JOURNAL OF ASIAN SOCIOLOGY
Volume 52 | Number 1 | March 2023, 65-81
DOI 10.21588/dns.2023.52.1.003 **Article**

Do the Young Have Equal Voting Power as the Elderly: Population Composition of Electoral Districts and Vote Value Parity

Seulki Choi | KDI School of Public Policy and Management

This study sets out to identify the degree to which a vote's value is unequally weighted due to heterogeneous population compositions across electoral districts. The National Assembly Elections and metropolitan and provincial council elections conducted from 2012 to 2022 in South Korea are analyzed. Analysis results provide that the unequal vote value parity has been addressed to a certain extent. At the election in 2016, when the new demarcation of the electoral districts was implemented, gaps in vote values among different age groups have dropped sizably. However, the 2020 election showed a slightly rebounding trend, presumably reflecting the growing size of the elderly population. At the provincial council elections I found that there were still notable gaps in vote values. It means that heterogeneity of population sizes and age structures across electoral districts make the young have less voting power comparing to the elderly. Therefore, this study proposes to give a heed and to be prepared to ensure the vote parity at the backdrop of the aging population.

Keywords: *democracy, generation, electoral district, population age structure, aging population, one-person one-vote, voting value parity*

Introduction

Since the introduction of a democratic system in South Korea in 1987, regional cleavage has been a dominant feature of Korean electoral politics. While regional cleavage has become attenuated in the 2000s, other divides have emerged such as latent ideological and generational cleavages (Jeong and Hwang 1999; Choi 2013; Choi 2019; Noh et. al. 2013; Shin et. al. 2022).

Empowering every generation equally at the ballot box is a vital element of democracy. Yet, the voices of younger generations are known to be afforded little importance. There is a growing concern about a phenomenon in which older generations are overrepresented and younger generations are underrepresented at the polls (Jung and Lee 2018; Kim 2019; Choi 2020).

The underrepresentation of young people has primarily been explained by two mechanisms. First, the turnout of young voters is in general lower than that of the elderly. Second, as Korea's population ages, the proportion of the population made up by the older generations is growing fast while that of the young generation is shrinking. Besides these widely known explanations, this study proposes another significant factor: unequally weighted voting power across generations, which arises from different population compositions of electoral districts.

In a democratic society, every adult citizen is entitled to a vote. However, the value of each vote can be weighted differently. In the case of parliamentary elections, political representatives are elected by each electoral district. As the population size of electoral districts varies, the value of one vote inevitably differs from another. That is, the vote of a constituent in a smaller electoral district would have greater power compared to one in a district with a bigger population.

Now what would happen if the population age structure were different across electoral districts? What if young people made up the majority of a large electoral district, while older voter made up the majority of a small electoral district? In such a case, the violation of one-person one-vote parity, resulting from the population deviation, can be translated into the malapportionment of the vote-value by age. That is, an aged person's vote can have much more value than a young person's.

Figure 1 shows a hypothetical situation where the population deviation between electoral districts turns into vote value deviation among two age groups. As District A has 300,000 voters while District B has only 150,000 voters, the difference in population size comes to 2:1. If one representative is

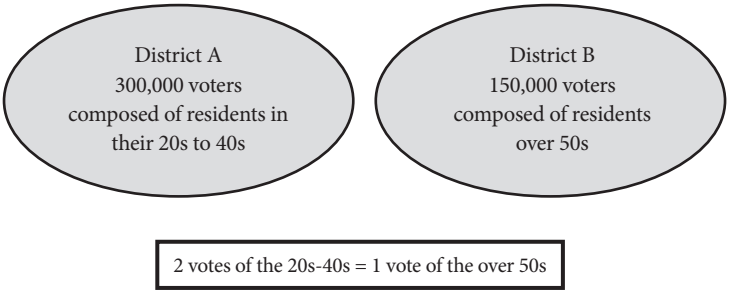


Fig. 1.—Hypothetical Case of Differences between the Population and Age Composition of Electoral Districts

to be elected from each district, the vote of a person in District A would have only half the power compared to their counterpart in District B. Now, suppose that the District A is composed of residents in their 20s to 40s, and District B consists of those who are over 50. In this hypothetical case, it can be inferred that one vote of the over-50s would have the equivalent value of two votes from the 20s-40s.

In reality, electoral districts consist of a range of ages. Yet, in general, the average age of voters in urban electoral districts is lower than that of voters in rural districts. What if the average population size of the urban district is bigger than that of the rural district? Table 1 shows the top five and bottom five electoral districts in terms of population size as of the 21st general election in South Korea. As the election took place in April 2020, the voting population is counted for the electoral demarcation on January 31, 2019.

The electoral district with the largest number of voters at that time was made up of Donghae-*si*, Taebaek-*si*, Samcheok-*si* and Jeongseon-*gun* in Gangwon-*do* with 246,667 voters. The smallest was Yeosu-*si* No. 2 in Jeollanam-*do* with only 117,761 voters. This means that one vote in Yeosu-*si* No. 2 is worth more than twice as much as one vote in Donghae-*si*, Taebaek-*si*, Samcheok-*si* and Jeongseon-*gun*. Population deviation based on the total population was limited to 2:1, but it could exceed 2:1 if only the voting-age population is counted.

In general, metropolitan areas are thought to have more populous electoral districts, while rural areas have less populous districts. However, this is not always the case. Regardless of belonging to a metropolitan area or not, the number of voters increases when an electoral district is formulated by combining several cities and counties. Such is the case of the electoral district

Table 1
Top and Bottom Five Electoral Districts by Size of Voters at the 21st National Assembly Election

Rank	Electoral district	Number of voters
Top		
1st	Donghae-*si*, Taebaek-*si*, Samcheok-si & Jeongseon-*gun*, in Gangwon-*do*	246,667
2nd	Gwanak-*gu* No. 1, Seoul-*si*	239,817
3rd	Bupyeong-*gu* No. 1, Incheon-*si*	236,907
4th	Goyang-*si* No. 1, Gyeonggi Province	232,773
5th	Miryang-*si*, Uiryeong-*gun*, Haman-*gun* & Changnyeong-*gun*, South Gyeongsang Province	232,364
Bottom		
1st	Yeosu-*si* No. 2, South Jeolla Province	117,761
2nd	Nam-*gu* No. 2, Busan-*si*	118,196
3rd	Sejong-*si* No. 2	118,843
4th	Yeoncheon-*gun*, Dongducheon-*si*, Gyeonggi Province	120,216
5th	Gimcheon-*si*, North Gyeongsang Province	120,497

Source: Resident registration on January 31, 2019 from Ministry of Interior and Safety
Note: *Do* is equivalent to province; *si* is a unit equivalent of city; *gun* is a unit similar to county in the US; *gu* is equivalent to district or boroughs, which consists of cities; *gun* is a similar unit, which is rural and less populated compared to *gu*.

of Donghae-*si*, Taebaek-*si*, Samcheok-*si* and Jeongseon-*gun*. On the contrary, the electoral district population reduces if the electoral district is made through a split. For instance, Yeonsu-*gu* No. 2 in Incheon was the third-smallest electoral district at the time of the 20th general election. But previously, during the19th National Assembly election, it had been a large electoral district, under the name of Yeonsu-*gu*. During the electoral demarcation process of the 20th National Assembly election, the area was split into two electoral districts as it exceeded the upper limit of the population proportion, consequently becoming minimum-scale electoral districts.

Table 2 presents the top five and bottom five electoral districts by the average age of voters at the 21st National Assembly election. The oldest average age is 58.4 years old, found in the district made up of Gunwi-*gun*,

Table 2
Top and Bottom Five Electoral Districts by Voter Age at the 21st National Assembly Election

Rank	Electoral District	Average age
Top		
1st	Gunwi-*gun*, Uiseong-*gun*, Cheongsong-*gun* & Yeongdeok-*gun*, Gyeongsangbuk-*do*	58.4
2nd	Goheung-*gun*, Boseong-*gun*, Jangheung-*gun* & Gangjin-*gun*, South Jeolla Province	57.6
3rd	Sancheong-*gun*, Hamyang-*gun*, Geochang-*gun* & Hapcheon-*gun*, South Gyeongsang Province	56.3
4th	Haenam-*gun*, Wando-*gun* & Jindo-*gun*, South Jeolla Province	55.8
5th	Boeun-*gun*, Okcheon-*gun*, Yeongdong-*gun* & Goesan-*gun*, Chungcheongbuk-*do*	55.5
Bottom		
1st	Hwaseong-*si* No. 2, Gyeonggi-*do*	41.4
2nd	Gwangsan-*gun* No. 2, Gwangju-*si*	42.6
3rd	Cheonan-*si* No. 2, Chungcheongnam-*do*	42.9
4th	Suwon-*si* No. 4, Gyeonggi-*do*	42.9
5th	Suwon-*si* No. 5, Gyeonggi-*do*	43.2

Source: Resident registration on January 31, 2019 from Ministry of Interior and Safety

Uiseong-*gun*, Cheongsong-*gun*, and Yeongdeok-*gun*, which belong to Gyeongsangbuk-*do*. The second- to fifth-oldest districts all correspond to *gun*. In contrast, the youngest district is Hwaseong-*si* No. 2 with an average age of 41.4 years old. The second- to fifth-youngest are all city areas. The difference in the average age between the oldest and the youngest district amounts to 17 years.

From the two tables above, we can conjecture the general configuration of population composition of electoral districts. In general, metropolitan areas have larger, younger electoral districts, with some exceptions. Such population deviation can pose concerns about the vote-value deviation among different age groups.

Against this backdrop, this study aims to assess the unequal weight of votes among different age groups. Six parliamentary elections will be

analyzed, including three National Assembly elections in 2012, 2016, and 2020 and three local elections in 2014, 2018, and 2022. In regard to local elections, metropolitan and provincial council elections will be analyzed.

The Vote Parity Principle and Vote Value Deviation Across Age Groups

The electoral system is a core and fundamental component of representative democracy. Among the four principles of contemporary democracy,[1] that concerning equal elections emphasizes vote parity. This is not limited to the rule of "one person, one vote" for one eligible voter. The actual value of votes should be equally weighted. That is, every voter should have the equal power to sway the election outcomes with their vote. In this aspect, population deviation across electoral districts has been pointed out as jeopardizing the principle of equal elections (Kang 2015; Shin 2012; Lee 2011). Korea's Constitutional Court has stipulated that "vote value equality based on the population proportion principle in electoral demarcation is a constitutional decree." Highlighting its significance, it stated that "it is a fundamental and primary criterion compared to other elements." Accordingly, electoral demarcations that violates vote value equality without a reasonable cause were ruled as unconstitutional (Constitutional Court, Decision of Oct. 25, 2001, Case No. 2000 Ma 92).

Before Korea's democratization in 1987, the one-person, one-vote principle did not take into consideration the weight of each vote (Kang 2015). Until the 1998 National Assembly election, electoral districts were demarcated so that one representative was elected for approximately every 200,000 constituents. The first time that population deviation was suggested as a standard was the 15th general election, in 1996.

Table 3 shows electoral redistricting standards. In 1996, the upper limit of electoral district population was 300,000 and the lower limit remained at 7,500, allowing a maximum population deviation of 4.4:1. Since then, these standards have undergone gradual changes to address population deviation. The Constitutional Court of Korea played a decisive role in this process of change. In late 1995, the Constitutional Court ruled on an electoral demarcation case, deciding that excessive population deviation was

[1] The four principles of elections are universal elections, equal elections, direct elections, and secret elections.

Table 3
Electoral Redistricting Standard for Electoral District and Population Deviation

General election (year)	Upper and lower limits of demarcating electoral districts (upper limit | lower limit)	Maximum permissible population deviation
15th (1996)	300,000 | 75,000	4.40:1
16th (2000)	350,000 | 90,000	3.88:1
17th (2004)	315,000 | 105,000	2.80:1
18th (2008)	312,000 | 104,000	3.00:1
19th (2012)	310,406 | 103,469	3.00:1
20th (2016)	278,982 | 140,074	2.00:1
21st (2020)	277,912 | 139,027	2.00:1

unconstitutional, and put forward on a majority opinion that the population deviation should be within 4:1 (Constitutional Court, Decision of Dec. 27, 1995, Case No. 95 Ma 224).

In 2001, the Constitutional Court reversed its stance and adjudicated that the existing 4:1 population deviation standard is incompatible with the Constitution, deciding that the vote-value equality that the Constitution upholds is protected only if the population deviation is set within 3:1 (Constitutional Court, Decision of Oct. 25, 2001, Case No. 2000 Ma 92). As a consequence, the electoral demarcation standard was changed so the population deviation is within 3:1 starting with the 17th National Assembly election in 2004. The most recent Constitutional Court precedent was set in 2014, and the existing 3:1 standard was again ruled as a constitutional discordance, with the bench arguing that the population deviation should be within 2:1. This conforms much more strictly to the vote parity principle (Constitutional Court, Decision of Oct. 30, 2014, Case No. 2014 Ma 53). As a result, local electoral districts were adjusted in the 20th National Assembly election so the population deviation was within a 2:1 maximum.

Though the vote parity principle has been gradually reinforced, National Assembly elections still allow a maximum population deviation of 2:1. The Constitutional Court has adjudicated that the extreme population deviation between city and rural areas, which resulted from the regional representativeness of municipal representatives, and urban concentration, should also be considered (Constitutional Court, Decision of Mar. 29, 2007,

Case No. 2005 Ma 985; Constitutional Court, Decision of Mar. 29, 2007, Case No. 2006 Ma 11).

Analytical Results

Figure 2 visualizes the correlation between the population size and the average age of each district in National Assembly elections from 2012 to 2020. In 2012, the negative relationship was significant and sizable. It became weaker in 2016 and 2020. This is presumed to be associated with the change of rules reflecting the Constitutional Court verdict.

Trends of metropolitan and provincial council elections show distinct features in table 4. First, overall negative relationships are observed between population size and the average age of voters, indicating that smaller districts are more likely to be composed of older voters. Second, the negative relationship is more pronounced at the level of provincial council elections compared to metropolitan council elections. Some metropolitan councils even show a positive correlation, albeit statistically insignificant. This implies that the equality of vote value is more likely to be threatened in provincial council elections.

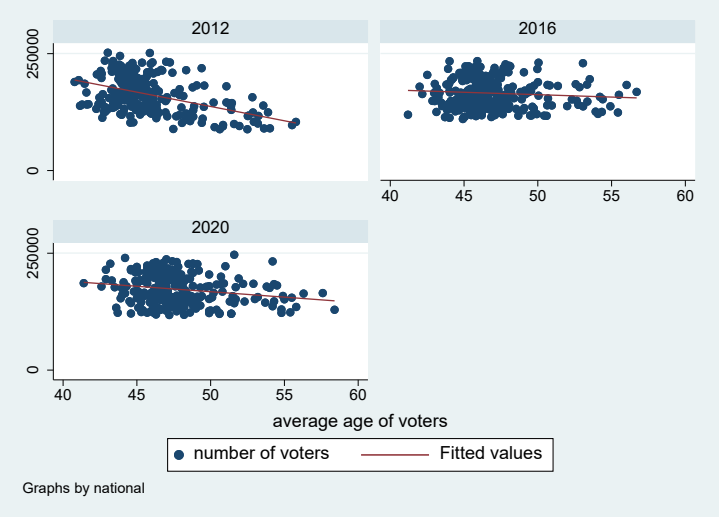


Fig. 2.—Scatterplot of Average Age of Voters and Population Size of the Electoral District at National Assembly Elections in 2012, 2016, 2020

Table 4
Correlation Between Voter Numbers and the Average Age at Metropolitan and Provincial Elections in 2014, 2018, and 2022

	2014	2018	2022
Seoul	-0.368***	-0.188†	-0.241*
Busan	-0.482**	-0.437**	-0.283
Daegu	-0.542**	-0.369†	-0.222
Gwangju	-0.820***	-0.449*	-0.468*
Incheon	-0.466**	-0.020	-0.376*
Daejeon	0.230	-0.284	-0.444†
Ulsan	0.235	0.173	0.063
Sejong	-0.248	0.191	-0.343
Gyeonggi-do	-0.402***	-0.276**	-0.190*
Gangwon-do	-0.627***	-0.529**	-0.571***
Chungcheongbuk-do	-0.608***	-0.667***	-0.623***
Chungcheongnam-do	-0.759***	-0.571***	-0.567***
Jeollabuk-do	-0.805***	-0.675***	-0.502**
Jeollanam-do	-0.652***	-0.619***	-0.416**
Gyeongsangbuk-do	-0.707***	-0.753***	-0.443***
Gyeongsangnam-do	-0.688***	-0.656***	-0.639***
Jeju-do	-0.515**	-0.447*	-0.552**

† $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 3 shows the vote value gap for National Assembly elections in 2012, 2016, and 2020 with the lowest vote value as a base. The findings can be interpreted to mean that one vote by an 81-year-old had 8.3% higher influence compared to a vote cast by a 32-year-old voter at the ballot box in 2012. During the 2016 election, the vote value gap between 85-year-old voters and 27-year-old voters decreased to 1.75%. Presumably, this was a consequence of the electoral re-demarcation based on the maximum permissible population deviation. The vote-value gap rebounded slightly in the 2020 election, when an 85-year-old's vote had 2.68% higher value compared to a 39-year-old's vote.

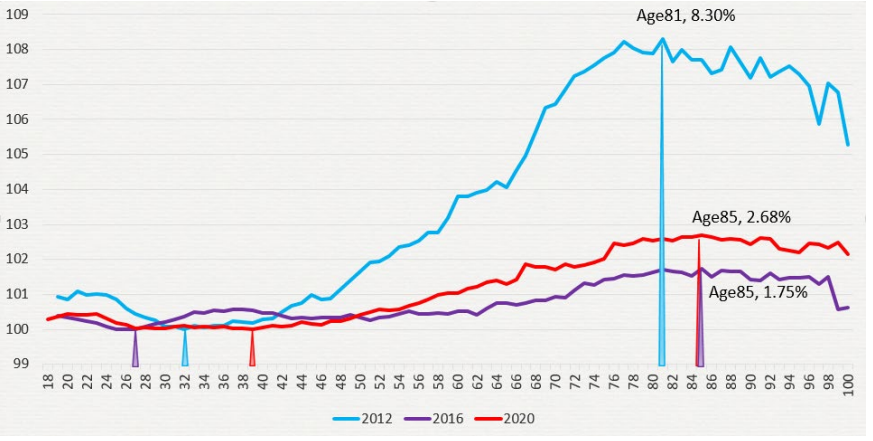


Fig. 3.—Voting Value Gap at National Assembly Elections in 2012, 2016, and 2020

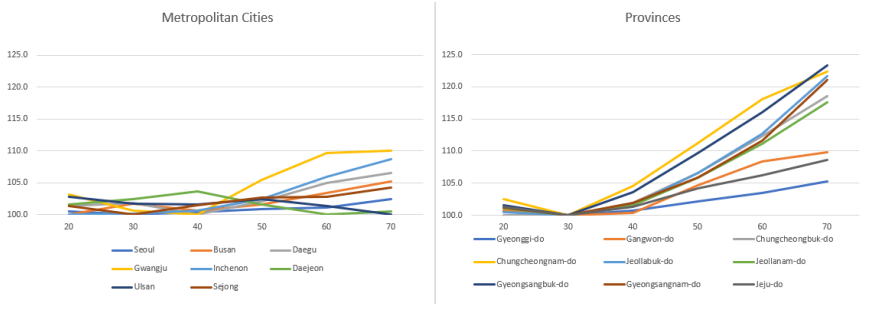
The trends in vote value gap by 10-year age intervals in table 5 show consistent results. Voters in their 70s and older have the most powerful votes throughout consecutive elections. At the election in 2012, their votes had 7.38% higher value compared to those of voters in their 30s, which decreased to 1.21% by the 2016 election. The vote value gap rose again to 2.19% in the election of 2020.

Table 5
Voting Value Gap at National Assembly Elections in 2012, 2016, and 2020

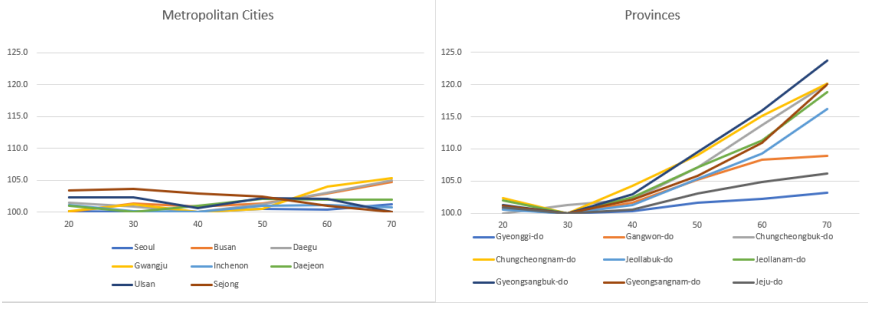
-	Year	20s	30s	40s	50s	60s	70s and above
19th Election	2012	100.61	100.00	100.64	102.16	104.37	107.38
20th Election	2016	100.00	100.30	100.20	100.24	100.48	101.21
21st Election	2020	100.21	100.00	100.12	100.64	101.33	102.19

The gaps in the value of votes at the level of local council elections are presented in figure 6. Older generations enjoy greater impacts of their voting rights. Gaps at elections for metropolitan councils are relatively small. An exception is the Sejong City Council election. The gap which had been 4.2% in 2014 climbed to 24.4% in 2022. This is presumed to be due to the process of city development which started in 2012. Since then, Sejong has gone

2014 Local Election



2018 Local Election



2022 Local Election

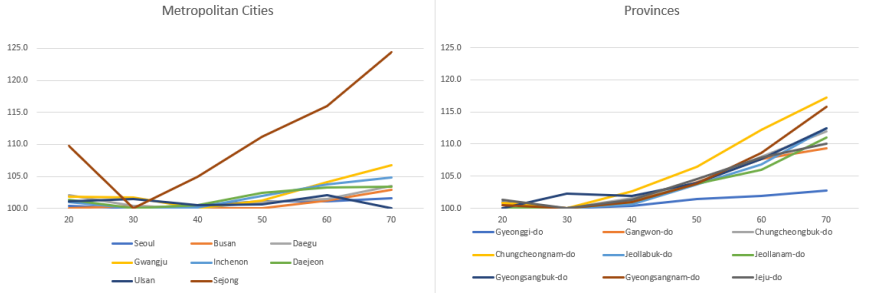


Fig. 6.—Voting Value Gap at Metropolitan and Provincial Council Elections in 2014, 2018, and 2022

through a rapid population change. Overall, vote value gaps at provincial council elections are bigger than those seen in metropolitan council elections. Compared to the elections in 2014 and 2018, the gap decreased in 2022. Still, the gap amounts to 2.7% at the smallest (Gyeongggi-*do*) and 17.2% at the biggest (Chungcheongnam-*do*) in 2022.

Discussion

The aim of this study is to examine the degree to which a vote's value differs among different age groups according to the population size and the average age of each electoral district. The gaps in vote value among different age groups are examined using parliamentary elections that took place from 2012 to 2022 in South Korea. Six elections in total are analyzed including National Assembly elections in 2012, 2016, and 2020 and metropolitan and provincial council elections in 2014, 2018, and 2022.

This analysis finds that violation of the vote value parity among different age groups is not sizable or detrimental of late. But it should be noted that hypothetical supposition has its limits. Real electoral districts are composed of various age groups. The process of combining and splitting electoral districts allows diversity of population composition of electoral districts regardless of whether they belong to metropolitan areas or urban/rural areas. There are some urban areas populated largely by senior citizens, and some rural areas by young people. Metropolitan areas have small constituencies as well as large ones, while big constituencies exist in rural areas.

But these facts do not mean there has been no problem in vote value parity. Starting with the election in 2016, demarcation of electoral districts based on the maximum permissible population deviation provides a turning point to address the issue of the vote value parity. Before the National Assembly election in 2016, population deviation was allowed at a rate up to 3:1, and the vote value gap amounted to 8.3% at most. Such vote value gap has reduced sizably to 1.75% as population deviation was limited to 2:1.

With this being the case, can one say that the issue of the age-specific vote parity been resolved? The answer is yes and no. Firstly, the maximum permissible population deviation is only validated in National Assembly elections. Unlike National Assembly elections, local council elections still exhibit population deviation among districts at 3:1. The low vote value, as a consequence, implies the underrepresentation of young voters at local provincial council elections. At local levels, the right to an equal vote should

be reinforced further. However, unequal vote parity problems are much smaller in metropolitan council elections, largely because of the relative homogeneity among electoral districts.

Secondly, Korea's pressing issue of aging population must be taken into account in further research. The result of the National Assembly election in 2020, which shows a slight increase comparing to the result in 2016, is presumed to reflect a growing size of the elderly population. Considering the population aging process on a fast track in South Korea, it is highly likely that the issue of vote value deviation among different age groups will become amplified in the foreseeable future. Therefore, this study proposes that preparations be made to ensure vote parity against the backdrop of the aging population.

(*Submitted*: December 21, 2022; *revised*: March 30, 2023; *Accepted*: March 31, 2023)

References

Choi, Eunjung. 2013. "Political issues, generation gap, and voting behavior in South Korea: The 2010 Seoul mayoral election." *East Asia* 30: 237-254.

Choi, Seulki and Yun-suk Lee, Seokho Kim. 2019. "Generational difference in political attitude and behavior in South Korea: Focusing on discernible cohort effect." *Korean Social Science Journal* 20(2): 103-130.

Choi, Sun. 2020. "Political Representation and Participation of Korean Youth Generation." *Korean Journal of Political Science* 28(4): 271-294.

Jeong, Jinmin and Aran Hwang. 1999. "The Korean Electoral Politics in the Post-Democratization Era: A Generational Perspective." *Korean Journal of Political Science* 33(2): 115-134.

Jung Da Bin and Jae Mook Lee. 2018. "Youth General of Representation Improvement in Local Elections: Focused on The Legislative Activity in Local Council." *Dongguk Social Science Research* 25(1): 7-26.

Kang, Won-Taek and Ye-jin Seong. 2018. "How Conservative Voters are Divided in the 2017 South Korean Presidential Election." *Journal of Korean Politics* 27(1): 205-240.

Kang, Woojin. 2015. "Politics of Redistricting Process: Main Issues and Tasks." *Korean Journal of Legislative Studies* 21(2):5-32.

Kim, Jungin. 2019. "Demographic Changes and Diversity and Representation of Local Council Members: The Focus on Local Council Members in Gyeonggi Province." *Korean Public Management Review* 33(4): 101-126.

Lee, Sanghack. 2011. "National Assembly Electoral Apportionment and Political Gini Coefficient in Korea." *Review of Institution and Economics* 5(1): 103-118.

Lee, Sanghack and Seongkyu Lee. 2015. "Unequal Votes in Democracy: Electoral Mal-Apportionment in National Assembly Election of Korea." *Journal of Parliamentary Research* 10(2): 5-24.

Noh, Hwanhee and Jungmin Song, Won-Taek Kang. 2013. "Generation Effects Remain Salient?: An Analysis of the South Korean Presidential Elections between 1997 and 2012." *Korean Party Studies Review* 12(1): 113-140.

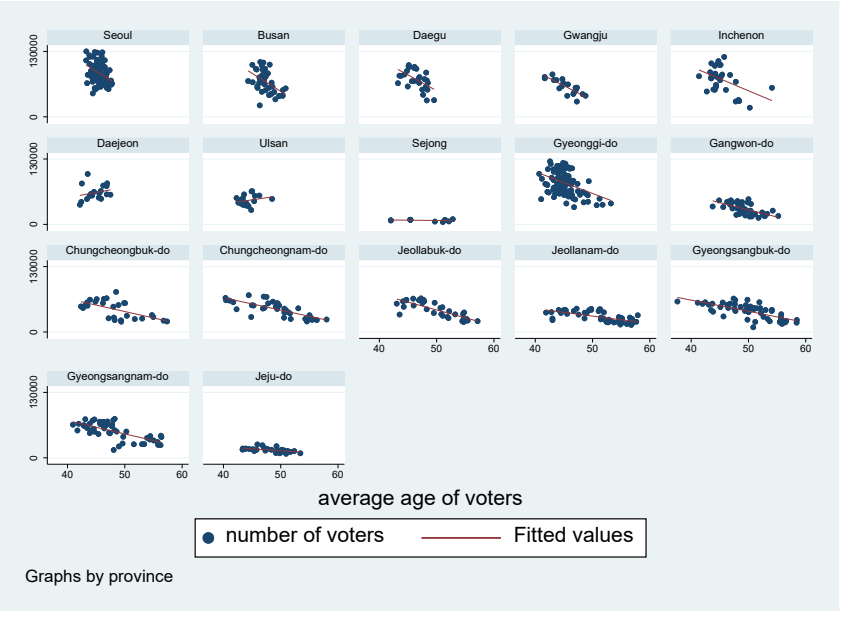
Shin, Jae Hyeok, Hojun Lee, and Suk Jae Hur. 2022. "Electoral Continuity and Change in South Korea since Democratization: The Effects of Region, Ideology, and Generation on Voting Behavior." *Asian Survey* 62(2): 269-301.

Sin, Jin. 2012. "Korea's Precincts and Political Equality: One Person? One vote? One Value." *Korean Journal of Political Science* 19(3): 49-70.

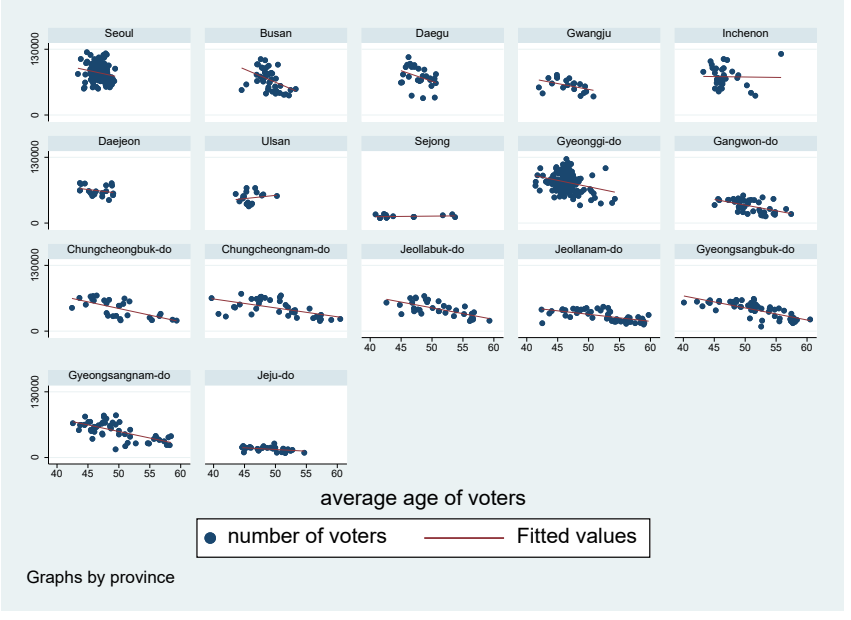
Constitutional Court, Decision of Oct. 25, 2001, Case No. 2000 Ma 92
Constitutional Court, Decision of Oct. 30, 2014, Case No. 2014 Ma 53
Constitutional Court, Decision of Mar. 29, 2007, Case No. 2005 Ma 985
Constitutional Court, Decision of Mar. 29, 2007, Case No. 2006 Ma 11

Seulki Choi is a professor at KDI School of Public Policy and Management, South Korea. He is interested in population, generation and quality of life. His recent works have been published in Journal of Policy Studies(2023), the Korea Journal of Population Studies (2021, 2022), Health and Social Welfare Review (2019), and Family and Culture (2019) [*E-mail:* chois@kdischool.ac.kr].

Appendix 1. Scatterplot of Average Age of Voters and Population Size of the Electoral District at Metropolitan and Provincial Council Election in 2014



Appendix 2. Scatterplot of Average Age of Voters and Population Size of the Electoral District at Metropolitan and Provincial Council Election in 2018



Appendix 3. Scatterplot of Average Age of Voters and Population Size of the Electoral District at Metropolitan and Provincial Council Election in 2022