Springer-Verlag, 2010).

¹⁵Jørn Rattsø and Rune J. Sørensen, "Grey Power and Public Budgets: Family Altruism Helps Children, but Not the Elderly," *European Journal of Political Economy* 26, no. 2 (June 2010): 222-34.

Why, then, does the relationship between population aging and the scale of social welfare remain unresolved? Studies indicate that a particular generation's political and economic power has an impact on welfare.¹⁶ From the perspective of the median voter theorem, population aging makes the median voter older and therefore the demand for social welfare should increase. According to this theory, the elderly may shape a pro-tax coalition in order to gain the political strength to pursue their own welfare interests, thus changing the balance of power between parties and encouraging the adoption of age-based policies. This is termed the political effect of aging, and it encourages the formation of larger welfare states. On the other hand, as aging gives rise to a higher dependency ratio and a greater demand for social welfare, this places a heavier tax burden on the working-age population who then protest against the expansion of welfare spending. This economic effect of aging usually has the effect of shrinking the welfare state.¹⁷ Moreover, studies on altruism find that population aging may lead to an increase in the welfare directed at youth. The family structure within the society also has an impact on the influence of the elderly on welfare.¹⁸

Due to a number of complicated factors, the overall effect of population aging on the size of the welfare state is unclear. Even though in earlier studies there is a broad consensus that population aging increases economic welfare in most countries of the Organization of Economic Cooperation and Development (OECD),¹⁹ this conclusion is being increasingly chal-

¹⁶Razin and Sadka, "Aging Population"; Shelton, "Is There a Puzzle?"

¹⁷Razin, Sadka, and Swagel, "The Aging Population"; Razin and Sadka, "Aging Population"; Vincenzo Galasso and Paola Profeta, "Lessons for an Ageing Society: The Political Sustainability of Social Security Systems," *Economic Policy* 19 (April 2004): 63-115; Vincenzo Galasso and Paola Profeta, "How Does Ageing Affect the Welfare State?" *European Journal of Political Economy* 23, no. 2 (June 2007): 554-63; Richard Disney, "Population Ageing and the Size of the Welfare State: Is There a Puzzle to Explain?" *European Journal of Political Economy* 23, no. 2 (June 2007): 542-53.

¹⁸Anna Montén and Marcel Thum, "Ageing Municipalities, Gerontocracy and Fiscal Competition," *European Journal of Political Economy* 26, no. 2 (June 2010): 235-47; Harold L. Wilensky, "Common Problems, Divergent Policies: An 18-Nation Study of Family Policy," *Public Affairs Report* 31, no. 3 (May 1990): 1-3; Rattsø and Sørensen, "Grey Power and Public Budgets."

¹⁹Richard Kohl and Paul O'Brien, *The Macroeconomics of Aging, Pensions and Savings:*

lenged. Noy compares the influence of the elderly population on social spending in Latin America and the OECD countries, and shows that demographic factors are strongly associated with social spending only in young welfare states.²⁰ The Nordic countries are becoming more convinced of the need for reform of the welfare state under the pressure of population aging.²¹

In order to address the specific issue of aging in Taiwan and its various effects on public welfare, this study further investigates whether or not aging contributes to the political power to implement a larger welfare state. The literature regarding how the political parties and elderly people interact and then influence the government's social welfare orientation will be discussed below.

Interparty Competition and Voters' Preferences

In a democratic society, election outcomes and enacted policies are determined by voters' preferences and the ideologies of policy makers.²² Proponents of traditional rational choice views argue that voters will choose to support a political party on the basis of their closeness to that party's position.²³ Partisan voting theory also holds that voters support the political party that offers them the greatest benefits.²⁴ For instance, blue-collar workers and lower income groups, who are usually disadvantaged in the labor market, typically form the core of electoral support for left-wing parties. This is because they believe that left-leaning parties can offer

A Survey (Paris: OECD, 1998); OECD, *Maintaining Prosperity in an Aging Society* (Paris: OECD, 1998).

²⁰Shiri Noy, "New Contexts, Different Patterns? A Comparative Analysis of Social Spending and Government Health Expenditure in Latin America and the OECD," *International Journal of Comparative Sociology* 52, no. 3 (May 2011): 215-44.

²¹Bengtsson, ed., *Population Ageing*.

²²Elisabeth R. Gerber and Jeffrey B. Lewis, "Beyond the Median: Voter Preferences, District Heterogeneity, and Political Representation," *Journal of Political Economy* 112, no. 6 (December 2004): 1365-67.

²³Erikson et al., *The Macro Polity*, 239.

²⁴Alberto Alesina, Nouriel Roubini, and Gerald D. Cohen, *Political Cycles and the Macroeconomy* (Cambridge, Mass.: MIT Press, 1997), 15-37.

them better social protection and promote more favorable employment policies.²⁵ For this reason, Lipset claims that political parties are instruments in the struggle between different economic classes.²⁶ If parties' policy orientations are sufficiently different, they will attract support from different voter groups.

The policies proposed by political parties at election time are designed to help them win office. Wittman argues that parties have policy preferences which could represent their supporters' aggregate utility.²⁷ Alesina et al. and Potrafke also demonstrate that opportunistic politicians care only about winning elections, and thus choose policies solely to please the voters.²⁸ The type of political leadership also influences parties' fiscal policy orientations. Electoral competition leads parties to reward more groups through public policies with embedded ideologies. There is evidence to suggest that the explicit gap in economic ideology between left-wing and right-wing parties is significant in many OECD countries.²⁹ Through policy proposals, the parties maximize their reelection chances. Whatever their ideology, however, most political parties have an incentive to manipulate the economy before an election. The government often uses fiscal policy as an instrument for reelection, so fiscal expenditures are usually increased in election years. At such times the ideology of the

²⁵Hyeok Yong Kwon, "A Dynamic Analysis of Partisan Voting: The Issue Salience Effect of Unemployment in South Korea," *Electoral Studies* 27, no. 3 (September 2008): 518-32.

²⁶Seymour M. Lipset, *Political Man: The Social Bases of Politics* (Baltimore, Md.: Johns Hopkins University Press, 1960), 230.

²⁷Donald A. Wittman, "Parties as Utility Maximizers," *American Political Science Review* 67, no. 2 (June 1973): 490-98.

²⁸Alesina et al., *Political Cycles and the Macroeconomy*, 15; Niklas Potrafke, "The Growth of Public Health Expenditures in OECD Countries: Do Government Ideology and Electoral Motives Matter?" *Journal of Health Economics* 29, no. 6 (December 2010): 797-810.

²⁹Douglas A. Hibbs, *The Political Economy of Industrial Democracies* (Cambridge, Mass.: Harvard University Press, 1991); William D. Berry et al., "Measuring Citizen and Government Ideology in the American States, 1960-93," *American Journal of Political Science* 42, no. 1 (January 1998): 327-48; Nathan J. Kelly, "Political Choice, Public Policy, and Distributional Outcomes," *American Journal of Political Science* 49, no. 4 (October 2005): 865-80; Sandra K. Schneider and William G. Jacoby, "Citizen Influences on State Policy Priorities: The Interplay of Public Opinion and Interest Groups," in *Public Opinion in State Politics*, ed. Jeffrey E. Cohen (Stanford, Calif.: Stanford University Press, 2006), 183-208.

ruling party has no influence.³⁰

When there is a linkage between parties and voters, policy priorities tend to serve as a bridge between public demands and governmental services. There is evidence of the existence of a specific pattern of linkage between party policy and voters. For instance, people in a state preferring a liberal policy will vote for party elites and legislators based on their own ideology. This will in turn encourage the elected liberal legislators to enact policies that are consistent with the public's preferences.³¹ However, as mentioned earlier, officeholders are usually eager to win reelection, and therefore parties tend to push for the enactment of popular policies, regardless of whether they accord with their original ideologies or policy orientations. The direct impact of this difference in policy is always finally ignored during elections.

Political Parties, Old Age Voters, and Welfare Expenditures

Aging is thought to affect political party affiliation, although population aging does not necessarily cause the expansion of the welfare state. The equilibrium between fiscal spending and political strength is mainly determined by balancing the preferences of voters of different age groups. Especially in an aging society, politicians usually push policies favorable to older voters in order to attract their support. Older people thus influence political elites through indirect latent group power.³²

Owing to limited fiscal budgets, policies that benefit the elderly may crowd out policies that benefit other groups in society. In a situation of age-based political conflict and scarce fiscal resources, groups will solidify for

³⁰Alesina et al., *Political Cycles and the Macroeconomy*, 185-208; Potrafke, "The Growth of Public Health Expenditures."

³¹Charles Barrilleaux, "Ideological Cleavage, Political Competition, and Policy Making in the American States," in *Public Opinion in State Politics*, ed. Jeffrey E. Cohen (Stanford, Calif.: Stanford University Press, 2006), 121-41; Gerald C. Wright, Jr. and Brian F. Schaffner, "The Influence of Party: Evidence from State Legislatures," *American Political Science Review* 96, no. June (June 2002): 367-80.

³²Robert H. Binstock, "The Contemporary Politics of Old Age Policies," in *The New Politics of Old Age Policy*, ed. Robert B. Hudson (Baltimore, Md.: Johns Hopkins University Press, 2005), 275-76.

political action based on age identification. The elderly and the young may separate along age lines and lobby for their own political agendas. Young people might want more funding for public education, while older people may want more support for medical care. The elderly may therefore wish to reduce (or be less willing to increase) other spending from which they do not benefit a great deal.³³ As a result, the enactment of welfare policy depends on both young and old approving the fiscal policy.

When political parties and old age voters interact too closely, the government's efforts are relatively limited and restricted. If the budget for programs that benefit older voters increases through elections, this may encourage the formation of age-based political interest groups.³⁴ The welfare demands of older people may increase over time, and this will place a financial burden on the welfare system in an aging economy. If a particular government or party seeks to deprive voters of certain benefits, that government or party's political power will face a challenge. This comment by President Dwight D. Eisenhower of the United States may well explain why parties are afraid to withdraw any item of welfare spending they have granted to citizens:

To attain any success, it is quite clear that the Federal government cannot avoid or escape responsibilities which the mass of the people firmly believe should be undertaken by it. Should any political party attempt to abolish social security, unemployment insurance, and eliminate labor laws and farm programs, you would not hear of that party again in our political history.³⁵

This illustrates why political parties are likely to continue to support increased welfare spending on older people regardless of the fiscal burden it puts on the state.

³³Disney, "Population Ageing and the Size of the Welfare State," 542-53; M. Alejandra Cattaneo and Stefan C. Wolter, "Are the Elderly a Threat to Educational Expenditures?" *European Journal of Political Economy* 25, no. 2 (June 2009): 225-36.

³⁴Binstock, "The Contemporary Politics of Old Age Policies," 274-86.

³⁵Dwight D. Eisenhower, "Personal and Confidential Correspondence with Edgar Newton Eisenhower," *The Papers of Dwight David Eisenhower* XV, Document #1147, November 8, 1954, <http://www.eisenhowermemorial.org/presidential-papers/first-term/documents/1147.cfm> (accessed August 26, 2009).

Generational conflict, however, is not the only explanation for welfare distribution offered in the literature. This is because policies may have more than one meaning, in the sense that they reflect the hidden priorities of policy makers, and may benefit or harm more than one specified target group.³⁶ Day suggests that it is economic and partisan factors rather than generational ones that determine government benefits for the elderly.³⁷ Campbell also argues that voting on issues varies only slightly between age groups,³⁸ and this generational cleavage in public policy is not comprehensive.

Morgan and Kunkel argue that the potential for age identification and age-based political actions depends on the degree to which people hold narrow, self-interested views.³⁹ Wilensky and Rattsø and Sørensen emphasize altruism, arguing that the public budget may also be influenced by family composition in a society. Elderly voters may be altruistic and tend to support subsidies for families with children. When young and middle-aged voters give priority to taking care of their children, the elderly need to take care of their own interests.⁴⁰

Montén and Thum show how municipalities want to provide more welfare for younger people to make their location more attractive to them. However, when the proportion of elderly people becomes sufficiently large, the effect of fiscal competition dominates and causes an inefficiently large amount of publically provided goods to be supplied to the younger population.⁴¹ Orriols maintains that welfare spending by governments does

³⁶Chiara Saraceno, "The Ambivalent Familism of the Italian Welfare State," *Social Politics* 1, no. 1 (Spring 1994): 60-82; Julia Lynch, "The Age-Oriented of Social Policy Regimes in OECD Countries," *Journal of Social Policy* 30, no. 3 (August 2001): 411-36.

³⁷Christine L. Day, *What Older Americans Think: Interest Groups and Aging Policy* (Princeton, N.J.: Princeton University Press, 1990), 60.

³⁸Andrea L. Campbell, "The Non-Distinctiveness of Senior Voters in the 2004 Election," *Public Policy and Aging Report* 15, no. 1 (Winter 2005): 1, 3-6.

³⁹Leslie A. Morgan and Suzanne Kunkel, *Aging, Society, and the Life Course* (New York: Springer, 2007), 317.

⁴⁰Wilensky, "Common Problems, Divergent Policies"; Rattsø and Sørensen, "Grey Power and Public Budgets."

⁴¹Montén and Thum, "Ageing Municipalities, Gerontocracy and Fiscal Competition," 235-47.

not automatically "buy" votes. He suggests instead that welfare spending can only be used by governments to gain support among those identifying with the incumbent party. Reducing welfare is only politically dangerous where voters with non-incumbent identification are concerned.⁴²

As mentioned above, the interaction between voters, political parties, and social welfare policy is complex and difficult to grasp. Taiwan has become an aging economy in that the elderly population is heavily emphasized, and it is inevitable that older voters will display their political strength beyond elections. The campaign promises made by the political parties also tend to favor an old age welfare state. However, the studies mentioned above show that the effect of population aging on social welfare is ambiguous, and whether parties' campaign promises have really contributed to increased welfare spending is uncertain. In the following sections we investigate the influence of the ruling political party and population aging on social welfare expenditures in Taiwan from 1993 to 2007.

Data and Methods

Data

In this paper, we use the aged dependency ratio, which is a better measurement than any other for estimating the influence exerted by the elderly.⁴³ Population aging comes about partly from a decreasing child ratio in a society. In addition to the elderly, children constitute an important welfare delivery objective for governments. Therefore, we introduce a youth dependency ratio to control for the intergenerational effect.

The allocation of transfers from central to sub-national governments plays an important role in local government budget decisions in Taiwan. To investigate how the budget is affected by the central government, the subsidy per capita (the total central subsidy divided by the total population) is

⁴²Lluís Oriols, "Social Spending, Partisan Bias and Vote Choice. Evidence from the US," *Electoral Studies* 29, no. 1 (March 2010): 54-65.

⁴³See note 13 above.

used to control for the influence of the central government.⁴⁴ Whether or not the local government is controlled by the same party as the central government might influence the size of these grants. If the two levels are controlled by different political parties, the policy orientation of the local government may be constrained. On the other hand, if the local government is aligned with the central government, the controlling party may derive the entire electoral benefit.⁴⁵

However, there is still a possibility that the central government will cut its grants to local governments controlled by the ruling party because the cost of implementation is relatively low during the policy-pushing process. Furthermore, in order to win control of more local governments in later elections, the central government may wish to gain the support of voters in cities governed by the opposition party. The central government may therefore increase grants to these cities instead.

Looking at previous age-based welfare policies, we find that both the KMT and the DPP have supported an increase in welfare spending for the elderly. However, there are still differences in the two parties' policy orientations. We use four dummy variables to capture the effects resulting from different parties controlling the central and local governments. Moreover, in order to explore the mixed effects of the ruling party and the elderly, we introduce the aged dependency ratio multiplied by these four variables—KK, KD, DK, and DD. The label KK indicates that both the central and local governments are controlled by the KMT, KD means that the central government is KMT-controlled and the local government is DPP-controlled, DD means that both are controlled by the DPP, while DK indicates that the DPP is in power at the center and the local government is

⁴⁴In Taiwan, data on intergovernmental transfers involving cities and counties combine the subsidy from the higher level government with lower level government aid. The latter item usually accounts for only a small fraction of the total. The ratio of revenue from subsidies and aid to total expenditure is usually applied as a proxy for intergovernmental financial dependence. In this study, we introduce the data as a transfer from central government.

⁴⁵Wiji Arulampalam et al., "Electoral Goals and Center-State Transfers: A Theoretical Model and Empirical Evidence from India," *Journal of Development Economics* 88, no. 1 (January 2009): 103-19.

controlled by the KMT.⁴⁶ A description of the variables and data is provided in table 1.

The Guiding Principles for Social Welfare Policy have formed the legal basis for social welfare in Taiwan since 1993, so we use these guidelines as the baseline for the policy variables to be included in the set of expenditure variables in this study. There are six categories of social welfare contained in the Guiding Principles for Social Welfare Policy namely, social insurance (i.e., social security) and pensions, social assistance, welfare services, employment security, social housing and community empowerment, and health and medical care.

The policy on welfare for the elderly is contained in the Senior Citizens' Welfare Law.⁴⁷ This law includes seven categories of welfare spending for the elderly: health, education, labor and employment, development and housing, transportation, insurance and trust, and police administration. The government institution responsible for implementing elderly welfare-related policies in the local government is the county or city government.⁴⁸ The power of local governments to make welfare expenditure decisions has been gradually increased.

⁴⁶The political party dummy variables in election years are set according to the ruling parties prior to the election. Even though there may be a change of administration at either central or local level, the party in control before the election will still influence public spending during the whole of the election year because of the time lag between budget decisions and policy implementation.

⁴⁷The Senior Citizens' Welfare Law was first promulgated in 1980 and revised in 1997, 2000, 2002, and 2007. The latest revision, in 2007, incorporated the UN's five principles of old age welfare: independence, participation, care, self-fulfillment, and dignity.

⁴⁸Managed institutions are responsible for planning and carrying out the policy and supervising the welfare of older people in the administrative areas. For example, the institution in charge of health superintends preventative health care, mental health care, medical treatment, rehabilitation treatment, and continuous care. The education institution is in charge of education for older people, training for old age service, and the education of an aging society. The labor institution is responsible for preventing discrimination in the employment of older people, providing care for the elderly family members of employees, and inspecting those providing care services. The development and housing institution supervises the building of retirement housing, and management, infrastructure, and facilities for the disabled. The transportation institution deals with mass transportation for the elderly. The insurance and trust institution is in charge of insurance and trust measures related to the law. The police institution superintends the police administration and old age protection measures related to the law.

Table 1
Description of Variables and Data

	Description of Variables	Observations	Mean	Std. Dev.
Average expenditure	Real expenditure of county and city governments per capita	315	30510.73	11176.63
Social relief	Real expenditure of county and city governments for social relief per capita	292	504.27	782.06
Social services	Real expenditure of county and city governments for social services per capita	315	1767.97	2274.80
Retirement and pensions	Real expenditure of county and city governments for retirement and pension per capita	147	2896.71	1520.32
Social insurance	Real expenditure of county and city governments for social insurance per capita	304	543.58	444.73
Public health	Real expenditure of county and city governments for public health per capita	315	528.98	440.18
Employment services	Real expenditure of county and city governments for employment services per capita	176	26.12	32.90
Public housing & community development	Real expenditure of county and city governments for public housing and community development per capita	309	95.87	203.91
Education	Real expenditure of county and city governments for education per capita	315	10320.64	2219.19
Transportation	Real expenditure of county and city governments for transportation per capita	315	21.67	13.31
Police administration	Real expenditure of county and city governments for police administration per capita	315	3519.76	2307.76
Aged dependency ratio	(Population older than 65 / Population aged 15 to 64 or working age)*100	315	13.86	3.20
KK	Dummy variable for both central and local governments ruled by KMT * Aged dependency ratio	315	3.69	6.10
KD	Dummy variable for central government ruled by KMT and local government ruled by DPP * Aged dependency ratio	315	2.56	5.11
DK	Dummy variable for central government ruled by DPP and local government ruled by KMT * Aged dependency ratio	315	3.54	6.63
DD	Dummy variable for both central and local governments ruled by DPP * Aged dependency ratio	315	2.82	6.02
Youth dependency ratio	(Population aged 0 to 14 / Population aged 15 to 64 or working age)*100	315	30.66	4.25
Subsidy	Real revenue of county and city governments from aid and subsidies per capita	315	13032.19	8791.55

Here we define and explain the content of the social welfare items in more detail. Expenditure on social relief includes spending on and subsidies for people with low incomes, those faced with sudden adversity or unexpected emergencies, as well as disaster victims. Expenditure on social services refers to spending on welfare subsidies for children, adolescents, women, elderly citizens, workers, and people who, due to physical and/or mental disabilities or for other reasons, are unable to pay the least-required amounts. Retirement payments and pensions include payments for retired soldiers, public servants, and teachers. Expenditure on social insurance includes insurance for workers, farmers, soldiers, public servants, and teachers, as well as national pensions.

Expenditure by local governments on public health includes medical care, health promotion, disease prevention, public health, drugs, and food sanitation, etc. The National Health Insurance (NHI) program that was introduced in 1995 is operated on a pay-as-you-go basis, and is funded independently of the local government budget. The long-term care project was launched in 2000, and other related projects have been initiated since then. These projects are managed by institutions under the direct jurisdiction of the central government. The expenditure allocated to public health by the local governments clearly reveals the demand for and importance attached to such services in local areas.

Expenditure on employment services includes job training, skills testing, and employment promotion. Expenditure on public housing and community development encompasses support for the building of public housing, new infrastructure, new towns, and community development, etc. In addition, expenditure on environmental sanitation, air and water quality protection, pollution prevention, noise abatement, waste management and so on, are also part of social welfare. Expenditure on education includes spending on education planning, education research, the editing of teaching materials, the running of public schools and colleges, and subsidies for private schools and colleges. Expenditure on transportation and police administration is self-explanatory. With the exception of expenditure on education, which in theory mostly benefits the younger age groups, the hypothesis underlying this research is to assume that an aging population will,

in theory at least, give rise to an increase in all other categories of social welfare spending.

The expenditure data used in this paper consist of spending on each specific administrative area by the local city (county) government. Because conditions vary across the twenty-one cities and counties in Taiwan, expenditure, although it is statutorily determined, varies according to the specific demands in each local administration area. Expenditure may not entirely reflect the discretionary power of the local government, but a great deal of expenditure depends on the authority and policy decisions of the individual local authority.

All of the data here are sourced from *Urban and Regional Development Statistics* 1993-2007. Welfare expenditures are based on the final statements of expenditure of county and city governments. All expenditures are in NT dollars per capita and are deflated by the consumer price index based on 2006=100.

The fiscal year in Taiwan began in July prior to 2001, when it was changed to January. Because the expenditures for fiscal 2000 cover the period July 1999 to December 2000, we obtained values for 2000 by dividing the actual figures by 1.5.

Methods

This study combines the items of welfare expenditure mentioned above in order to choose the dependent variables of functions. It consists of eleven models with different social welfare dependent variables (see table 1). The welfare items are average expenditure and expenditure on social relief, social services, retirement and pensions, social insurance, public health, employment services, public housing and community development, education, transportation, and police administration.⁴⁹ The

⁴⁹We use the welfare items listed in the Guiding Principles for Social Welfare Policy: social relief, social services, retirement and pensions, social insurance, public health, and employment services. The welfare items listed in the Senior Citizens' Welfare Act are social insurance, public health, employment services, public housing and community development, education, transportation, and police administration.

independent variables include the aged dependency ratio that is used to explore the influence exerted by the old age voter group. Using the explanatory variables KK , KD , DK , and DD , we will test the joint effects for the elderly and the political party. Furthermore, there are two control variables in the models, namely, the youth dependency ratio and the per capita subsidy from the central government.

We use panel data for twenty-one cities and counties to test whether welfare policies are emphasized by the local governments. According to the arguments regarding the research idea, the empirical models in reduced form may be expressed as follows:

$$\begin{aligned} \text{Welfare spending}_{it} = & f(\text{Aged dependency ratio}, \\ & \text{Youth dependency ratio}, \text{Subsidy}, \\ & KK, KD, DK, DD)_{it}, \end{aligned} \quad (1)$$

where i is local government 1, 2, ..., 21; t is the period from 1993 to 2007. Fixed effects or random effects models or mixed fixed and random effects models are used in this research. The Hausman test is used to check whether fixed or random effects provide a better fit to the models.

As mentioned above, the pattern of local government expenditure underwent an institutional change after the revision of the Act Governing the Allocation of Government Revenues and Expenditures, and this may influence both the cities and years dimensions. Fortunately, panel data models can control the effects on both cross-sections and periods in the empirical models. The fixed effects model and random effects model can be implemented in such a way as to have a one-way or a two-way effect in the empirical analysis. Except in cases where the unbalanced data are limited due to insufficient degrees of freedom, the models in this paper adopt two-way settings.

The basic specification of the two-way fixed effects model is

$$y_{it} = \beta_1 x_{1it} + \dots + \beta_k x_{kit} + a_i + \alpha_t + u_{it} \quad i = 1, \dots, N; t = 1, \dots, T \quad (2)$$

where x_1, x_2, \dots, x_k are the independent variables referred to in equation

(1) for the empirical research, a_i and η_t represent the fixed effects for the cross sectional and time series data, respectively, and u_{it} denotes the stochastic disturbance term. That is, a_i is time-invariant and accounts for the in-dividual-specific effect that is not included in the regression. η_t is the unobservable time effect; it is individual-invariant and accounts for the time-specific effect that is not included in the regression.⁵⁰ The specifications are used to control the effects for twenty-one cities and counties in Taiwan and for different years during the research period.

The reason for using the fixed effects is to eliminate a_i and η_t because they are thought to be correlated with one or more of the x_{it} . If a_i is not correlated with x_{it} , it is better to use the random effects estimator. The basic specification of the cross-section random effects model is

$$y_{it} = \beta_0 + \beta_1 x_{it1} + \dots + \beta_k x_{itk} + v_{it} \quad i = 1, \dots, N; t = 1, \dots, T \quad (3)$$

where $v_{it} = a_i + \eta_t + u_{it}$ in the two-way random effects specification. The random effects specification assumes that the corresponding effects a_i and η_t are realizations of independent random variables with zero mean and finite variance. Moreover, it assumes that the effect is uncorrelated with the idiosyncratic residual u_{it} . Thus, equation (2) becomes a random effects model when the unobserved effects a_i and η_t have means of zero and are uncorrelated with each explanatory variable.

In this study, we use panel data to perform the empirical analysis. Raj and Ullah, Hsiao and Baltagi argue that less collinearity is one benefit of using panel data.⁵¹ In principle, therefore, these panel data models in the paper reduce the problem of data collinearity that the cross-section and time-series data models may have. We further try to test the problem of collinearity empirically as suggested by Gujarati. The results show that

⁵⁰Badi H. Baltagi, *Econometric Analysis of Panel Data* (Chichester: John Wiley & Sons, 2005).

⁵¹Baldev Raj and Aman Ullah, *Econometrics: A Varying Coefficients Approach* (London: Billing & Sons, 1981), 167; Cheng Hsiao, *Analysis of Panel Data* (Cambridge: Cambridge University Press, 2003), 366; Baltagi, *Econometric Analysis of Panel Data*, 5.

the problem with the data in the models could be excluded.⁵²

However, the method and data used in this research, such as introducing the domestic macro panel data to the analysis, have their limitations. For instance, the macro data reflect the general meaning rather than the individual phenomena in the economy. Diversity within a city, for example, the difference between urban and non-urban areas, cannot be investigated. Due to this limitation, we can only engage in a generalized form of analysis. However, such limitations are frequently encountered in macro panel data research. This paper is thus based on the theory that the estimation should be restricted to feasible panel data research.

To sum up, this study applies panel data to analyze the effects of population aging, ruling political parties, and local governments on social welfare spending in Taiwan. In these models, we hypothesize that population aging increases local government welfare spending. As mentioned above, the DPP was the first party to advocate elderly welfare policies in Taiwan, so when exploring the political effect of aging, we make the assumption that central or local governments controlled by the DPP are more likely to take the elderly into consideration and thus devote more expenditure to social welfare items. All the hypotheses are tested below.

Results

The empirical results for the eleven equations are shown in table 2. After the Hausman test is applied, it is clear that there are eight equations that fit the two-way fixed effects models. The dependent variables for those equations are average expenditure, social services, retirement and pensions, public health, employment services, public housing and community development, education, and police administration. The others fit the random effects models. With unbalanced data, however, the equations for social relief and social insurance only fit the cross-section random

⁵²Damodar N. Gujarati, *Basic Econometrics* (Singapore: McGraw-Hill, 2003), ch.10.

Table 2
The Determinants of Local Government Welfare Spending

Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Explanatory Variable	Average expenditure	Social relief	Social services	Retirement and pensions	Social insurance	Public health	Employment services	Public housing & community development	Education	Transportation	Police administration
Aged dependency ratio	155.828 (209.160)	-24.234 (31.980)	98.066 (151.722)	-100.949 (206.620)	24.066 (17.224)	33.936* (18.397)	0.545 (2.023)	78.722*** (17.488)	59.575 (93.965)	-0.602 (0.618)	179.237*** (38.861)
Youth dependency ratio	805.925*** (172.277)	-6.739 (16.967)	-2.537 (124.967)	-240.273 (197.382)	18.220** (8.713)	41.390*** (15.153)	1.063 (0.888)	-57.404*** (14.245)	192.958*** (77.396)	-0.103 (0.532)	43.936 (32.008)
Subsidy	0.780*** (0.036)	0.034*** (0.008)	0.32*** (0.026)	0.031** (0.015)	0.009** (0.004)	0.004 (0.003)	0.001*** (0.000)	0.004 (0.003)	0.039** (0.016)	0.000*** (0.000)	0.000 (0.007)
KK	55.171 (55.714)	0.656 (13.126)	-58.360 (40.414)	-	9.377 (6.823)	-13.062*** (4.900)	-0.407 (0.473)	0.021 (4.599)	-65.393** *	-0.183 (0.236)	42.941*** (10.351)
KD	-138.856** (61.523)	7.793 (14.632)	-30.504 (44.628)	-	10.780 (7.629)	-21.799*** (5.411)	-1.290** (0.628)	-7.253 (5.057)	-82.197*** *	-0.358 (0.260)	39.825*** (11.431)
DK	-32.972 (47.936)	18.900 (12.637)	-90.381*** (34.772)	103.866*** (19.127)	-13.922** (6.469)	8.492** (4.216)	0.267 (0.414)	0.886 (3.940)	-49.174** (21.535)	-0.614*** (0.205)	-3.230 (8.906)
DD	-131.740** (52.611)	30.364** (13.923)	-102.071*** (38.164)	86.631*** (22.511)	-13.974* (7.115)	-0.246 (4.628)	-0.424 (0.498)	2.251 (4.398)	-12.570 (23.636)	-0.689*** (0.223)	-8.830 (9.775)
C	-5474.512 (4823.469)	427.108 (779.458)	-2805.137 (3498.878)	9287.568* (5166.409)	-449.817 (409.754)	-1193.966*** (424.264)	-28.130 (50.375)	739.053* (407.031)	3735.771* (2166.951)	33.651* (18.093)	-530.912 (896.186)
No. of observations	315	292	315	147	304	315	176	309	315	315	315
R ²	0.969	0.146	0.612	0.857	0.220	0.848	0.708	0.383	0.844	0.197	0.975
Hausman test $\chi^2 = 1$	Two-way fixed effects [21.476]	Cross-section random effects [4.429]	Two-way fixed effects [35.210]	Two-way fixed effects [4.429]	Cross-section random effects [14.050]	Two-way fixed effects [149.39]	Two-way fixed effects [56.782]	Two-way fixed effects [15.532]	Two-way fixed effects [35.879]	Mixed fixed and random effects [5.445]	Two-way fixed effects [109.79]

Notes: Coefficients and standard errors in parentheses are shown in the table. *, **, and *** indicate that the test results are significant at the 10%, 5 %, and 1% levels, respectively. " - " is missing data.

effects models. The equation for the dependent variable transportation fits both the cross-section random and period fixed effects models.

Age Groups

The elderly group and the child group are treated as the two age groups likely to require the most welfare. When the population is aging, the government must promote policies that benefit a growing older population. A decrease in the child population might not, however, immediately cause a decrease in expenditure due to the scale effect of public spending. Moreover, a decreasing fertility rate always reminds the government that it should increase emphasis on the systems of welfare and care for younger people. As a result, whether the generations contribute to a larger welfare state or crowd each other out of the welfare budget is uncertain.

Our regressions distinguish and test the effects of the different voter groups within the age structure in the top two rows of table 2. The results in the first row show that the increasing aged dependency ratio lags far behind as a clear source of the growth in social welfare spending. The old age group increases three of the functions (public health, public housing and community development, and police administration), but does not significantly influence other welfare expenditure components or average expenditure. The increasing youth dependency ratio, in contrast, seems to have a larger influence on the welfare spending of local governments. It not only increases average expenditure, but also has positive effects on three of the functions (social insurance, public health, and education).

In a welfare state, population aging might lead governments to show more interest in the elderly and thus cause the government to get bigger. The results in column 1 of table 2 do not significantly support this argument, as it is the youth dependency ratio rather than the aged dependency ratio that has a significant positive effect on government size. This indicates that even though Taiwan has an aging society, old age is still not the main determinant of local government size and welfare policies.

Education is an important welfare item in the government's development plans. We always assume that spending on children is the main component of increased education expenditure, and how the elderly influence

expenditure on education is controversial. Aging has two opposite effects on public expenditure on education. The political effect indicates that population aging increases the opportunity for the elderly to reduce the education budget because they do not benefit from it. To meet the demands of an aging population, the government may cut budgets for the young—for example, expenditures on social security and education. The economic effect of aging on public education spending, on the other hand, may be to increase it. Increased longevity and the prospect of a longer retirement boost the demand for education among the young and the working-age population. In order to ensure higher returns on savings in retirement, the young and working-age population support public education in order to increase their productivity in the future.⁵³ The combined political and economic effects of aging on education spending are therefore uncertain.

The findings in column 9 indicate that the child group in Taiwan has a positive effect on education spending, but the elderly do not have a significant effect. Spending on social insurance in column 5 also produces a similar result. The result indicates that the political effect of the older generation does not crowd out the growth in spending on child welfare. Moreover, the public health service is in high demand among both elderly and young people. The results in column 6 indicate that both groups have a significant positive influence on public health expenditure. The high aged and youth dependency ratios really do contribute to the increase in local government fiscal expenditure on the public health system.

The increase in the aged dependency ratio also increases expenditures on public housing and police administration in columns 8 and 11. This includes the provision of homes and security, items which the elderly tend to consider important. Expenditure on housing may have increased during

⁵³See Amy R. Harris, William N. Evans, and Robert M. Schwab, "Education Spending in an Aging America," *Journal of Public Economics* 81, no. 3 (September 2001): 449-72; Rowena A. Pecchenino and Patricia S. Pollard, "Dependent Children and Aged Parents: Funding Education and Social Security in an Aging Economy," *Journal of Macroeconomics* 24, no. 2 (November 2002): 145-69; Mark Gradstein and Michael Kaganovich, "Aging Population and Education Finance," *Journal of Public Economics* 88, no. 12 (December 2004): 2469-85.

the period under examination because many old neighborhoods were demolished and the residents, often retired soldiers, were rehoused in public apartments. Retired soldiers are often given priority in the allocation of public housing, or else they are permitted to buy these apartments at a subsidized rate. Urban renewal has consequently helped to increase local government expenditure on public housing and community development. Places with a high concentration of elderly people have a higher probability of receiving this welfare. The results also suggest that environmental issues such as the housing and security demands of the elderly should be taken into careful consideration.

However, social relief, social services, retirement and pensions, employment services, and transportation are not significantly affected by either the elderly or the young. Even though increases in the size of these age groups are usually considered to be reasons for increases in welfare budgets and expenditures, the empirical results do not support this. Neither of these voter groups is the main direct determinant of local government policy decisions on these welfare items.

Transfers from Central Government

If a local government receives large subsidies from the central government, it will be able to provide more for its citizens. This also means that the fiscal decisions of local government are not independent, and the policy orientations of local governments may change as a result of budget limitations. When the central government takes the lead on a particular welfare policy, one option for the local government is to operate in concert with the center. So we hypothesize that the central government plays an important role in the making of local governments' welfare policies.

The results in the third row of table 2 support the assumption noted above. After controlling the central government subsidy variable, we find that it has a significant effect on most welfare expenditures. An increase in the per capita central government subsidy has a positive effect on eight of the functions (average expenditure, social relief, social services, retirement and pensions, social insurance, employment services, and education) and does not reduce spending on any of the other three components. The results

reveal that the central government's welfare policy is to a large extent shared by the local governments in Taiwan, with transfers from the central government to local governments being the main fiscal resource for local government welfare budgets. We find that local government budgets are largely controlled by the central government. This finding is similar to that of the empirical study carried out by Liao and Tseng, who argues that even though progress in democracy has increased some of the influence wielded by local bureaucrats in local areas, this has not really resulted in a higher degree of local autonomy. Local effectiveness is still heavily dependent on the highly centralized power of the central government in Taiwan.⁵⁴

Ruling Political Party

Political parties in Taiwan have strongly promoted the development of social welfare in recent years, beyond even the expectations of older voters.⁵⁵ However, social welfare in Taiwan has become an instrument of competition between the parties. Before a party gains office, one cannot be sure whether it really cares about the elderly and plans to spend more on old age-related welfare programs. We therefore combine the dummy variables of the ruling party and the aged dependency ratio to explore the political party effect of aging on per capita welfare expenditure. The mixed effects of the ruling parties and the aged dependency ratio (we call it the "mixed effect" hereafter to represent the political party effect of aging) in rows 4 to 7 lead to our testing the assumption that the ruling party will emphasize welfare for the elderly.

Because the DPP was the first party to advocate old age-related welfare policies, governments controlled by the DPP, whether central or local, would be expected to take the elderly into consideration when formulating policies. However, political parties might treat welfare policies as no more than campaign tools rather than actually implementing them after taking

⁵⁴Ta-Chi Liao and Roy Tseng, "Democratization and the Effectiveness of Local Action: Perceptions of Local Taiwanese Leaders, 1993 and 2001," *Issues & Studies* 39, no. 2 (June 2003): 73-106.

⁵⁵Sun, "Reflections on the Implementation of Social Allowance," 92-93.

office. Whether political parties actually carry out their elderly welfare policies thus remains an open question.

The results in table 2 do not clearly support a distinction in the effects of policies between the DPP and the KMT for most welfare items, neither do they prove the positive mixed effects of all welfare items. Expenditure on social relief in column 2 is positively affected by the political parties. The effect is significant, especially when both the central and local governments are controlled by the DPP. In the case of expenditure on retirement and pensions in column 4, we find that spending significantly increased during the period when the DPP was in control of the central government. Furthermore, expenditure on police administration shown in column 11 also significantly increased during the period when the KMT was in control of the central government, but decreased when the DPP was in charge with no significant difference in results.

With regard to the other items, the positive mixed effect is rarely found. The results in columns 3 and 5 indicate that when the DPP was in control of the central government, social services and social insurance were significantly negatively affected by both parties. The KMT central government was unable to significantly and positively influence these items, either. Expenditure on public health in column 6 was negative under both parties during the period in which the KMT was in control of the central government. Expenditure on employment services in column 7 was only significantly negatively influenced when the DPP was in control of the local government before 2000. The empirical results imply that political parties may neither genuinely take the elderly into consideration when expending resources nor further promote the formation of a welfare state.

Welfare Spending and the Party in Power

The above analysis clearly shows that welfare expenditure is not really decided by the ruling political party or any particular age group. Transfers from the central government are the main determinant of local government welfare expenditure. In addition to treating old age welfare policy as a campaign tool, one may suspect that the transfer of resources from the central government to the localities is also treated in this way.

The unequal division of subsidies among local governments results in different levels of welfare spending. A local government is likely to be disadvantaged when it is not controlled by the party in power at the center. So when a local government is controlled by the opposition party, it will have fewer fiscal resources to increase its expenditure on welfare for the elderly. This assertion is supported in a number of studies. Khemani, Solé-Ollé and Sorribas-Navarro, Banful, Sengupta, and Sorribas-Navarro find that intergovernmental transfers are indeed distributed in a way that favors particular subordinates that are of political concern to the central ruling party. These lower level jurisdictions receive more transfers when they are controlled by the ruling party and when they have a higher proportion of swing voters.⁵⁶

However, the local government may also receive fewer subsidies when it is controlled by the incumbent party. This is because the incumbent party wants to win over opposition supporters in order to achieve reelection. Johansson and Arulampalam et al. find that the objective of the distribution of transfers from the center to the localities is to win reelection, not to reward loyal local governments.⁵⁷ However, Milligan and Smart argue that both objectives may apply depending on the situation of the central incumbent.⁵⁸

⁵⁶Stuti Khemani, "Does Delegation of Fiscal Policy to an Independent Agency Make a Difference? Evidence from Intergovernmental Transfers in India," *Journal of Development Economics* 82, no. 2 (March 2007): 464-84; Albert Solé-Ollé and Pilar Sorribas-Navarro, "The Effects of Partisan Alignment on the Allocation of Intergovernmental Transfers. Differences-in-Differences Estimates for Spain," *Journal of Public Economics* 92, no. 12 (December 2008): 2302-19; Afua B. Banful, "Do Formula-Based Intergovernmental Transfer Mechanisms Eliminate Politically Motivated Targeting? Evidence from Ghana," *Journal of Development Economics* 96, no. 2 (November 2011): 380-90; Bodhisattva Sengupta, "Provision of Public Goods in a Federal Economy: The Role of Party Politics," *European Journal of Political Economy* 27, no. 1 (March 2011): 104-19; Pilar Sorribas-Navarro, "Bailouts in a Fiscal Federal System: Evidence from Spain," *European Journal of Political Economy* 27, no. 1 (March 2011): 154-70.

⁵⁷Eva Johansson, "Intergovernmental Grants as a Tactical Instrument: Empirical Evidence from Swedish Municipalities," *Journal of Public Economics* 87, no. 5-6 (May 2003): 883-915; Arulampalam et al., "Electoral Goals and Center-State Transfers."

⁵⁸Kevin Milligan and Michael Smart, "Regional Grants as Pork Barrel Politics," *CESifo Working Paper Series*, No. 1453 (April 2005).

In this section, we therefore investigate whether local governments controlled by each of the parties differ in terms of the subsidies they receive and their welfare spending. Whether or not the welfare spending is controlled for and affected by the incumbent political party is also discussed.

Table 3 presents four hypotheses to test local government welfare spending and subsidies. The test of Hypothesis 1 indicates that only spending on transportation, which is mostly decided at national level, remains unchanged over the full period. Subsidy amounts and spending on other welfare items were significantly increased during the period in which the DPP was in charge, from 2001 to 2007. Overall, social welfare spending in Taiwan increased during the latter part of the research period. One should note here that the recession in the wider economy might also have caused a decrease in social welfare spending in some situations. Taiwan suffered fallout from the Asian financial crisis and the global financial crash that originated in the U.S. subprime market during the mid-2000s while the DPP was in power. Even so, the test of Hypothesis 1 indicates that social welfare spending was not reduced, with the exception of social insurance. The results indicate that the economic recession did not have a negative impact on welfare spending in Taiwan.

We further distinguish between local governments controlled by the KMT and the DPP and then pool the data to test whether the spending is highly differentiated in Hypothesis 2. The results show that, from 1993 to 2000, KMT-run local governments received larger subsidies from the central government and spent more on three of the welfare items (social relief, public health, and transportation) than the DPP-run local governments. Social services were the only item on which the DPP-run local governments spent significantly more.

To confirm whether this situation was the result of the opposition party's financial disadvantage, we applied Hypothesis 3 to explore the influence brought to bear by the incumbent party. Even though the central government was controlled by the DPP, the KMT-run local governments received more subsidies and consequently spent significantly higher amounts on six welfare items (social services, retirement and pensions,

Table 3
Mean Tests of Local Government Welfare Spending and Subsidy under Different Ruling Political Parties

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Mean of local government spending and subsidy	Average expenditure	Social relief	Social services	Retirement and pensions	Social insurance	Public health	Employment services	Public housing & community development	Education	Transportation	Police administration	Subsidy
Hypothesis 1. Ho: Local government spending is no different when the central government is controlled by the KMT (1953-2000) or the DPP (2001-2007)												
KMT (central)	27608.29	311.37	1198.09	-	716.31*	449.42	19.51	68.58	9667.84	20.55	3326.77	11208.47
DPP (central)	33827.80*	738.10*	2419.25*	-	330.22	619.90*	32.88*	137.13*	11066.69*	22.95	3809.74*	15116.44*
prob.	0.000	0.000	0.000	-	0.000	0.001	0.007	0.004	0.000	0.109	0.067	0.000
Hypothesis 2. Ho: Spending by local governments controlled by different political parties is no different when the central government is controlled by the KMT (1953-2000)												
KMT - KMT	28583.71	322.84	948.99	-	744.94*	489.27*	22.72	75.49	9878.92	21.82*	3407.25	12350.31*
KMT - DPP	26124.70	292.92	1591.11*	-	601.58	404.23	15.36	61.52	9368.06	16.21	3138.77	9800.26
prob.	0.118	0.625	0.000	-	0.046	0.081	0.107	0.582	0.121	0.003	0.510	0.028
Hypothesis 3. Ho: Spending by local governments controlled by different political parties is no different when the central government is controlled by the DPP (2001-2007)												
DPP - KMT	37076.78*	722.14	2610.05*	3452.50*	346.64	728.96*	45.40*	105.65	11435.22*	23.11	4411.76*	16660.92*
DPP - DPP	28709.38	746.27	1825.44	2125.90	289.03	476.62	17.03	182.57	10517.19	19.93	3028.92	12124.19
prob.	0.000	0.906	0.002	0.000	0.291	0.010	0.007	0.112	0.015	0.184	0.000	0.008
Hypothesis 4. Ho: There is no difference in spending between KMT- and DPP-controlled local governments												
KMT (local)	32463.26*	506.93	1707.74	-	563.00*	598.76*	32.80*	89.58	10589.82*	22.41*	3866.10*	14319.35*
DPP (local)	27355.50	488.96	1702.69	-	468.40	438.70	16.36	115.32	9915.27	17.98	3086.46	10906.90
prob.	0.000	0.858	0.976	-	0.066	0.003	0.005	0.328	0.010	0.003	0.006	0.001

Notes: Ho: Spending A = Spending B, H_1 : Spending A Spending B. * means that A is significantly larger than B, i.e., reject the null hypothesis. -; missing data.

public health, employment services, education, and police administration), and also increased their average expenditure. The DPP-run local governments were neither subsidized nor did they spend significantly more on any welfare items. The results of test 2 and test 3 show that the DPP-run local governments were not subsidized as much as the KMT-run local governments when the DPP was in charge of the central government. The level of subsidies from the central government was not necessarily based on the incumbent party's position. The testing of Hypothesis 4 also shows that, over the full period, the KMT-run local governments received higher subsidies and provided more welfare to their citizens.

The above analysis rejects the hypothesis that the DPP pursued the goal of establishing a welfare state in line with its election promise. After control of the central government was transferred to the DPP in 2000, welfare was promoted throughout the whole of Taiwan. KMT-controlled local governments apparently increased their expenditure on welfare after the party lost control at the center. By contrast, even though both parties promoted welfare for the elderly in their campaigns, the DPP, once it came to power, did not really increase old age-related welfare expenditures.

One possible explanation for this may be that parties promise too much social welfare during election campaigns, causing social welfare to become a campaign instrument.⁵⁹ But why did the DPP not deliver more welfare after it gained control of the central government? Lin argues that it might have been because the DPP is not really a left-wing party. It adopted a welfare policy only in order to attract the support of disadvantaged groups. As a party, it was not particularly conscious of social policy, and the inner core of its leadership was ideologically split.⁶⁰ That is why the DPP failed to live up to its social welfare ideals after it came to power.

⁵⁹Sun, "Reflections on the Implementation of Social Allowance," 92-93.

⁶⁰Lin, *Social Welfare in Taiwan*, 63.

Discussion and Conclusion

There is no consensus in the literature as to whether an aging population leads to a larger welfare state. According to the median voter theorem, population aging makes the median voter older and thus increases the demand for social welfare. However, due to the complicated political and economic effects of aging, the overall effect of population aging on the size of the welfare state is uncertain. Besides, political business cycle theory argues that the political parties also play important roles when deciding the scale of social welfare. In theory, the political parties have their own ideologies. In order to win office, however, social welfare is usually greatly increased around the time of elections. Social welfare is therefore treated as a campaign instrument by the political parties regardless of what their original ideologies may be.

As to the inconclusive outcome found in the literature, a party may or may not carry out promises made during the campaign. This is consistent with our prior knowledge that whether or not a party carries out a political promise depends on the political benefit that can be gained from it. It is no surprise, therefore, that this gives rise to inconclusive results, as the situation of each country or party is different and needs to be investigated individually. This article therefore places emphasis on the uniqueness of Taiwan. Investigating local government spending on social welfare items individually is the key to successful empirical testing. In this study, we investigate the effect of aging and the political party on the growth of local government welfare spending in Taiwan over the period from 1993 to 2007.

In theory, voters support government policies that provide them with benefits. However, the aged and youth dependency ratios do not reflect what is anticipated in terms of the welfare provided by local governments in Taiwan. The increasing aged dependency ratio explains only a few items that contribute to the growth in welfare—public health, public housing and community development, and police administration. Youth, rather than the elderly, seems to be the focus of local government welfare spending. In addition to explaining growth in the size of government, the youth group also encourages the growth of social insurance, public health, and education.

The other components of welfare, however, are not significantly affected by generational factors. The results reveal that population aging does not necessarily increase the influence of the elderly on public welfare decisions at the local government level. Neither of the two voter groups is the main determinant of local government welfare policy decisions.

The development of social welfare for the elderly is combined with competition between the political parties. Even though both the KMT and the DPP promise to promote the welfare of the elderly during election campaigns, the effects caused by the mixed effect of aging and the political party neither represent a significant increase in spending on the majority of welfare-related items, nor do they clearly distinguish between the two parties with regard to the contribution of welfare spending. Our findings do not support the assumption that parties increase local government welfare spending on the elderly.

Compared to the KMT, the DPP usually places more emphasis on welfare benefits during election campaigns. However, the empirical results show that DPP-controlled local governments have actually spent less on welfare. Whereas one might assume that the fiscal advantage of the incumbent party would cause a local government controlled by the opposition to deliver less welfare expenditure, the results reveal that political parties' welfare spending decisions are not really based on the inherent power relationship between the central and local governments. Neither does this relationship explain why the DPP spent less than the KMT on social welfare, especially after 2001. One reason for the overall increase in welfare spending during the latter part of the period in question may be that, having lost power at the center, the KMT was trying to win the support of elderly voters, so it made sure its local governments provided more welfare for the elderly. As for the argument that welfare for the elderly was merely regarded as an election instrument by the political parties in Taiwan, this is an issue that should be further investigated.

In this study, transfers from the central government constitute the most important variable in determining local government welfare spending. Eight components are significantly and positively affected by a growing per capita central government subsidy. This indicates that the welfare budgets

of local governments are mainly manipulated by the central government. Thus budgetary power is still relatively centralized in Taiwan.

This research is a rudimentary examination of the effects of population aging and political parties on local government expenditure. We suggest that policy lag effects could be considered in future studies. In this paper, final accounts are used to represent the execution of the social welfare items in the current year. In follow-up research, we will take the time-lag effects into consideration. However, there are also limitations to the time-lag model in that the more lags one uses, the more degrees of freedom are lost. In future research, we will try to focus our analysis on the dynamic effects of aging, political parties, and local governments with respect to social welfare policies.

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