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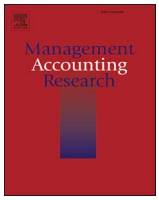

Bargaining power and budget ratcheting: Evidence from South Korean local governments

Youn-Sik Choi [a], Mi-Ok Kim [b,*], Hyung-Rok Jung [a], Hyungjin Cho [c]

[a] School of Management, Kyung Hee University, Seoul, South Korea
[b] Department of Tax Accounting and Finance, The Catholic University of Korea, Gyeonggi-do, South Korea
[c] College of Business Administration, Inha University, Incheon, South Korea

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ABSTRACT

Using the actual and budgeted expenditure data of 241 South Korean local governments from 2010 to 2015, we find that budget decreases in the case of underspending are larger than budget increases in the case of overspending, which is in contrast to the asymmetric budget ratcheting pattern documented in prior studies. More importantly, we find that budget increases in the case of overspending are stronger when government officials have greater bargaining power as proxied by local governments located in the metropolitan area, having greater fiscal independence, and being affiliated with the ruling party. In the case of underspending, budget decreases are larger for local governments in metropolitan areas but do not differ for levels of fiscal independence and the political affiliations of local government heads. Our findings imply that the patterns of budget ratcheting could be diverse based on how local government officials strategically respond to the dynamics between bargaining power and the pressure of justifying budgets. We suggest that "justifying budgets" could safeguard public resources from inefficient budgeting.

1. Introduction

This study investigates whether local government officials' bargaining power could affect the degree of the ratchet principle in a budgeting process (hereafter referred to as "budget ratcheting").[1] Although prior studies provide evidence on asymmetric budget ratcheting (Indjejikian and Nanda, 2002; Leone and Rock, 2002; Lee and Plummer, 2007), there is little discussion on what drives or enhances this asymmetric nature.[2] We focus on the role of bargaining power in the budget process and provide evidence that asymmetric budget ratcheting varies with local government officials' bargaining power because these officials exert their bargaining power during the budgeting process.

Generally, government officials are expected to maximize the social services provided to the public within the limited resources in an efficient and effective manner. However, the budgeting process can generate budget ratcheting, aimed at maximizing would maximize government officials' benefits rather than the social services. The budgeting process in which previous performance is used as the basis of newly negotiated budget motivates government officials to maximize their budgets (e.g., Niskanen, 1971; Brennan and Buchanan, 1977). The extent that budget maximization incentives are associated with budget ratcheting differs depending on whether the previous spending is less or more than the budget (Indjejikian and Nanda, 2002; Leone and Rock, 2002). Lee and Plummer (2007) document that budget increases associated with prior-year government overspending (actual expenditure exceeds budget) are larger than decreases associated with underspending (actual expenditure falls short of budget) of the same amount. This asymmetric pattern of budget ratcheting is interpreted as that budget-maximizing officials successfully enlarge budget increases and reduce decreases in the budgeting process. This could lead to overspending variances to be permanent and underspending variances to be transitory.

* Corresponding author at: Department of Tax Accounting and Finance, The Catholic University of Korea, Gyeonggi-do, 14662, South Korea.
E-mail addresses: yschoi@khu.ac.kr (Y.-S. Choi), oki8383@catholic.ac.kr (M.-O. Kim), jhrjhr@khu.ac.kr (H.-R. Jung), hcho1007@inha.ac.kr (H. Cho).

[1] Budget ratcheting refers to the tendency of government officials to use the current year's expenditures as a notched gear wheel in fixing the point of departure for the next year's budgets (Berliner, 1976; Weitzman, 1980).

[2] Lee and Plummer (2007) document that the asymmetric pattern is more pronounced when controls on government spending are likely to be weaker, and specifically, if a school district operates in a less competitive environment and has lower voter influence. However, their empirical findings predominantly concern the case of underspending (51.3% of the observations), indicating that the case of overspending is still a black box.

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Table 1
Local governments in South Korea.

Name	Upper level		Lower level			Total
	Metropolitan city	Province	City	County (Gun)	District (Gu)	
Seoul	1				25	26
Busan	1			1	15	17
Daegu	1			1	7	9
Incheon	1			2	8	11
Gwangju	1				5	6
Daejeon	1				5	6
Ulsan	1			1	4	6
Sejong	1					1
Gyeonggi-do		1	28	3		32
Gangwon-do		1	7	11		19
Chungcheongbuk-do		1	3	8		12
Chungcheongnam-do		1	8	7		16
Jeollabuk-do		1	6	8		15
Jeollanam-do		1	5	17		23
Gyeongsangbuk-do		1	10	13		24
Gyeongsangnam-do		1	8	10		19
Jeju-do		1				1
total	8	9	75	82	69	243

Note: This table presents the local governments in the Republic of Korea as of the end of 2017.

A typical budgeting process of local governments involves interactions between central and local government officials. Local government officials are obligated to explain both budget increases and decreases to settle the budget for the incoming year. Although overspending variances would be a useful explanation to insist the budget increases, local governments may employ their bargaining power to increase the budget further. Similarly, when local government officials insist that underspending variances do not originate from budgetary slack (Giroux and Shields, 1993) and minimize budget cuts, they could use their bargaining power as the wedge to achieve their goals.

Bargaining power may arise from one or a combination of various factors. For instance, the vertical institutional structure of an administrative office involves different roles and responsibilities for government officials. Poor economic conditions will make a local government rely on central government funding to accomplish its own fiscal projects, preventing the local government from preparing its budget independently. In addition, political relations among government officials in higher and lower levels of administrative offices as well as their legislators in corresponding levels may affect the budgeting process.

Based on prior studies on budget ratcheting and government officials' bargaining power, we question whether the degree of asymmetric budget ratcheting depends on how effectively government officials exert their bargaining power when they justify budget increases or cuts during the budgeting process. To address this research question, we use data on annual expenditures and budgets of 241 South Korean local governments for the period from 2010 to 2015. Our sample contains 1,455 local government-year observations. We first examine budget ratcheting within the total sample and find that budgets steadily increase in the case of overspending and sharply decrease in the case of underspending. This finding is in contrast with the small budget cuts in the case of underspending studied in Lee and Plummer (2007), which are driven by government officials with a budget maximization objective. We argue that this sharp decrease after underspending variances may be the result of government officials ineffectively exerting their bargaining power in the underspending situation or even responding more sensitively and conservatively as they confront the overwhelming pressure of justifying small budget cuts.

In the subsequent empirical analyses, we investigate how asymmetric budget ratcheting varies with local government officials' bargaining power. Based on a thorough investigation of the unique features of the South Korean (local) government system, we identify various sources of bargaining power among local governments such as institutional structure, economic conditions, and political relations. Particularly, we expect local governments (officials) to exert greater influence on the budgeting process when they are from the metropolitan area, their local governments are fiscally independent, and they are affiliated with the ruling party. We find that budget increases in the case of overspending are significantly larger for the sample of metropolitan governments (compared to those of non-metropolitan governments), for governments with high fiscal independence (compared to those with low fiscal independence), and for governments affiliated to the ruling party (compared to those affiliated to the opposition party). In addition, we find that budget decreases in the case of underspending are significantly larger for the sample of metropolitan governments. Budget decreases, however, are not statistically different for the levels of fiscal independence and political affiliations of the local government heads. These results indicate that government officials with greater bargaining power drive more budget increases in the case of overspending, whereas they behave more conservatively and even sharply cut budgets in the case of underspending.

Our study makes several contributions to the budgeting literature. First, our results extend the current literature by adding insights to the diverse patterns of budget ratcheting. Most prior literature, such as Lee and Plummer (2007), predicts that government officials try to make small cuts in the case of underspending to maximize budgets. However, our results show that budgets could decrease during underspending equally or more than they increase during overspending. These findings imply that budget maximization could not be always achieved but may be affected by the factors embedded in a budgeting process. Second, this study identifies several factors (institutional function, fiscal independence, and political affiliation of local government heads) that intensify or attenuate government officials' incentives for budget maximization, and tries to understand the mechanism. Interestingly, our results reveal that the pattern of budget ratcheting depends on the dynamics between government officials' bargaining power and the pressure to justify their budgets. Third, we suggest a meaningful policy implication by shedding light on the positive role of "justifying budgets." Our results imply that government officials behave strategically in the budgeting process due to the pressure of explaining and persuading budget changes. This implication is consistent with prior studies showing that government officials do not always pursue budget expansions (Ryu et al., 2007) and those documenting budget-minimizing preferences among government officials (Arapis and Bowling, 2020). "Justifying budgets" could thus be an effective device that safeguards public resources from the risk of inefficient budgeting, by suppressing the budget maximization incentive of government officials.

The remainder of our paper is organized as follows. Section 2 discusses prior research and hypothesis development. Section 3 describes our empirical model with more details about the research site, variables, and the statistical methodology employed. Section 4 provides descriptive statistics and presents the results. Section 5 concludes the paper.

2. Literature review and hypothesis development

2.1. Traditional budgeting theories: incrementalism and ratcheting

One stream of traditional budget theories considers incrementalism in budgeting. Wildavsky (1960) argues that the most important predictor of a future budget is the previous one, implying that the previous budget works as an eligible benchmark in the budget process. Thus, once a budget is created, it not only is meaningful in the current year but also creates an expectation that it will be approved in the following years (Wildavsky, 1979). Therefore, the current year's budget tends to be set based on the previous year's budget, with special attention given to a narrow range of increases or decreases (Davis et al., 1966). The incrementalism model of Rose and Davies (1994) was cited in several studies on U.S. budgeting (Berry, 1986) and heavily utilized in many studies of central government budgeting in the U.K. (John and Margetts, 2003).[3]

Another strand of traditional budget theory based on economics relates to budget ratcheting. In a state-led planned economy, government officials tend to use past economic performance as the benchmark for the subsequent year's economic plans, which is often called the "ratchet principle" (Berliner, 1976; Weitzman, 1976, 1980). Compared to the budget incrementalism model, the budget ratcheting model may include several unique and diverse aspects to explain budgeting practices. First, the budget ratcheting model directly compares actual expenditures and budgets in the current year, and investigates how much of the gap between them is incorporated into the following year's budget. Second, the model can easily evolve into a variant form that reflects an asymmetric pattern by differentiating the case where the prior expenditures are smaller than the prior budgets (the case of underspending) from when the prior expenditures are larger than the prior budgets (the case of overspending). Third, the model enables researchers to address the strategic behaviors of government officials who confront the dynamic trade-off embedded in the model when they pursue their private incentives such as budget maximization.[4] Fourth, the model can be utilized to empirically test diverse arguments based on a political or administrative theory by controlling economic factors in budgeting. Lastly, the budget ratcheting model considers how efficiently the budget is set by examining the magnitude of additional changes in the budget not explained by changes in economic factors.

A series of empirical studies have investigated the presence of ratcheting in government budget practice. For instance, Bellante and Porter (1998) and Hercowitz and Strawczynski (2004) document that government expenditure increases during recession periods and decreases in expansion periods by a smaller degree. Lee and Plummer (2007) analyze the budgeting behavior of public schools in the U.S. and document that the degree to which the current budget decreases if the prior expenditure is smaller than the prior budget is less than the degree to which the current budget increases if the prior expenditure is larger than the prior budget. This finding implies that government officials may be motivated to follow asymmetric budget ratcheting, depending on the prior history.

2.2. Hypothesis development

In a typical budgeting process, government officials are subject to explaining budget increases as well as decreases to settle the next year's budgets (Bowling et al., 2004). Justifying budgets, therefore, is unavoidable but considerably important to government officials.[5] Thus, the ratchet principle inherently embeds dynamic incentive problems for government officials. If government officials perform efficiently and achieve their goal by spending less than the budget, based on the ratchet principle, their budget will be cut in the following period. The reduced budget will constrain the possibility that they will receive a positive evaluation in the future. Weitzman (1980) demonstrates that it is difficult for a government official with a previous positive evaluation to obtain a positive evaluation in the next period.[6]

Government officials seeking to maximize budgets may try to avoid this dynamic incentive problem by justifying their budgets. Because underspending variances often originate from budgetary slack (Giroux and Shields, 1993), government officials usually confront the greater pressure of explaining and persuading that underspending variances are just transitory and not the results of budgetary slack. If government officials confront overwhelming criticisms on small budget cuts in underspending, they may decide to engage in the budgeting process more strategically.[7] In other words, government officials may allow a sharp budget decrease, which may be a superior strategy for them to build their reputation as faithful public servants because their credibility could be damaged if they ask for amounts much larger than the appropriating party considers reasonable (Davis et al., 1966). In this case, the absolute value of the budget decreases after underspending is expected to be equal to or larger than that of the budget increases after overspending.

In summary, government officials' strategic behavior in underspending may affect the pattern of budget ratcheting. If government officials are confident and/or succeed in justifying small budget cuts, budget increases after overspending are larger than budget decreases after underspending by an equivalent spending variance, presenting the asymmetric budget ratcheting found in prior studies (i.e., Lee and Plummer, 2007). If, however, government officials perceive a non-trivial risk and/or fail to justify small budget cuts, budgets increase equally or less in overspending than they decrease in underspending by an equivalent spending variance, presenting the pattern opposite to asymmetric

[3] However, we also note that budget incrementalism is still debated (e.g., Auten et al., 1984; Kamlet and Mowery, 1983, 1987; Klein, 1976).

[4] Elected politicians aim to obtain more votes by providing extended public services to voters. To provide these services, government officials generally aim for budget maximization (Brennan and Buchanan, 1977, 1978, 1980). In addition, the size of the budget is positively correlated with the honor, privilege, bonuses, and promotion opportunities of government officials (Brennan and Buchanan, 1977). A higher budget also helps high-ranking officials solidify relationships with support groups within the organization (Fiorina and Noll, 1978; Niskanen, 1971; Wolfson, 2003).

[5] In South Korea, justifying budgets in a budgeting process is as important as in other country, because sound fiscal operation is declared as one of the basic aims (principles) in not only the National Finance Act (Article 1) but also the Local Finance Act (Article 1). To ensure fiscal soundness, South Korea has an admirable tradition of fiscal conservatism with a deep-rooted resistance to incurring fiscal deficits and public debt (He, 2003).

[6] With respect to this dynamic trade-off between present rewards from better current performance and future losses from the assignment of an unfavorable budget, Weitzman (1980) mentions that the operation of the ratchet principle is widespread in planning or regulatory contexts ranging from the determination of piecework standards for individual workers, to fixing budgets or output quotas for larger bureaucracies.

[7] Many prior studies mention that government officials strategically engage in a budgeting process. For example, Davis et al. (1966) insist that government officials uniformly believe that being a good politician is more important in obtaining funds than demonstration of their efficiency and document that budget requests are often estimated a little high but not too high. Bowling et al. (2004) find that some government officials opt not to request increased budgets. In addition, Arapis and Bowling (2020) argue that factors such as legislators, interest groups, budgeting rules, and fiscal environment may help government officials minimize budget preferences.

budget ratcheting found in prior studies. Therefore, the pattern of budget ratcheting is an empirical question. We develop the first hypothesis in the null form as follows:

H1. Budget ratcheting is symmetric: The absolute value of a budget increase in overspending equals that of a budget decrease in underspending.

We next highlight the role of bargaining power in the budget process by employing the asymmetric budget ratcheting model.

In the budget process where limited resources in a country are vertically and horizontally distributed to local governments, it may be inevitable that government officials with budget maximization incentives compete to obtain more resources and try to exert their bargaining power. Therefore, bargaining power could affect the pattern of budget ratcheting. Government officials with more bargaining power may be in a better position to exert their influence in justifying budgets. In the case of overspending, government officials may succeed in incorporating a greater portion of a spending variance in a budget increase as they have more bargaining power. It is, therefore, expected that budget increases after overspending are greater when government officials have larger bargaining power.

Bargaining power in a typical budgeting process may arise from a combination of various factors: institutional, economic, political, and so on. From an institutional perspective, the vertical structure of an administrative office involves different roles and responsibilities among government officials in their status. For example, initial budgets are prepared by lower-level governments, and higher-level governments usually review and/or approve some items in them for reinforcing vertical and horizontal policy integrity among local governments. In addition, the economic condition of each local government affects its capability of financing resources for its own projects, and as a result, prevents local government from preparing its budget independently. For example, lower-level local governments with a limited capability of self-financing need a non-trivial amount of intergovernmental transfers from higher-level local governments, and inevitably embrace less freedom in preparing their own budget plans. In contrast, lower-level local governments that can self-finance are relatively free from supervision by upper-level governments because they do not need to rely on intergovernmental transfers for carrying out its own projects. Finally, political relations among government officials at any administrative level and the corresponding level of legislators play an important role in not only making policies but also translating them into budget plans. For example, higher-level government officials or legislators may hold a more positive and lenient view toward budget plans proposed by lower-level local governments with the same political affiliation because they share and pursue the same values and beliefs. As a result, their political affiliation will positively influence the probability of initial budget plans being passed. Based on these arguments, we develop the second hypothesis as follows:

H2(a). The extent of a budget increase in the case of overspending is intensified by government officials' bargaining power.

In line with the argument that bargaining power may induce a favorable effect on budget settlements, if government officials are also able to exert their bargaining power after underspending, they may minimize budget cuts. In the case of underspending, government officials with greater bargaining power may more successfully persuade the inevitability of incorporating a smaller portion of spending variance in budget decrease. As a consequence, budgets will decrease with smaller absolute values after underspending, compared to budget increases after overspending. We develop the related hypothesis as follows:

H2(b). The extent of budget decreases in the case of underspending is mitigated by government officials' bargaining power.

3. Empirical design

3.1. Overview of the budgeting process in South Korean local governments[8]

We first explain the institutional background of the budgeting process in Korean local governments. South Korea has a two-tiered local government system categorized based on its two functions: upper-level and lower-level. Table 1 shows a brief structure of Korean local government system as of December 31, 2017. The upper-level local governments consist of 17 metropolitan units (8 metropolitan cities and 9 provinces).[9] The lower-level local governments include 226 basic units (75 cities, 82 counties, and 69 districts). In total, South Korea has 243 general local government offices. Each upper-level local government includes lower-level local governments in jurisdiction, and these two-tiered local governments have close relationships not only in public policy but also in fiscal finance. For example, Busan, one of the metropolitan cities, has 16 lower-level local governments (1 county and 15 districts), and Gyenggi-do, one of the provinces, has 31 lower-level local governments (28 cities and 3 counties).

Local government revenues come from three sources: local government bonds, independent sources such as local taxes and non-tax revenues, and dependent sources such as local subsidies (from the upper-level local governments) and subsidies from the national treasury. As of 2013, the budgets of local governments consist of 2.6 % of local government bonds, 55.6 % of independent sources, and 41.8 % of dependent sources. Even with fiscal decentralization, South Korea has maintained a strong central tax base in personal and corporate income taxes, inheritance and gift taxes, value-added tax, liquor tax, and composite property tax. Rather than allowing the expansion of local tax base, the central government has resorted to the intergovernmental transfer of funds to embrace increasing demands for social and economic services (Kim, 2013). As of 2015, 75.4 % (24.6 %) of total tax revenues in all governments comes from the central (local) tax base (National Assembly Budget Office, NABO, 2018).

Accordingly, many Korean local governments should rely on external sources to fund their operations. Important external sources include the issuance of local government bonds and the transfer of resources from the central government or metropolitan units. The intergovernmental transfer of funds makes resource-receiving local governments obliged to follow the request from resource-sending central or upper-level local governments. Thus, under the Korean budgetary system, higher-level governments have more authority over lower-level governments.

The budgeting process of local governments in South Korea consists of two stages: budget formation by the local governments and deliberation by the local council.[10] In the first stage, the local governments prepare their initial budget plans under the standards for operating local government budgeting and fund operation plans. At this stage, budget plans are actively communicated formally/informally among the officials of the central governments, and the upper- and lower-level local governments. From the administrative context of South Korea, this procedure is critical to each participant because some fiscal policies and projects need to be coordinated and harmonized by the central government or upper-level local governments. In addition, these communications are essential from the viewpoint of financial operations

[8] We provide a more detailed description on the local governments' budgeting process in the online appendix.

[9] Seoul, one of the eight metropolitan cities, has been designated as the capital city of South Korea due to its historic, political, and economic position and role. Metropolitan cities and provinces have similar functions with different administrative units (Jeong, 2020).

[10] Fig. A1 of the online appendix illustrates the overall budget process of Korean local governments. Please refer to the online appendix for a more detailed explanation.

Table 2
Descriptive statistics.

Variables	# of obs.	Min.	1st quartile	Median	Mean	3rd quartile	Max.	Std. dev.
$BV_{i,t}$	1,455	−0.129	0.021	0.053	0.056	0.091	0.274	0.060
$SV_{i,t-1}$	1,455	−0.101	0.044	0.090	0.105	0.151	0.418	0.090
$U_{i,t-1}$	1,455	0.000	0.000	0.000	0.085	0.000	1.001	0.278
$\triangle OFFICIALS_{i,t}$	1,455	−8.761	0.000	0.901	1.205	1.874	12.504	1.827
$\triangle SALARY_{i,t}$	1,455	−3.463	2.809	4.902	4.858	6.948	16.289	3.141
$\triangle PROJECT_{i,t}$	1,455	−9.634		0.239	0.333	1.733	10.677	2.715
$TYPE_{i,t}$	1,455	0.000	0.000	0.000	0.335	1.000	1.000	0.472

Notes: See Eq. (1) for the definition of variables.

Table 3
Correlation matrix.

Variables	$BV_{i,t}$	$SV_{i,t-1}$	$U_{i,t-1}$	$\triangle OFFICIALS_{i,t}$	$\triangle SALARY_{i,t}$	$\triangle PROJECT_{i,t}$	$TYPE_{i,t}$	$Function_{i,t}$	*Fiscal Independence*$_{i,t}$	*Political Affiliations*$_{i,t}$
$BV_{i,t}$	1									
$SV_{i,t-1}$	0.143***	1								
$U_{i,t-1}$	−0.194***	−0.459***	1							
$\triangle OFFICIALS_{i,t}$	0.172***	−0.0526*	−0.0186	1						
$\triangle SALARY_{i,t}$	0.199***	−0.252***	0.0570*	0.321***	1					
$\triangle PROJECT_{i,t}$	0.889***	0.185***	−0.184***	0.129***	0.101***	1				
$TYPE_{i,t}$	0.244***	−0.0139	0.00914	0.0936***	−0.0203	0.232***	1			
Function	0.156***	0.0556*	−0.0371	−0.0797**	−0.134***	0.156***	0.641***	1		
Fiscal Independence	0.0823**	−0.0634*	0.0369	0.203***	0.101***	0.0792**	0.273***	−0.112***	1	
Political Affiliations	0.034	−0.0307	0.0538*	0.0217	0.0244	0.0392	0.0522*	0.0393	−0.0198	1

Note: See Eq. (1) for the definition of variables. ***, **, and * denote statistical significance at the 1%, 5%, and 10 % levels, respectively. *Function* equals if a local government is institutionally designed as the upper-level local government and zero otherwise. *Fiscal Independence* is calculated as {(local taxes$_{i,t}$ + non-tax revenues$_{i,t}$ - local bond$_{i,t}$) / total revenues$_{i,t}$}. *Political Affiliation* equals one if the head of a local government belongs to the ruling party and zero otherwise.

because a substantial portion of local government revenues comes from intergovernmental transfers such as local subsidies and financial grants.[11]

Next, after the local government completes budget formation, the local council deliberates on the local government budget. Local government officials submit the initial budget plans to the local council approximately 40–50 days before the next fiscal year begins, and explain the proposed budget plans at the plenary session of the local council. The proposed budget plans are thoroughly examined and approved by the standing committees, as well as the budget and accounting committee. After that, the plenary session makes a final approval decision of the proposed budgets 10–15 days before the next fiscal year begins. When the budget plans are approved, the local government officials report the approved budget not only to their upper-level local governments but also to the Ministry of the Interior and Safety (MOIS) minister.

Based on the approved budget bill, the Korean central government allocates shared tax and subsidies to both tiers of local governments. Local governments are required to provide detailed information such as their fiscal status, income and expenses, contingent liabilities, and future investment plans to the central government. These comprehensive documents in the budget bill impose non-trivial pressure on local government officials to manage expenditures efficiently, and not to propose excessive budgets.

We identify two interesting aspects of the budgeting process of Korean local governments. First, local government officials face multi-dimensional interactions: one is related to the vertical structure of administrative offices from the central governments, via upper-level local governments, to lower-level local governments; and the other is on the horizontal separation of power between local governments and local council. For example, at the budget formation stage, officials in the lower- (upper-) level local governments need to explain and persuade their fiscal investment plans whose total costs are greater than the criteria because the upper-local governments (the central government) are authorized to review and approve them. In addition, local government officials, at the deliberation stage, also need to justify the appropriateness of the initial budget plans to the local council, because the plans should be finally approved by the council plenary session.

Second, local governments have various revenue streams. Intergovernmental transfers, which comprise non-trivial portions of local governments' total revenues, follow multi-step allocation procedures from the central government, via upper-level local governments, to lower-level local governments. This flow of intergovernmental transfers matches with the vertical structure of administrative offices in South Korea. The central government directs more resources to the local

Table 4
Budget ratcheting (H1).

Variables	Expected sign	Basic model	Extended model
$1 / B_{i,t-1}$	(?)	−997.3 (-1.24)	−1,381.8* (-1.92)
$U_{i,t-1} / B_{i,t-1}$	(-)	−821.6 (-0.30)	19.107 (0.01)
$\boldsymbol{SV_{i,t-1}}$	**(+)**	**0.154*** (6.26)**	**0.131*** (4.92)**
$\boldsymbol{U_{i,t-1} \times SV_{i,t-1}}$	**(?)**	**0.523** (2.62)**	**0.482*** (3.38)**
$\triangle OFFICIALS_{i,t}$	(+)	–	0.002 (1.29)
$\triangle SALARY_{i,t}$	(+)	–	0.002*** (3.39)
$\triangle PROJECT_{i,t}$	(+)	–	0.007*** (7.28)
$TYPE_{i,t}$	(?)	0.031*** (5.26)	0.022*** (3.93)
Year_Dummy	(?)	Included	Included
# of obs.		1,455	1,455
Adjusted R^2		58.7%	64.2 %
F-value		215.39***	247.08***

Note: See Eq. (1) for the definition of variables. ***, **, and * denote statistical significance at the 1%, 5%, and 10 % levels, respectively. t-values are specified in parentheses. Standard errors are clustered at the local government level.

[11] Intergovernmental transfers to avoid local government deficits are common in many countries. For instance, prior studies discuss the examples of U.S. states (Ansolabehere et al., 2002), Canada (Bayoumi and Masson, 1995), Germany (Pitlik et al., 2006), and Israel (Alperovich, 1984).

Table 5
Bargaining power and budget ratcheting (H2).

		(1) Function		*(2) Fiscal Independence*		*(3) Political Affiliation*	
Variables	Expected sign	Upper-level	Lower-level	High	Low	Ruling party	Opposition party
$1 / B_{i,t-1}$	(?)	53,729.0*** (7.88)	−2,092.1** (-2.59)	1,283.2* (1.68)	425.4 (0.61)	−991.7 (-1.59)	2,751.6*** (3.44)
$U_{i,t-1} / B_{i,t-1}$	(-)	86,902.7***(3.27)	−372.6 (-0.21)	39.5 (0.02)	176.6 (0.11)	1,674.0 (1.03)	−1,234.8 (-0.62)
$\boldsymbol{SV_{i,t-1}}$	**(+)**	**0.241*** (13.40)**	**0.170*** (9.59)**	**0.191*** (10.41)**	**0.096*** (6.26)**	**0.181*** (11.22)**	**0.093*** (5.37)**
$\boldsymbol{U_{i,t-1}\times SV_{i,t-1}}$	**(?)**	**0.956*** (9.13)**	**0.345* (2.56)**	**0.423*** (3.19)**	**0.439*** (3.27)**	**0.454*** (3.65)**	**0.499*** (3.51)**
$\triangle OFFICIALS_{i,t}$	(+)	0.002*** (6.64)	0.000 (0.07)	0.002** (2.55)	0.001 (1.14)	0.002** (2.06)	0.002** (2.52)
$\triangle SALARY_{i,t}$	(+)	0.002*** (10.55)	0.003*** (5.43)	0.004*** (10.33)	0.005*** (12.64)	0.004*** (10.82)	0.005*** (10.78)
$\triangle PROJECT_{i,t}$	(+)	0.004*** (9.01)	0.007*** (15.20)	0.006* (12.02)	0.010*** (17.74)	0.009*** (17.65)	0.006*** (11.52)
$TYPE_{i,t}$	(?)	0.005** (2.51)	0.052*** (5.97)	0.026*** (5.13)	0.032*** (7.45)	0.028*** (6.11)	0.028*** (5.13)
Year_Dummy	(?)	Included	Included	Included	Included	Included	Included
Local government_Dummy	(?)	Included	Included	Included	Included	Included	Included
Comparison test for $SV_{i,t-1}$		7.78**		15.67***		13.92***	
Comparison test for $U_{i,t-1}\times SV_{i,t-1}$		12.80***		0.01		0.06	
Comparison test for $SV_{i,t-1} + U_{i,t-1}\times SV_{i,t-1}$		16.34***		0.18		0.05	
# of obs.		1,455		1,455		1,455	
Adjusted R^2		80.6%	64.6 %	62.1 %	63.8 %	66.0 %	62.2 %
$Chi^2(x^2)$		6,035.67***	2,657.05***	2,596.11***	2,555.75***	2,816.52***	2,392.30***

Notes: See Eq. (1) for the definition of variables. ***, **, and * denote statistical significance at the 1%, 5%, and 10 % levels, respectively. t-values are specified in parentheses. To control for the influence of characteristics of accounting units on budget behavior, only the general account is analyzed. *Function* equals one if a local government is institutionally designed as the upper-level local government and zero otherwise. *Fiscal Independence* is calculated as {(local $\text{taxes}_{i,t}$ + non-tax $\text{revenues}_{i,t}$ - local $\text{bond}_{i,t}$) / total $\text{revenues}_{i,t}$}. High and Low partition is based on the median value of *Fiscal Independence*. *Political Affiliation* equals one if the head of a local government belongs to the ruling party and zero otherwise. We include year and local government dummies to control for year and local government fixed effects.

government to amend the vertical imbalance (McGuire, 1999; Lee, 2005; Kim, 2013).

In summary, with respect to budgeting and financing, the two-tiered Korean local government system is characterized by a series of active formal/informal communications among related parties. These communications may be institutionally implicit in relation to bargaining power among these related parties. Prior studies document that local government officials tend to do off-budget activities (Jeong, 2020) and utilize local connections (Crain and Ekelund, 1978) to make up for their relatively low bargaining power in the budgeting process. It can be inferred that metropolitan governments may exert greater bargaining power over non-metropolitan governments as the central government does over metropolitan governments.

3.2. Regression model

To test our hypotheses, we develop regression Eq. (1) following Lee and Plummer (2007). Basically, it is a variant of Weitzman's (1980) model, modified to reflect the asymmetric pattern of budget ratcheting.

$$BV_{i,t} = \alpha_0 \bullet (1 / B_{i,t-1}) + \beta_1 \bullet (U_{i,t-1} / B_{i,t-1}) + \beta_2 \bullet SV_{i,t-1} + \beta_3 \bullet U_{i,t-1} \times SV_{i,t-1} + \beta_4 \bullet \triangle OFFICIALS_{i,t} + \beta_5 \bullet \triangle SALARY_{i,t} + \beta_6 \bullet \triangle PROJECT_{i,t} + \beta_7 \bullet TYPE_{i,t} + Year\_Dummy + \varepsilon_{i,t}, \quad (1)$$

where:

$BV_{i,t}$ = Budget variances of local government i in year t, calculated as ($\text{budget}_{i,t}$ - $\text{budget}_{i,t-1}$) / $\text{budget}_{i,t-1}$;

$B_{i,t-1}$ = Budget of local government i in year t-1;

U_{t-1} = Year t-1 underspending dummy variable which equals one if the previous expenditures are smaller than the previous budgets, and zero otherwise;

$SV_{i,t-1}$ = Spending variance in local government i in year t-1, calculated as ($\text{expenditure}_{i,t-1}$ - $\text{budget}_{i,t-1}$) / $\text{budget}_{i,t-1}$;

$\triangle OFFICIALS_{i,t}$ = Change rate of public officials in local government i in year t, calculated as ($\text{employee numbers}_{i,t}$ - $\text{employee numbers}_{i,t-1}$) / $\text{employee numbers}_{i,t-1}$;

$\triangle SALARY_{i,t}$ = Change rate of salary of employees in local government i in year t, calculated as ($\text{salary}_{i,t}$ - $\text{salary}_{i,t-1}$) / $\text{salary}_{i,t-1}$;

$\triangle PROJECT_{i,t}$ = Change rate of project expenditure ratio for local government i in year t, calculated as (project expenditure $\text{ratio}_{i,t}$ - project expenditure $\text{ratio}_{i,t-1}$) / project expenditure $\text{ratio}_{i,t-1}$;

$TYPE_{i,t}$ = Indicator variable for local government i in year t which equals one if the local government is a metropolitan city or province and zero otherwise;

Year_Dummy = Year indicators.

Here, the dependent variable $BV_{i,t}$ is the budget variance which is measured as the difference in the expenditure budget between year t and year t-1, scaled by the expenditure budget in year t-1. The variable of interest, $SV_{i,t-1}$, captures the spending variance, calculated as the difference between the actual expenditures in year t-1 and the expenditure budget in year t-1, scaled by the expenditure budget in year t-1.[12] U_{t-1} is an indicator variable that equals one when the annual actual expenditures of year t-1 are smaller than the annual budgeted expenditures ($\text{expenditure}_{t-1} < \text{budget}_{t-1}$, the case of underspending) and zero in the opposite case ($\text{expenditure}_{t-1} \geq \text{budget}_{t-1}$, the case of overspending). β_2 is the adjustment coefficient for the case of overspending, while β_3 means the differential coefficient for the case of underspending. The sum of ($\beta_2 + \beta_3$) captures how much the spending variances are reflected in the budgets of year t when the expenditures of year t-1 are smaller than the budgets.[13]

Three patterns of budget ratcheting can be predicted based on the sign of the differential coefficient (β_3). First, if β_3 equals zero (statistically insignificant), the amount of budget increases in overspending is not different from those of budget decreases in underspending for the same absolute value of spending variances. This case presents the symmetric pattern of budget ratcheting, consistent with the classic ratcheting model of Weitzman (1980). Second, if β_3 is statistically and significantly negative (positive), the adjustment coefficient of overspending (β_2) is greater (smaller) than the adjustment coefficients of underspending ($\beta_2 + \beta_3$). This implies that the amount of budget decreases in underspending is smaller (greater) than those of budget increases in overspending for the same absolute value of spending variances. The negative values of differential coefficients (β_3) reflect prior studies' findings (Leone and Rock, 2002; Lee and Plummer, 2007).

[12] We scale the budget variance and spending variance by previous year's expenditure budget to control for scale effects (Lee and Plummer, 2007). This scaling results in *BV* and *SV* to capture the relative rather than absolute variances.

[13] We include ($1 / B_{i,t-1}$) and ($U_{i,t-1} / B_{i,t-1}$) to address econometric concerns such as heteroskedasticity, in which the differences in the sizes of the local government's budgets may affect our results (Lee and Plummer, 2007). We find that overall inferences qualitatively remain unchanged when we exclude those variables or when we use $U_{i,t-1}$ as the independent variable (untabulated).

The budgets of local governments will not be determined solely by the utility of the government officials who pursue budget maximization. The budget may increase or decrease depending on various budget variables, such as changes in organization or personnel, reduction and expansion of existing projects, or enforcement of new policy projects (e.g., Kim, 2013; Jeong, 2020). We add various economic variables to control for these potential effects. Control variables include the change in the number of officials ($\triangle OFFICIALS_{i,t}$), change in officials' salaries ($\triangle SALARY_{i,t}$), and change in the portions of funds allocated to projects in total budgets ($\triangle PROJECT_{i,t}$). We expect them to have positive coefficients because those factors would increase local government budgets. We include $TYPE_{i,t}$ to control for the impact of different types of local governments on budget ratchetings. Finally, we add *Year_Dummy* to control for yearly fixed effects. We also estimate the standard errors by clustering at the local government level to address the potential cross-sectional correlation in the residuals.

Hypothesis 2 examines the impact of government officials' bargaining power on the pattern of budget ratcheting, which has not been addressed in prior literature. We identify three metrics that drive the different levels of bargaining power among participants in the budgeting process of local governments of South Korea: upper-level local governments vs. lower-level local governments, high fiscal independence vs. low fiscal independence, and ruling party vs. opposition party.

First, with respect to the vertical structure of administrative offices, the upper-level local governments have greater bargaining power than the lower-level. The upper-level local government has the institutional right and role not only to review the appropriateness of initial budget plans proposed by the lower-level but also to allocate economic resources to them. Inevitably, therefore, lower-level local governments financially depend on the upper-level. This is consistent with the U.S. where the growth of gubernatorial leadership and staff, particularly in the executive budgeting process, has greatly empowered governors and put them in a strong position to review and guide agency budget requests (Ryu et al., 2007).

Second, local governments can exert greater bargaining power as they have greater fiscal independence. Fiscal independence is measured by dividing independent sources of revenues by total revenues, presenting the local government's capability for self-financing.[14] Higher fiscal independence implies that local governments are sufficiently funded by sources other than intergovernmental transfers. The availability of fiscal resources (lower-level local government officials) could further define budgeting activities and outcomes (Rubin, 2016). Ryu et al. (2008) find that both budget requests and subsequent appropriations of state administrators (upper-level local governments) are lower for agencies with high levels of federal revenue. Agranoff and McGuire (2004) document that smaller, rural communities without professional staff as well as wealthy suburbs are less likely to bargain over economic development matters. Local governments with higher fiscal independence are less likely to depend on the central or upper-level local governments.

Third, local governments can exert greater bargaining power when their heads are politically affiliated with the ruling party, compared to those with the opposition parties. Government officials and legislators are democratically elected officials who hold their own values and beliefs as well as represent the values of those who elected them (Arapis and Bowling, 2020). In the U.S., when a government is unified by a partnership shared by the governor and the legislative houses, administrators receive strong signals of the values the state holds. Democrats favor large governments, so appropriations are higher for the health, agriculture, and space-related federal agencies when Democrats control the legislature (Davis et al., 1974). However, Ryu et al. (2008) find a negative correlation between a Republican-controlled legislature and appropriations. Republican majorities in the House tend to reduce expenditures (Hou and Smith, 2010). Moreover, Holtz-Eakin (1988) finds that when local government officials face legislatures controlled by the opposite party, the line-item veto may be used to reduce fiscal deficits. In addition, political affiliation may affect the distribution decision of intergovernmental transfers. The same political control of the key institutions by the lower-level politicians as the controlling politicians at the upper-level brings more transfers to the lower-level local governments, regardless of the type of political control–measured by either party affiliation of the central and local politicians (Veiga and Pinho, 2007) or by legislative seats held by the same party as the one controlling the central legislature (Grossman, 1994).[15] In this context, local governments whose heads are affiliated with the ruling party have a greater influence on the budgeting process.

To test Hypothesis 2, we partition the sample into two based on the relative extent of their bargaining power. The sample group with high bargaining power consists of metropolitans and local governments with high fiscal independence as well as ruling party-affiliated leadership. Non-metropolitans and local governments with low fiscal independence, as well as opposition party-affiliated leadership, are part of the sample group with low bargaining power. We apply Eq. (1) for each sub-sample based on these three metrics. Lastly, we employ a seemingly unrelated regression estimation (SURE) when we analyze two groups after partitioning the sample based on the proxies of bargaining power. Partitioning the sample into groups could generate a correlation between local government budgets across different groups. To address this concern, we allow the residuals of one group to be correlated with those of the other group by using SURE rather than two separate single-equation regressions.[16]

3.3. Sample selection

Our sample consists of South Korean local governments. We collect annual budget data and actual expenditure data from the Local Finance Integrated Open System (called Local Finance 365, http://lofin.mois.go.kr) and other local government data for control variables from LAIIS (www.laiis.go.kr) of the Ministry of the Interior and Security (formerly, MOIS). We manually collect party affiliation information from the homepage of each local government. We examine only the general accounts of local governments, which consist of expenditures not earmarked by the central government for specific purposes.[17] The data for

[14] *Fiscal independence* (rate) measures degree of the local government's financial independence from a perspective of financing resources rather than from a perspective of expenditures. For the empirical test, we measure *Fiscal Independence* as {(local $taxes_{i,t}$ + non-tax $revenues_{i,t}$ - local $bond_{i,t}$) / total $revenues_{i,t}$}.

[15] We believe that South Korea has a tradition similar to that of the U.S. For example, Kim (2013) examines how the political alignment between the central government and local governments of South Korea affects intergovernmental transfers and concludes that the amount of national subsidies provided by the central government may be institutionally vulnerable to political influence because it is annually appropriated by the National Assembly. In a similar vein, Sin (1999) insists that although the fiscal transfers including national subsidies are considered first by a committee in the National Assembly, the congruence in political control of the national and regional legislatures is still relevant since leaders of ruling party in South Korea have maintained tight control over the votes of individual members as well as policy agenda.

[16] We employ the SUREG command in STATA to control for year and local government fixed effects.

[17] Local Finance 365 provides data on the total accounts, general accounts, special accounts, and fund accounts of local governments. The general accounts cover the budget for general public services. Special accounts refer to funds marked for specific purposes, meaning that the type of tax revenue and expenditure is set by the National Finance Act. The total accounts are the sum of the general account and other accounts, which are associated with specific purposes predetermined by the central government. General accounts are more likely to fall under the discretion of local governments, but it is unclear whether local governments engage in budget ratcheting with respect to their total accounts because certain portions of the total account fall outside the discretion of local governments. Therefore, we focus on the general accounts.

analysis consist of the annual expenditure budgets and settlements of 241 local governments.[18] The analysis period is from 2010 to 2015, with 1455 year-local government observations.

4. Empirical results

4.1. Descriptive statistics

Table 2 presents the descriptive statistics of the variables used. To control for outliers in the sample, all variables are winsorized at the upper and lower 1%. The average budget variance ($BV_{i,t}$) and spending variance ($SV_{i,t-1}$) according to the total are around 6%. The average budget variance ($BV_{i,t}$) of general accounts is 5.6 % and average spending variance ($SV_{i,t-1}$) of general accounts is 10.5 %. During the analysis period, the number of officials ($\triangle OFFICIALS_{i,t}$) increased by 1.2 % on average, while salaries ($\triangle SALARY_{i,t}$) increased by 4.9 % on average. The policy project fund ratio ($\triangle PROJECT_{i,t}$) increased by 0.33 % on average, and 33.5 % of the total sample are metropolitan councils ($TYPE_{i,t}$).

Table 3 shows the correlation matrix of variables used to estimate Eq. (1). There is a positive correlation between budget variance (*BV*) and spending variance (*SV*) because having higher expenditure than the predetermined budget in the previous term makes it easier for the local government to obtain a higher budget in the next term. The negative correlation between budget variance (*BV*) and an indicator variable of underspending in the previous term (*U*) indicates that local governments are allocated smaller budgets after underspending rather than after overspending. Correlations between budget variance and other variables indicate that local governments with more officials, higher salary payments, and project expenditures, and with metropolitan or province status have larger budget variances. By construction, the correlation between *SV* and *U* is significantly negative because *U* captures the case where local governments spend less than the budget in the previous term.[19]

4.2. Hypothesis tests

Table 4 shows the results of testing Hypothesis 1.[20] For all columns, the coefficients on $SV_{i,t-1}$ are statistically and significantly positive, indicating that the ratcheting principle is implemented in the budgeting process of South Korean local governments. Budget increases in year t reflect the actual expenditures in year t-1, in the case of overspending. The coefficients on $U_{i,t-1}\times SV_{i,t-1}$ are positive at the 1% significant level, indicating that the extent of budget decreases in the case of underspending is larger than that of budget increases in the case of overspending. For example, the extended model indicates that the response coefficient of the underspending variance ($\beta_2+\beta_3 = 0.131 + 0.482 = 0.613$) is approximately five times that of the overspending variance ($\beta_2 = 0.131$). These results are in contrast with the pattern of asymmetric budget ratcheting observed in prior studies (Leone and Rock, 2002; Lee and Plummer, 2007).

As predicted, the coefficients on the control variables are mostly positive and statistically significant. The budgets increase or decrease in proportion to the amounts of their salaries. In addition, the policy project fund ratio is confirmed as an important economic factor driving budget changes.

Table 5 shows the results of testing Hypothesis 2. We partition the sample into high and low bargaining power groups based on three metrics: function, fiscal independence, and political affiliation. For all columns, coefficients of both $SV_{i,t-1}$ and $U_{i,t-1}\times SV_{i,t-1}$ are statistically and significantly positive, consistent with Table 4. These results reconfirm the pattern opposite to asymmetric budget ratcheting documented in prior studies.

The first two columns show the results when bargaining power is measured based on the function of local governments (upper-level vs. lower-level). In the case of overspending, the adjustment coefficient ($SV_{i,t-1}$) of metropolitan (0.241) is larger than that of non-metropolitan (0.170), indicating greater budget increases for upper-level local governments. Our comparison test for these coefficients shows that the difference is statistically significant (*F*-value = 7.78). This finding supports H2(a). In the case of underspending, the differential coefficient ($U_{i,t-1}\times SV_{i,t-1}$) of metropolitan (0.956) is larger than that of non-metropolitan (0.345), indicating greater budget decreases for the upper-level local governments. Our comparison test for these coefficients ($U_{i,t-1}\times SV_{i,t-1}$) shows that the difference is statistically significant (*F*-value = 12.80). This result is not consistent with H2(b). These results imply that local governments succeed in increasing budgets but further cut budgets sharply as they have a larger influence.

The third and fourth columns provide empirical evidence when bargaining power is measured by the extent of fiscal independence of local governments (High vs. Low). For the case of overspending, the adjustment coefficient ($SV_{i,t-1}$) of High (0.191) is almost double as that of Low (0.096), indicating greater budget increases for the more fiscally independent local governments. This difference is statistically significant (*F*-value = 15.67). This finding is consistent with H2(a). In the case of underspending, the differential coefficients ($U_{i,t-1}\times SV_{i,t-1}$) of High and Low are 0.423 and 0.439, respectively. Our comparison test indicates that they are not statistically different (*F*-value = 0.01). This result does not support H2(b). These results imply that local governments with higher fiscal independence increase budgets more than governments with lower fiscal independence. However, the extent to which the budget decreases in response to underspending does not vary, regardless of their fiscal independence.

The last two columns present the results when bargaining power is measured by the affiliations of local government heads (ruling party vs. opposition party). In the case of overspending, the adjustment coefficient ($SV_{i,t-1}$) of the ruling party (0.181) is twice as much as that of the opposition party (0.093), indicating greater budget increases for local governments whose heads are affiliated with the ruling party. This finding supports H2(a). Interestingly, in the case of underspending, the adjustment coefficient ($SV_{i,t-1}$) of the ruling party (0.454) is smaller than that of the opposition party (0.499), but the difference is not statistically significant (*F*-value = 0.06). This result is not consistent with H2(b). These results imply that local governments affiliated with the ruling party succeed in increasing budgets more, compared to those with the opposition party. However, the extent of the budget cuts does not vary, regardless of their political affiliation.

In summary, budget ratcheting found in South Korean local

[18] Although there are 246 local governments in South Korea as of 2017, our sample consisted of 241 local governments because there are several changes in the status of several governments in our sample period. For instance, Masan-Gun, Changwon-Gun, and Jinhae-Gun were merged into Changwon city; Yungi-Gun and Dangjin-Gun were merged into Dangjin city; Cheongwon-Gun was annexed to Cheongju city. These changes create the gaps between the current number of local government offices and our local government data. The annual number of local governments in our sample are as follows:

Year	2010	2011	2012	2013	2014	2015	total
# of obs.	241	244	242	242	243	243	1,455

[19] The negative correlation between *Function* and *Fiscal Independence* is somewhat interesting. While metropolitan cities tend to be fiscally sound, provinces tend to be less self-sufficient. In our sample, the mean values of *Fiscal Independence* for local governments are 56.66 for metropolitan cities, 30.41 for provinces, 34.85 for cities, 18.04 for counties, and 32.62 for districts, respectively. While provinces have higher *Fiscal Independence* than counties, they have lower *Fiscal Independence* than cities and districts. We conjecture that low *Fiscal Independence* of provinces drives this negative association.

[20] We note that Table 4 shows the results of regression estimations with the standard errors clustered at the local government-level. We do not estimate SURE in Table 4 as there is no need to consider the correlation of residuals across the sample partition when we use full the sample without partitions.

governments is in contrast with the traditional asymmetric pattern documented in prior studies (e.g., Lee and Plummer, 2007). The results indicate that the budgets decrease more with underspending variances than they increase with equivalent overspending variances (Tables 4 and 5). In addition, in the case of overspending, the bargaining power of local governments has a noticeable effect on increasing budgets, while the influence of bargaining power is not statistically significant in the case of underspending (Table 5). This finding is interesting because a weak impact of bargaining power on reducing budget decrease after underspending is inconsistent with the budget maximization theory.

4.3. Discussion

Traditional expectations based on the budget maximization theory are inefficient budget increases (Niskanen, 1971) and budgetary slack (Giroux and Shields, 1993), which ultimately result in asymmetric budget ratcheting–small budget cuts in underspending compared to budget increases in overspending (Lee and Plummer, 2007). We, however, find that budget ratcheting could be "symmetric" as well as "oppositely asymmetric" even though government officials have an incentive to maximize budgets. We interpret that these diverse patterns of budget ratcheting may come from the strategic responses of local government officials. If economic factors related to budget increases sound plausible, the public tends to welcome budget increases with the expectation that they will lead to a permanent increase in social welfare. Justifying budget increases may not be a hard task because government officials can exploit their information advantage over legislators and other governmental actors (Ryu et al., 2008). Therefore, especially in the case of overspending, government officials are in a better position to exert their bargaining power throughout the budgeting process and easily succeed in increasing budgets.

Government officials, however, may confront the non-trivial pressure of justifying small budget cuts under the case of underspending. The public may cast greater doubts on underspending variances and ask, "Is it really transitory?," "Does it really not come from budgetary slack?," "Has it repeatedly happened?," "Is there any change in a local government's 'base,' deeply regarded stable over time?," and so on. Greater pressure on justifying may be given to government officials. For government officials, withdrawing their budget-maximizing preferences may be a good way to avoid disputes with participants in the budgeting process and keep the reputation of purity for next year's budgets. Davis et al. (1966) argue that the attitudes and calculations of participants in budgeting are stable over time and, thus, in strategic planning to secure budgetary goals, being a good politician is more important in obtaining funds than a demonstration of efficiency. In this context, building a reputation as a faithful public servant who greatly cares about public resources would be a superior strategy for government officials, rather than trying to exert bargaining power for small budget cuts. As a result, budgets could be sharply cut in underspending.

In summary, we argue that the strategic response of government officials may result in the pattern opposite to asymmetric budget ratcheting documented in prior studies: the greater amount of the budget decreases in underspending, rather than that of budget increases in overspending.

5. Conclusion

This study investigates factors that influence the degree of the ratchet principle in the budgeting process. Using 1,455 South Korean local government-year observations for the period 2010–2015, we find that budgets steadily increase in the case of overspending, and that they sharply decrease in the case of underspending. This pattern is in contrast with the pattern documented in prior studies such as Lee and Plummer (2007). In the subsequent empirical analyses, we find that budget increases in the case of overspending are larger for the metropolitan local governments, local governments with high fiscal independence, and local governments run by heads affiliated with the ruling party. In addition, we find that budget decreases in the case of underspending are larger for the metropolitan local governments compared to non-metropolitan governments. These results imply that local government officials with greater bargaining power drive budget increases in the case of overspending, whereas they behave more conservatively and cut budgets in the case of underspending.

Our findings indicate that budget cuts in underspending could be smaller, equal, and/or greater than the budget increase in overspending. We interpret this finding as evidence that these diverse patterns of budget ratcheting may come from the strategic responses of local government officials to the dynamics between bargaining power and the pressure of justifying. The case of overspending may create a favorable environment in which government officials can easily exert their bargaining power for increasing budgets, whereas the case of underspending is an unfavorable one, in which they experience the non-trivial pressure of justifying small budget cuts. Amplified pressure on justifying budgets in the case of underspending may suppress government officials' bargaining power and lead them to withhold their budget maximization incentives. This inference can be interpreted in line with the effects of controls on government spending suggested by Lee and Plummer (2007), who insist that asymmetric budget ratcheting could be mitigated under a more competitive environment and with greater voter influence. We argue that the pressure to justify budgets could play a positive role in controlling inefficient budgeting.

Our study makes several contributions to the literature on budgeting. First, our results advance the current literature by providing evidences of diverse patterns of budget ratcheting. Most of the prior literature is restricted to a traditional asymmetric budget ratcheting-smaller budget cuts in underspending compared to a budget increase in overspending (Leone and Rock, 2002; Lee and Plummer, 2007). Second, this study extends prior literature by adding factors that intensify or diminish government officials' incentive for budget maximization. We conclude that the pattern of budget ratcheting depends on the dynamics between the bargaining power of government officials and the pressure of justifying their budgets. Third, we suggest a meaningful policy implication that "justifying budgets" could safeguard public resources from the risk of inefficient budgeting.

Our study is subject to certain limitations. The sample consists of the South Korean local government, which can affect the generalizability of our results. However, South Korea, as a member of the Organization for Economic Co-operation and Development, has the structure of administrative governments as well as the budgeting process comparable to others. Therefore, there is good reason to believe that our results could be used for other governments where officials face similar incentives and are subject to the same public accountability. In our empirical model, we include factors likely to affect budget ratcheting following prior studies. However, there may be some omitted variables that could affect budget ratcheting. In addition, the same political affiliation may be interpreted as channels of obtaining political benefits, pandering to constituents, or simply corruption, rather than exerting influence throughout the budgeting process.

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Declaration of Competing Interest

The authors report no declarations of interest.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.mar.2021.100767.

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