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Bureaucrats and Budgets in South Korea: Evidence for Hometown Favoritism

Hoyong Jung (ORCID)

Department of Economics, Kookmin University, South Korea
Corresponding author. Email: ghdydwjd1@gmail.com

This article presents evidence that high-ranking public officials in the Ministry of Strategy and Finance in South Korea affect local budget allocation. Applying a regression model on a uniquely constructed panel dataset, I found that the growth rate of the per-capita National Subsidy, which is a subcomponent of the national budget susceptible to discretionary behaviors, increases approximately 7 percent in the hometowns of high-ranking bureaucrats. To validate these findings and address causality, I conducted a battery of auxiliary robustness checks, which yielded confirmatory results. This study also found that enhancing transparency in the budget allocation system can alleviate concerns about bureaucratic hometown favoritism, providing suggestive evidence of bureaucrats' rent-seeking behaviors without government transparency.

Introduction

Social science pioneers paved the way by explaining the socioeconomic factors involved in budgeting (Downs 1957; Niskanen 2007; Wildavsky 1964; Williamson 1964), there has been much theoretical and empirical research examining how politicians and bureaucrats affect the budgeting process (Alesina and Perotti 1995; Berry, Burden, and Howell 2010; Brollo and Nannicini 2012; Costa-i-Font, Rodriguez-Oreggia, and Lunapla 2003; Grossman and Helpman 2008; Migueis 2013; Levitt and Snyder 1995; Svorny and Marcal 2002). Particularly, recent studies have focused on the regional favoritism of policymakers in budget allocation (Baskaran and Lopes da Fonseca 2021; Do, Nguyen, and Tran 2017; Mattos, Politi, and Morata 2021).

Various channels can influence policymakers' preferential treatment of specific regions in the budgeting process. Pork barrel politics is a common explanation for the phenomenon, but another motivation also can affect the favoritism, making it challenging to disentangle the mechanisms (Carozzi and Repetto 2016; Hodler and Raschky 2014). First, individuals' incentives and rent-seeking behavior can affect budget allocation. For example, local politicians are highly motivated to secure

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more budgetary resources for their jurisdiction as they seek to increase the possibility of reelection (Brender 2003; Brender and Drazen 2008; Brollo and Nannicini 2012; Peltzman 1992; Rogoff 1990). Similarly, bureaucrats who are concerned about their careers may skew the budget allocation in favor of their hometowns in exchange for future returns, such as running for local office (Alesina and Tabellini 2007; Baskaran and Lopes da Fonseca 2021; Dewatripont, Jewitt, and Tirole 1999; Holmström 1999; Samuels 2003). Second, individuals may exhibit preferential treatment toward their hometown due to their intrinsic social preferences (Burgess et al. 2015; Dickens 2018; Do, Nguyen, and Tran 2017). Scholars have pointed out that people's self-perceptions affect economic behavior and that hometown identities importantly shape individuals' decision making (Akerlof and Kranton 2013; Fisman et al. 2018; Shih, Adolph, and Liu 2012). Third, policymakers may be more knowledgeable about the issues that their home districts are facing, and they can leverage their informational advantages to advocate for more funds to address such issues (Besley and Ghatak 2018).

The purpose of this study is, first, to examine whether bureaucrats' hometown favoritism exists in budget allocation and, second, to infer whether we can ameliorate this preferential treatment by improving transparency in the budget allocation system. Using the case of South Korea, this study examines how the budget—especially the National Subsidy, which is a part of the government budget and vulnerable to bureaucrats or politicians' discretionary behaviors—is allocated among local districts by exploiting year-to-year regional variation based on senior public officials' assignment rules. Furthermore, while identifying the exact mechanism of the treatment effect—rent-seeking behavior, intrinsic preferences, or informational advantages—is beyond the scope of this research, I provide suggestive evidence that enhancing transparency in budget allocation can effectively prevent bureaucrats' parochial behavior toward their hometown.

South Korea provides an advantageous environment to examine bureaucrats' impact on budget allocation. First, bureaucrats' authority over the budget process is substantial. South Korea underwent administrative-oriented development after the Korean War, and bureaucrats' authority became stronger (Heo et al. 2008). The role of bureaucracy manifests in the budgeting process, as well, in that the administration, led by the Ministry of Strategy and Finance, has the authority to initiate and implement the budgeting procedure (Jung and Clark 2011). Second, South Korea's culture of hometown favoritism can influence bureaucratic decision making. In South Korea, individuals' hometown is one of the most important factors shaping their identity, and hometown ties play a significant role in establishing long-standing mutual relationships and shaping social activities (Akerlof and Kranton 2013; Lee and Park 2000).[1] It implies that bureaucrats are likely to show hometown favoritism during their public affairs dealings. Even without assuming intrinsic preferences for their hometown, bureaucrats are likely to observe benefits to their career by exploiting demographic identity, which may influence decision making (Bertrand et al. 2020; Carozzi and Repetto 2016).[2] Considering these factors, high-ranking public officials, especially members of the Ministry of Strategy and Finance who oversee national budgeting, may possess hometown preference, making them likely to allocate more funds to their hometown.

This study contributes to the existing literature in several ways. It complements the incipient literature on home bias, in general, and studies on political favoritism related to policymakers' regions of origin, more specifically. It is one of the few studies suggesting that not just politicians or the legislature but also the executive and bureaucrats exert such an influence, providing evidence with the case of South Korea (Baskaran and Lopes da Fonseca 2021; Carozzi and Repetto 2016; Do, Nguyen, and Tran 2017; Fiva and Halse 2016; Gehring and Schneider 2018). As budget systems in which the administration and parliament interact are common, this study's findings may help improve budgeting processes in many countries (Lienert 2005). Moreover, this study supplements the literature with respect to inferring causal linkages in that it uses as a credible identification strategy the management rule according to which bureaucrats are assigned to a position regardless of budget level across local districts (Xu, Bertrand, and Burgess 2018); further, the study uses the local budget, which is precisely and objectively measurable, as a main dependent variable (Fisman et al. 2018; Franck and Rainer 2012; Fuchs and Gehring 2017; Hodler and Raschky 2014; Kung and Zhou 2021). The study is also crucial on the policy front. Much narrative evidence of bureaucrats' hometown bias in budget allocation exists in the press and within civic groups, expressing concerns that annual local budgets are misguided due to senior bureaucrats' territorial favoritism. In this regard, this study provides relevant policy implications by empirically addressing parochial favoritism affects public resource allocation and how institutional reform can ameliorate rent-seeking behaviors.

This article is organized as follows: Section 2 introduces background information on South Korea. Section 3 describes the empirical strategy. Section 4 presents empirical results, and Section 5 shows the findings of various robustness tests. Section 6 discusses how a new transparent system can alleviate concerns of hometown favoritism. In Section 7, I conclude my paper with a note on policy implications.

Institutional background
Budgeting characteristics
Two institutions play a pivotal role in budget allocation.

The Ministry of Strategy and Finance[3] plays an essential role in the budgeting procedure. As illustrated in Figure 1, this ministry comprises one minister, two vice ministers, and six deputy ministers, with each of them responsible for different economic sectors. Generally, a high-ranking official refers to a minister, vice minister, deputy minister, or director general in the ministry. The Budget Office oversees the entire budgeting procedure, including formulating the budget draft, executing and managing the budget, and evaluating budget performance. The Budget Office strategically adjusts the budget size and structure, aligning it according to national needs.

The National Assembly is a unicameral legislative body that represents people under the Constitution. It consists of 300 congresspeople, around 250 of whom are elected in each local constituency based upon the single-member electorate system. They serve four-year terms. There are 16 standing committees and several special committees depending on their jurisdiction and role. Among them, the Special
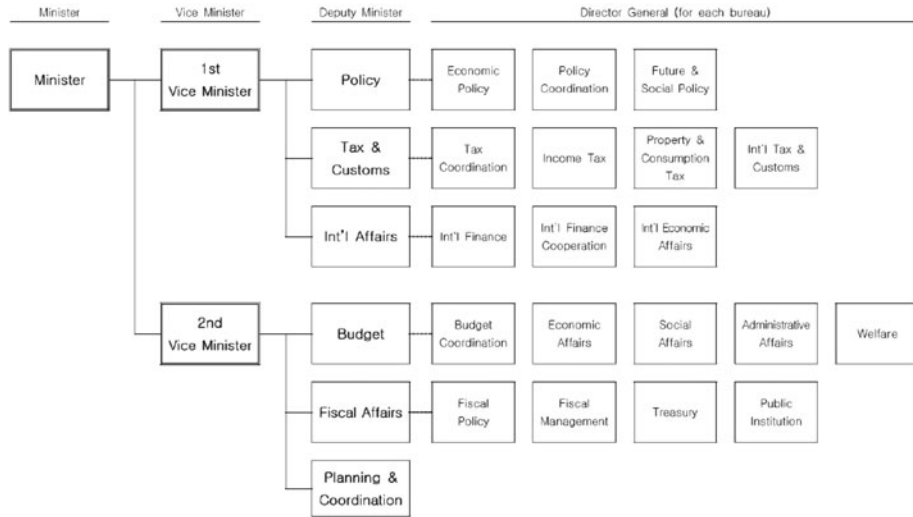
Figure 1 Organization of the Ministry of Strategy and Finance
Note: This is the organization chart of the Ministry of Strategy and Finance as of 2016. There are two branches under one minister. The Budget Office and the Fiscal Affairs Bureau are overseen by the second vice minister's branch. The notations in the boxes indicate the high-ranking public office positions at the ministry.

Committee on Budget and Accounts, which has 50 members, plays a crucial role in securing a local district's budget. Members of the Special Committee on Budget and Accounts rotate every year.

The administration assumes the authority and initiative in the budgeting process.
The Ministry of Strategy and Finance and the National Assembly are responsible for formulating the budget. These two governmental bodies construct the annual budget plan for how to allocate and spend the expected national tax revenue throughout the year. Specifically, the Budget Office in the Ministry of Strategy and Finance coordinates with other governmental agencies to draft the annual budget, with this process starting in January and ending on September 3. After the administration hands over its proposal to the National Assembly, legislators deliberate on the budget draft from September 3 to December 2.[4]

While both the legislative and executive bodies are responsible for the budgeting process in many countries, one noticeable characteristic in Korea is the major role of the executive body in budget formulation. Overall, high-ranking bureaucrats in the Ministry of Strategy and Finance wield the authority and initiative to allocate funds to central and local governments. The budgeting process, in which the administration is superior to the parliament, is a longstanding institution. In the developmental phase after the Korean War, state-led industrial policy and the attendant financial support for certain industries and regions affected many policy areas (Jung and Clark 2011; Park 2003). The Ministry of Strategy and Finance has been responsible for allocating the funds to achieve state-led policies. These historical backgrounds still affect the distribution of power in the budgeting process, with the administration acting as a gatekeeper for the annual budget allocation and determining the budget framework.[5]

Hometown as social capital

Bureaucrats have an incentive to exhibit hometown favoritism.
The South Korean government recruits senior public officials through the Higher Civil Service Qualification Exam, which serves as a stepping-stone to becoming a high-ranking public official.[6] This merit-oriented selection process is a longstanding traditional practice in South Korea. The process is so competitive that passing the exam is regarded as an honor to candidates and their families. For example, a total of 13,591 candidates took the exam in applying for 380 positions in 2015. Among successful candidates, only 20 to 30 with high scores are assigned to the Ministry of Strategy and Finance. Selected public officials begin their career in the central government, and they generally have opportunities to rise in society. Hometown communities seek to build intimate relationships with successful candidates. They establish connections with the central government via high-ranking officials who share the same hometown, which is especially the case in rural areas.

Human resource management in the government follows a seniority rule rooted in Confucianism. After about 20 years of service, members are promoted to high-ranking positions.[7] The rotation term for each position usually lasts one to two years. As career prospects become limited due to the government's pyramidal

hierarchy, many quit their positions and cultivate new careers before reaching the statutory retirement age. One alternative career path is becoming a local politician. Thus, high-ranking bureaucrats who are aware of their hometown issues have an incentive to use their influence to benefit their hometown.

Local governments have an incentive to exploit hometown connections.

In South Korea, total tax revenue consists of two main components: the national tax and the local tax. There are 14 national tax items and 11 local tax items, and each item is defined and regulated by law. Two central government agencies, the National Tax Service and the Korea Customs Service, collect the national tax. Table 1 shows the total amount of tax revenue and the central versus local breakdown from 2007 to 2015. According to the Ministry of Strategy and Finance's statistics, about 77 percent of the total tax revenue in 2015 came from the national tax, amounting to $215.7 billion. Each municipality has the authority to collect and use the local tax. The local tax is distributed unevenly among provinces and counties because geopolitical and socioeconomic environments differ across local districts, and their resources depend on local economic circumstances.

Central and local governments manage tax expenditure. One interesting aspect of the South Korean system is the huge discrepancy between the central and local shares of tax revenue and expenditure. As shown in Table 1, the central government collects about 75–80 percent of tax revenue, whereas local governments raise only 20–25 percent. However, for tax expenditure, the central government spends 60–65 percent of the total budget, while local governments utilize the remaining 35–40 percent. Table 2 shows the central and local government's shares of the budget expenditure. A comparison of Tables 1 and 2 shows that local governments use a substantial portion of the national tax, which means that their spending is financed primarily by the central government.

This disparity became more pronounced after the emergence of the local self-autonomy system in the 1990s. As local governments have been allowed to implement administrative activities autonomously with the heads directly elected by the residents, both the role and accountability of local politicians have become crucial. While a growing number of policies and projects are being executed independently at the local government level, the central government still collects and allocates tax revenue. Thus, local politicians attempt to secure more budgetary resources—that is, intergovernmental transfers from central to local government. It is common for local districts to establish social connections with influential members of government and parliament. By using social capital such as hometown connections or joining the Special Committee on Budget and Accounts in the National Assembly, they seek to attract more financial resources to their constituencies.

The National Subsidy is susceptible to hometown favoritism.

South Korea has an intergovernmental transfer system called the Local Finance Equalizing Scheme to address the tax revenue–expenditure disparity between the central and local governments. Under this system, revenue from the national tax is distributed to local governments based on various criteria. The transfer from central to local government redresses fiscal discrepancies between them, and it allows local

Table 1 Total tax, national tax, and local tax

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total Tax	205.0	212.8	209.7	226.9	244.7	256.9	255.7	267.2	280.6
(% of GDP)	(21.0)	(20.8)	(19.7)	(19.3)	(19.8)	(20.2)	(17.9)	(18.0)	(18.0)
National Tax	161.5	167.3	164.5	177.7	192.4	203	201.9	205.5	215.7
(% of GDP)	(78.8)	(78.6)	(78.5)	(78.3)	(78.6)	(79.0)	(79.0)	(76.9)	(76.9)
Local Tax	43.5	455.5	45.2	49.2	52.3	53.9	53.8	61.7	64.9
(% of GDP)	(21.2)	(21.4)	(21.7)	(21.7)	(21.4)	(21.0)	(21.0)	(23.1)	(23.1)

Data From: Source: Tax Collection Report (National Tax Service 2015), Local Tax Annual Report (Ministry of the Interior 2015).
Note: The unit of tax is 1 trillion KRW (approximately 1 billion USD). Approximately 75–80% of the total tax is national tax collected by the central government.

Table 2 Total budget expenditure by government type

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total	276.8	288.8	320.1	355.0	365.8	376.6	399.7	420.5	438.2	459.6	480.3
Central Government	175.4	176.8	195.1	217.5	225.9	235.6	248.6	263.6	274.7	286.3	295.7
(% of Total)	(63.4)	(61.2)	(60.9)	(61.3)	(61.8)	(62.6)	(62.2)	(62.7)	(62.7)	(62.3)	(61.6)
Local Government	101.4	112.0	125.0	137.5	139.9	141.0	151.1	156.9	163.6	173.3	184.6
(% of Total)	(36.6)	(38.8)	(39.1)	(38.7)	(38.2)	(37.4)	(37.8)	(37.3)	(37.3)	(37.7)	(38.4)

Data From: Summary of Local Budget for FY 2016 (Ministry of the Interior 2016).
Note: The unit of expenditure is 1 trillion KRW (approximately 1 billion USD). The central government accounts for approximately 60% of the total budget expenditure.

Table 3 Local finance equalizing scheme

	2011	2012	2013	2014	2015	2016
Total Transfer to Local Government	97.8	105.7	114.1	116.6	119.4	123.3
Local Share Tax	29.1	32.0	34.4	34.6	33.2	34.3
Local Education Subsidy	32.3	34.2	37.6	40.0	44.1	43.0
National Subsidy	35.3	38.4	41.1	40.9	39.4	41.2

Data From: National Assembly Budget Office website, Summary of Local Budget for FY 2016 (Ministry of the Interior 2016), The Korea Tax System (Ministry of Strategy and Finance 2014), and http://index.go.kr
Note: The unit is 1 trillion KRW (approximately 1 billion USD). The Local Finance Equalizing Scheme aims to alleviate the disparity in tax revenue and expenditure between the central and local governments. Total Transfer to Local Government comprises Local Share Tax, National Subsidy, and Local Education Subsidy.

governments with weak revenue resources to provide local public goods and services without any disruption. There are three main components of the Local Finance Equalizing Scheme: the Local Share Tax, the Local Education Subsidy, and the National Subsidy. Table 3 shows the total amount of each component.

Among them, the National Subsidy plays a crucial role because local development requires financial resources to support various economic and social policies. Moreover, it is through this grant that bureaucrats and local politicians can exert their influence. The National Subsidy falls under the purview of the Subsidy Management Act and its Enforcement Decree. Table 1 of the Enforcement Decree of the Subsidy Management Act specifies a total of 122 categories under the National Subsidy and their subsidized rates, which seems to be strictly regulated by the Act. However, the 122nd clause in Table 1 describes an exception, stating that "the National Subsidy can be allocated to other local projects on which the Ministry of Strategy and Finance and local governments mutually agree as necessary, and detailed contents of the project and the subsidized rate are determined based on the governmental budget formation guideline each year." It implies that bureaucratic powers can affect the National Subsidy allocation via this clause. Therefore, discretionary behaviors of public officials and politicians play a significant role in determining the amount of the National Subsidy allocated to each local district.

Empirical strategy

Empirical design

I applied the following regression model to the panel data uniquely constructed by the author. The econometric model is given by:

$$Y_{i,c,t+1} = \beta_1 \text{MOSF}_{i,c,t} + \beta_2 \text{BudgetCommittee}_{i,c,t} + X_{i,c,t} + \gamma_i + \delta_t + \lambda_c \cdot t + \epsilon_{i,c,t},$$

where i is a local district, c is an upper-level local (metropolitan) district,[8] and t is a given year. The observed period was from 2008 to 2015. During this time, there were two presidents, Myong-bak Lee (2008–2012) and Geun-hye Park (2013–2015), both of whom are from the Saenuri party, which is the majority party in the parliament. In

all analyses, I adjusted standard errors for clustering at local district level i to accommodate any heteroscedasticity. My main variable of interest was β_1, and I compared this value with β_2.

Outcome variables

The National Subsidy was the principal outcome variable. The National Subsidy is the budgetary component affected by discretionary behaviors, so it is the most suitable indicator of hometown favoritism. It also has the advantage of facilitating accurate measurements to examine the influence of politicians and bureaucrats at time t, as the allocation of the National Subsidy proceeds on an annual basis. I used per-capita values and computed a natural logarithm to accommodate population change and ceiling effects caused by budget size. To ensure robustness, I substituted the National Subsidy for either the Subsidized Project Budget or the Total Budget.[9]

Explanatory variables

$MOSF_{i,c,t}$ is a dummy variable indicating whether local district i has a high-ranking bureaucrat in the Ministry of Strategy and Finance at time t.[10] As ministry officials draft the budget between June and August, dummy variable $MOSF_{i,c,t}$ is coded as 1 when a senior public official from i is in an influential government position during this period. I specified high-ranking public officials as the one minister, two vice ministers, six deputy ministers, and five director generals in the Budget Office. These are positions with greater budgetary power as well as higher social status compared to congresspeople.

For more rigorous analysis, I examined the impacts of bureaucrats separately by classifying public officials according to rank and involvement with the budget. $MOSF(Core)_{i,c,t}$ includes one minister, two vice ministers, and two deputy ministers in the Budget Office and Fiscal Affairs and five directors general in the Budget Office. Because these members are heavily involved in the budget formulation process, I applied this variable independently so that I could examine the specific influences of high-level bureaucrats on budget drafting. I also considered public officials from other central government agencies (ministry-level) because multiple government bodies collaborate in drafting the budget.[11] Thus, $Gov_{i,c,}$ is equal to 1 when local district i is the hometown of a minister or vice-minister from other ministries at time t.

$BudgetCommittee_{i,c,t}$ is a dummy variable, which equals 1 if at least one congressperson from region i is a member of the Special Committee for Budget and Accounts at time t. To examine other possible political influences, I used $FinanceCommittee_{i,c,t}$, which indicates whether one congressperson from region i is affiliated with the Standing Committee of Strategy and Finance at time t.

Covariates

I controlled for multiple variables for $X_{i,c,t}$, which may correlate with the variable of interest. These include ruling-party presence (whether i is a region with ruling-party congresspeople), fiscal autonomy ratio ($= \frac{\text{Local Tax+Non Tax Revenue}}{\text{Total Budget}}$), senior population ratio (60 or above), and the per-capita GDP and unemployment rate in upper-level local district c. γ_i is the region fixed effect accounting for unobserved characteristics of the local district. As the budget size tends to increase every year, I added the year

dummy variable δ_t to control the common time fixed effect. Each local district has a specific time trend due to its distinctive socioeconomic circumstances. Hence, I added the term $\lambda_c \cdot t$, which is the region-specific linear trend, while $\epsilon_{i,c,t}$ is the error term in the model.

One possible counterargument to the existence of bureaucratic hometown favoritism is that the budgeting effects are actually coming from the president since he/she can affect budget allocation directly or influence it indirectly via assignment of the highest-ranking bureaucrats. At minimum, the president appoints the minister and two vice ministers, and important political factors are involved that also relate to the budget distribution. To capture these effects, I added as dummy variables the two presidents' hometowns and their approval ratings during each period (2008–2012, 2013–2015) in local district i.

Endogeneity issues

In estimating the influence of hometown favoritism on budget allocation, an empirical challenge arises from the possibility of assigning endogenous attributes to social connections as the assignment of public officials is nonrandom. Throughout the paper, I have carefully interpreted the estimation results as evidence of correlations, and my results may indicate the upper bound of the effect. However, institutional contexts create possible causal linkages between bureaucrats' hometowns and budget allocation.

First, public officials are selected solely based on the civil service aptitude test, so the results are random across local districts.[12] Second, their career path follows a seniority rule, wherein public officials who enter service earlier tend to be promoted ahead of those entering service later. That is, public officials are bracketed within a cohort based on their year of entry into service, and they are assigned to a specific position in descending order of the cohort (Xu, Bertrand, and Burgess 2018). Figure 2 shows evidence of the seniority rule in human resource management.[13] Seniors are expected to leave their jobs automatically when their peers with a shorter career history are promoted to higher-ranking positions. This practice reflects the distinctive Korean (and more broadly Asian) work environment where experience, rather than competence, dominates professional relationships. It is a byproduct of the Korean cultural belief that if a boss is younger and has a shorter work history, then they cannot have adequate command over the organization. Because this personnel management system is orthogonal to regional economic conditions, it makes the inference of a causal relationship between hometown favoritism and budget allocation plausible. Third, job rotations among high-ranking public officials are integral to the Korean government's personnel management system. There is usually a set term of office for high-ranking positions. Changes are staggered over time in different local districts, because of which identification is not a one-off event and instead provides useful variations across years and regions. Thus, personal relationships arising from sharing a hometown can have differential effects on provinces across years, serving as a strong identification instrument. Fourth, reverse causality, or a causal link between the level of a local district's budget and a bureaucrat's assignment to a certain position, is not likely to happen under this selection and assignment process. Fifth, to address endogeneity caused by omitted variables, I controlled for
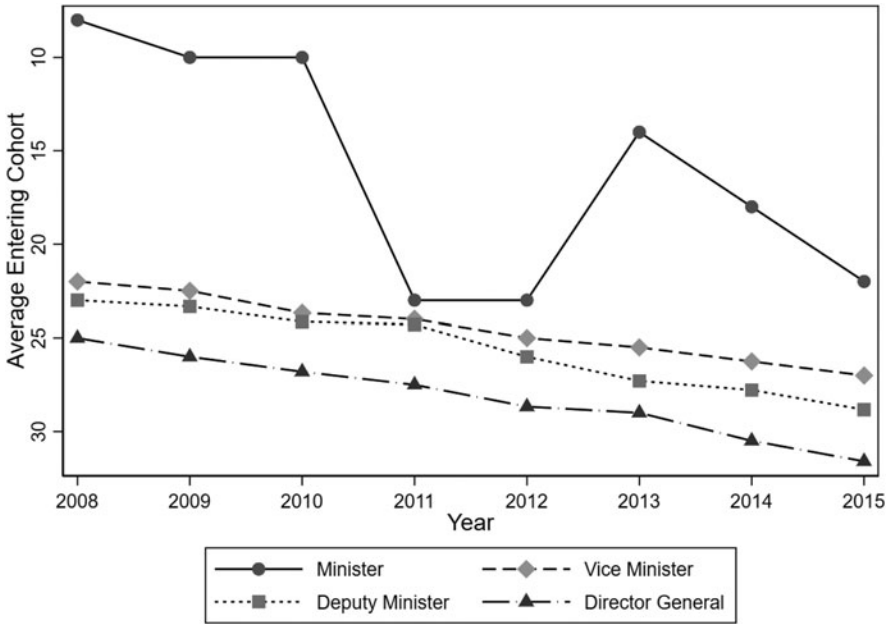
Figure 2 Average entering cohort across years
Note: The y-axis is the average entering cohort for each high-ranking position. The numbers are in descending order. For example, entering cohort 25 (26/27/28/…) denotes entry into service in 1981 (1982/1983/1984/…).

local districts' socio-demographic characteristics $X_{i,c,t}$, region fixed effects γ_i, and region-specific linear trends $\lambda_c \cdot t$. As the hierarchical structure and roles of high-ranking public officials are comparatively consistent during the analysis period, they can account for unobserved institution-specific attributes that are potentially correlated with assignments to leadership positions.

These institutional settings, wherein selection of public officials is based on the civil qualification test and promotion to high-ranking positions is based on the seniority rule, present advantages for my empirical approach, as bureaucrats' hometowns become orthogonal to other individual or regional factors that affect budget allocation. Therefore, my estimation can provide evidence of the causal relationship between personal characteristics and budget allocation.

Data Collection and Descriptive Statistics

I collected fiscal data from the Local Finance Integrated Open System and Local Finance Yearbook published annually by the Ministry of the Interior. To identify high-ranking bureaucrats' hometowns, I extracted information from Seoul newspaper articles, which included detailed profiles. I verified them using multiple hand-collected newspaper resources and private connections. I constructed a dataset for politicians based on the National Assembly website. I also gathered a demographic dataset for each local district from the National Statistical Office website and the National Election Commission website.

Table 4 Summary Statistics

Variable	Mean	S.D.	Min.	Max.
National Subsidy	0.471	0.383	0.036	2.133
Subsidized Project Budget	1.112	0.959	0.132	5.056
Total Budget	2.157	1.745	0.425	9.781
MOSF	0.332	0.471	0	1
MOSF (Core)	0.321	0.467	0	1
MOSF (Nonbudget)	0.157	0.364	0	1
Other Gov.	0.424	0.497	0	1
Budget Committee	0.265	0.441	0	1
Finance Committee	0.143	0.350	0	1
Ruling Party	0.671	0.470	0	1
Fiscal Autonomy	0.315	0.159	0.078	0.860
Senior Population Ratio	0.188	0.071	0.073	0.445
Per-capita GDP	27388	8720	14295	62398
Unemployment Rate	3.280	0.860	1.600	5.100
Approval Ratings	0.489	0.188	0.059	0.850
N	1227			

Note. National Subsidy, Subsidized Project Budget, and Total Budget are per-capita values. MOSF indicates high-ranking bureaucrats in the Ministry of Strategy and Finance. MOSF (Core) refers to a core member in budget-related activities, and MOSF (Nonbudget) refers to the rest of the Ministry. Other Gov. equals 1 if the region i is a hometown of either a minister or vice minister from one of the 11 central ministries or the one government commission. Budget Committee and Finance Committee represent the proportion of National Assembly members in each committee. Fiscal Autonomy is calculated based on the following formula: (Local Tax Revenue + Non-Tax Revenue)/Total Budget. The unit of per-capita GDP is 100 KRW

Table 4 shows the summary statistics. The average value of the Total Budget was larger than the Subsidized Project Budget, which in turn was larger than the National Subsidy. The mean of $MOSF_{i,c,t}$ was approximately 0.332. The subsample that constituted $MOSF(Core)_{i,c,t}$ was similar to $MOSF_{i,c,t}$ as high-ranking officials in the Ministry of Strategy and Finance assumed similar positions over their career through job rotations during the analysis period. Approximately 27 percent and 14 percent of congresspeople were members of the Special Committee of Budget and Accounts and the Standing Committee of Strategy and Finance, respectively. The variability of covariates such as fiscal autonomy, senior population ratio, per-capita GDP, unemployment rate, and approval ratings was rather large across the local districts, providing justification to control them in the estimation.

Estimation results

Basic results

The estimation results in Table 5 show the positive influence of high-ranking bureaucrats on the growth rate of per-capita National Subsidy. When a local district

Table 5 Basic Regression results

	Dependent Variable: National Subsidy			
Variable	(1)	(2)	(3)	(4)
MOSF	0.066*	0.078**	0.073*	
	(0.027)	(0.028)	(0.028)	
MOSF (Core)				0.066*
				(0.029)
Budget Committee	−0.014	−0.011	−0.016	−0.016
	(0.015)	(0.014)	(0.015)	(0.015)
Ruling Party		−0.054	−0.067+	−0.067+
		(0.033)	(0.034)	(0.034)
Fiscal Autonomy		−0.880*	−0.312	−0.327
		(0.356)	(0.282)	(0.282)
Senior Population Ratio		2.484	1.348	1.305
		(1.991)	(2.191)	(2.193)
Per-capita GDP		0.000	−0.000+	−0.000*
		(0.000)	(0.000)	(0.000)
Unemployment Rate		0.020	0.051	0.051
		(0.028)	(0.033)	(0.033)
Approval Ratings		−1.128**	−1.629**	−1.630**
		(0.233)	(0.273)	(0.275)
President Hometown		0.254**	0.272**	0.272**
		(0.095)	(0.097)	(0.097)
Region FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Region-specific Linear Trend	N	N	Y	Y
R^2	0.6743	0.6461	0.6743	0.6739
N	1227	1227	1227	1227
Standard errors in parentheses, + $p < .10$, * $p < .05$, ** $p < .01$.				

happened to be a senior ministry executive's hometown, the National Subsidy increased by 6.6 percent when not controlling for any covariates (column 1). When I included all vectors of control variables and fixed effects, the growth rate of per-capita National Subsidy increased by 7.8 percent (column 2). Controlling for region-specific linear trends made the coefficient smaller (7.3 percent), but it was still significant at the 5 percent level (column 3). The effect of core bureaucrats was even smaller at 6.6 percent (column 4). These results suggest the existence of a network effect

among high-ranking bureaucrats, such that even officials with no direct budget control can affect resource allocation via their governmental peers. This is a plausible speculation considering that high-ranking public officials spend much time with their cohorts and rotate their positions annually, so they can assist each other.

Interestingly, the coefficients of BudgetCommittee$_{i,c,t}$ were small and not statistically significant in all cases. There are two possible interpretations of these results. First, under the current Korean budget system, bureaucrats create a draft of the annual budget plan. After that, politicians only adjust the budget already formulated by the bureaucrats. Given this environment, there is not much room for the politicians to transform the annual budget dramatically. Second, the number of politicians in the budget committee is larger than that of bureaucrats in the Ministry of Strategy and Finance. Therefore, the power concentration is denser among the bureaucrats than among the politicians. Third, the null findings with respect to the National Assembly's members may provide evidence of the importance of institutional prevention of favoritism. Over time, the government has introduced many regulations to restrict myopic and self-interested budget manipulation by legislators (Jung 2020). For instance, the annual rotation of members of the Special Committee on Budget and Accounts makes individual politicians' budget manipulation virtually impossible. Moreover, the budget committee is relatively large and almost equally distributed across regions, which also prevents individual politicians' self-interested budget formulation.

The presence of ruling-party politicians had negative effects on all specifications, which contradicted my original prediction. However, the outcome is plausible as the majority party in the National Assembly did not change during the analysis period (2008–2015). Therefore, a ruling-party politician's representation of a local district may not be beneficial for the region in terms of securing additional budgetary resources. Economic factors such as per-capita GDP and unemployment do not affect budget allocation to a large extent. This is understandable considering the homogeneous characteristics of the local districts within a small territory of South Korea.

The effects of the president were mixed. While presidential approval ratings yielded negative effects, presidents' hometowns yielded positive effects. This may imply that the president affects budget allocation only directly, which also supports the assumption that MOSF$_{i,c,t}$ is likely to be orthogonal to an error term conditional on two president-related variables.

As shown in Table 5, the social capital of region i was associated with more subsidies in the following year with the existence of hometown connections through high-ranking bureaucrats. It shows that a jurisdiction's political representation is not constrained solely by electoral accountability. A bureaucrat's geographical identity, in the form of implicit social capital, can play a crucial role in budget allocation.

Heterogeneous effects

Figure 3 illustrates the specific regions of South Korea. I examined the effects in sublocal areas to check for consistency with the central hypothesis of high-ranking bureaucrats' hometown favoritism.

It is commonly believed that hometown preference is weaker in the Greater Seoul Metropolitan Area (GSMA) than in other areas of the country. Around half of the
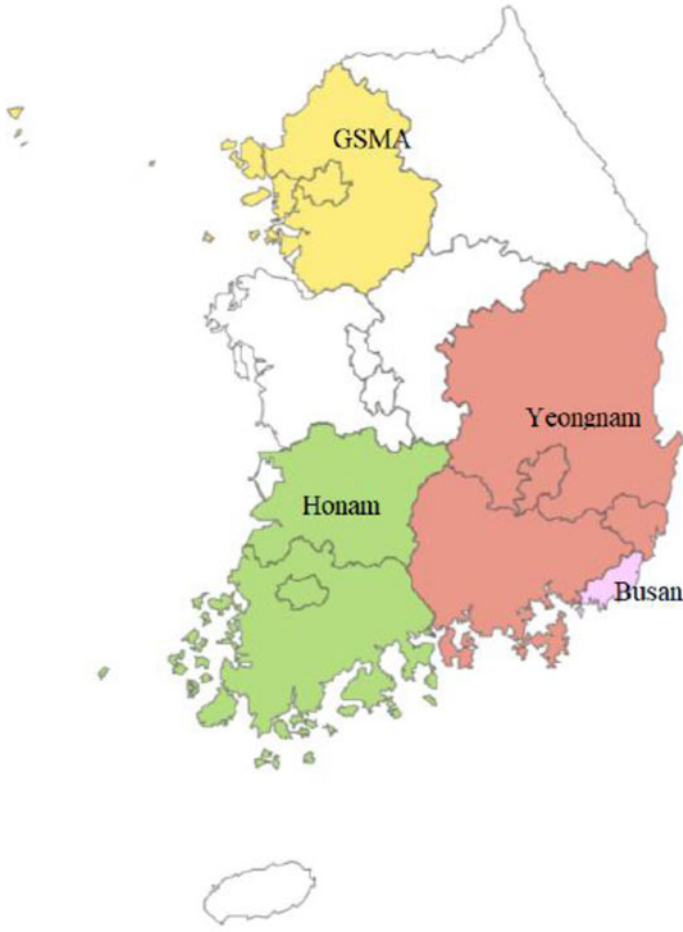
Figure 3 Map of South Korea
Note: GSMA = Greater Seoul Metropolitan Area.

total population resides in the GSMA (Seoul, Incheon, and Gyeonggi), as a considerable number of people have migrated to the region since 1970 following rapid industrialization. According to Lee and Park (2000), the power of social networks is stronger in local areas, while it is weaker in the GSMA. Additionally, it is difficult to separate bureaucrats' influence from other factors because GSMA budgets are enormous and complex. Therefore, I separated two regions to examine hometown favoritism more clearly.

Panels A and B of Table 6 show that hometown preference was remarkable in the non-GSMA region. Bureaucrats affected budget allocation only in local districts with strong hometown preference. The effect was 8.2 percent stronger for members of the Ministry of Strategy and Finance (column 3). In contrast, the effect was small and nonsignificant in the GSMA region where social capital derived from sharing a

hometown is weak. These findings strengthen my argument that high-ranking bureaucrats benefit their hometowns through local budget allocation.

Furthermore, I analyzed the Yeongnam and Honam regions separately to examine the heterogeneous effects more rigorously. Regions that have been historically isolated by geography and the use of dialects are more likely to present salient hometown preferences (Falck et al. 2012; Michalopoulos 2012). These localities tend to have a strong culture and exhibit regional cleavages (Jung 2021; Hochul 2003).[14] I also excluded the samples from Busan when conducting the estimation. This is because many Koreans escaped to Busan during the Korean War (1950–1953) and raised their children there. Because the birth years of high-ranking bureaucrats overlap in this period somewhat, it may obscure the effect irrespective of bureaucrats' genuine hometown affinities. Finally, we conducted the estimation except for the metropolitan cities to match the level of hometown perception and administrative district unit more concretely.

The results shown in Panels C to E of Table 6 accord with my original hypothesis. Restricting samples based on cultural, historical, and administrative contexts did not affect the results qualitatively. The effect was still prevalent either when I limited the samples to regions with strong hometown preferences, when I excluded the areas that could confound the hometown effect, or when I omitted the metropolitan cities at 6.5%, 6.9%, and 9.1% respectively (column 3).

Robustness tests

Falsification test

To check the robustness of the basic results, I performed a falsification test. The logic is that bureaucrats' influence is visible only when they are in power. Thus, it is not possible to influence local budget allocation when one does not occupy a high-ranking position. Additionally, a bureaucrat's influential power will disappear after moving to a position irrelevant to budget allocation. Thus, this can provide a necessary condition for my hypothesis. Specifically, I made the dummy variable $MOSF_{i,c,t}$ lead from year 1 to 4 and lag from year 1 to 3. If my results are robust, then there should be no significant effect on the coefficient β_1 regardless of whether the MOSF variable leads or lags.

$$Y_{i,c,t+1} = \beta_1 MOSF_{i,c,t+j} + \beta_2 BudgetCommittee_{i,c,t} + X_{i,c,t} + \gamma_i + \delta_t + \lambda_c \cdot t + \epsilon_{i,c,t}$$

$$j \in \{-3, \ -2, \ -1, \ 0, \ 1, \ 2, \ 3, \ 4\}$$

As Table 7 and Figure 4 show, the coefficients β_1 of the dummy variable $MOSF_{i,c,t+j}$ became statistically nonsignificant and smaller in magnitude when $j \notin \{0\}$. This result shows that bureaucrats influence their hometowns' budget allocation only when in a budget-relevant position of power.

Influence of other bureaucrats

Other government agencies participate in drafting the budget with the Ministry of Strategy and Finance. Ministers and vice ministers are the heads of departments

Table 6 Regression results for heterogeneous sub-regions

Variable	Dependent Variable: National Subsidy			
	(1)	(2)	(3)	(4)
Panel A. Greater Seoul Metropolitan Area (GSMA)				
MOSF	-0.046	0.007	-0.007	
	(0.089)	(0.142)	(0.150)	
MOSF (Core)				-0.007
				(0.150)
Budget Committee	-0.013	-0.009	-0.009	-0.009
	(0.029)	(0.029)	(0.029)	(0.029)
R^2	0.6684	0.7352	0.7360	0.7360
N	454	454	454	454
Panel B. Non-GSMA				
MOSF	0.068*	0.085**	0.082**	
	(0.028)	(0.029)	(0.030)	
MOSF (Core)				0.072*
				(0.031)
Budget Committee	-0.017	-0.016	-0.020	-0.020
	(0.017)	(0.016)	(0.017)	(0.017)
R^2	0.5975	0.6137	0.6576	0.6566
N	773	773	773	773
Panel C. Yeongnam & Honam				
MOSF	0.042	0.065*	0.065*	
	(0.028)	(0.027)	(0.027)	
MOSF (Core)				0.051+
				(0.026)
Budget Committee	0.008	0.005	-0.001	-0.001
	(0.018)	(0.017)	(0.018)	(0.018)
R^2	0.6530	0.6641	0.6820	0.6809
N	550	550	550	550
Panel D. Excluding Busan				
MOSF	0.058*	0.064*	0.069*	
	(0.029)	(0.028)	(0.030)	
MOSF (Core)				0.061+
				(0.031)

(*Continued*)

Table 6 (*Continued.*)

Variable	Dependent Variable: National Subsidy			
	(1)	(2)	(3)	(4)
Budget Committee	-0.012	-0.008	-0.013	-0.013
	(0.016)	(0.015)	(0.016)	(0.016)
R^2	0.5871	0.6300	0.6595	0.6592
N	1123	1123	1123	1123
Panel E. Excluding Metropolitan Cities				
MOSF	0.097**	0.094**	0.091*	
	(0.035)	(0.035)	(0.039)	
MOSF (Core)				0.090*
				(0.045)
Budget Committee	-0.023	-0.019	-0.024	-0.023
	(0.022)	(0.021)	(0.021)	(0.021)
R^2	0.5049	0.5372	0.5499	0.5491
N	638	638	638	638
Covariates	N	Y	Y	Y
Region FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Region-specific Linear Trend	N	N	Y	Y
Standard errors in parentheses, + $p < .10$, * $p < .05$, ** $p < .01$.				

with considerable authority, and they may influence public affairs beyond their jurisdiction via their social capital. It suggests the possibility that favor trading exists between local districts and bureaucrats in other departments in the context of local budget allocation Thus, I applied the variable $Gov_{i,c,t}$ instead of $MOSF_{i,c,t}$ to examine another potentially significant influence.

Panel A of Table 8 displays the results. For all specifications, there was no evidence of hometown favoritism by other government bureaucrats. When I considered public officials from both the Ministry of Strategy and Finance and other ministries, the effect appeared only for the former (column 4). There are several possible reasons for these results. First, authority over the budgeting process is critical in allocation. Because other bureaucrats have limited roles in drafting the budget, their influence on local budget allocation can be restricted. Second, most ministers examined in the analysis period were political appointees, who are not motivated to establish roots in the locality. Thus, this may lower their odds of engaging in favor trading through hometown preference.

Table 7 Robustness check (1): Falsification test

Variable	Persistent Test				Placebo Test			
	Lagging 3 yr.	Lagging 2 yr.	Lagging 1 yr.	Baseline	Leading 1 yr.	Leading 2 yr.	Leading 3 yr.	Leading 4 yr.
MOSF	0.001	0.013	-0.027	0.073*	0.019	0.013	0.001	-0.002
	(0.024)	(0.023)	(0.038)	(0.028)	(0.023)	(0.023)	(0.024)	(0.027)
Budget Committee	Y	Y	Y	Y	Y	Y	Y	Y
Covariates	Y	Y	Y	Y	Y	Y	Y	Y
Region FE	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Region-specific Linear Trend	Y	Y	Y	Y	Y	Y	Y	Y
R^2	0.6721	0.6722	0.6726	0.6743	0.6723	0.6722	0.6721	0.6721
N	1224	1225	1226	1227	1226	1225	1224	1223

Standard errors in parentheses, + $p < .10$, * $p < .05$, ** $p < .01$.
Note: The falsification test was subdivided into two parts: (1) a persistence test by lagging 1–3 years and (2) a placebo test by leading 1–4 years
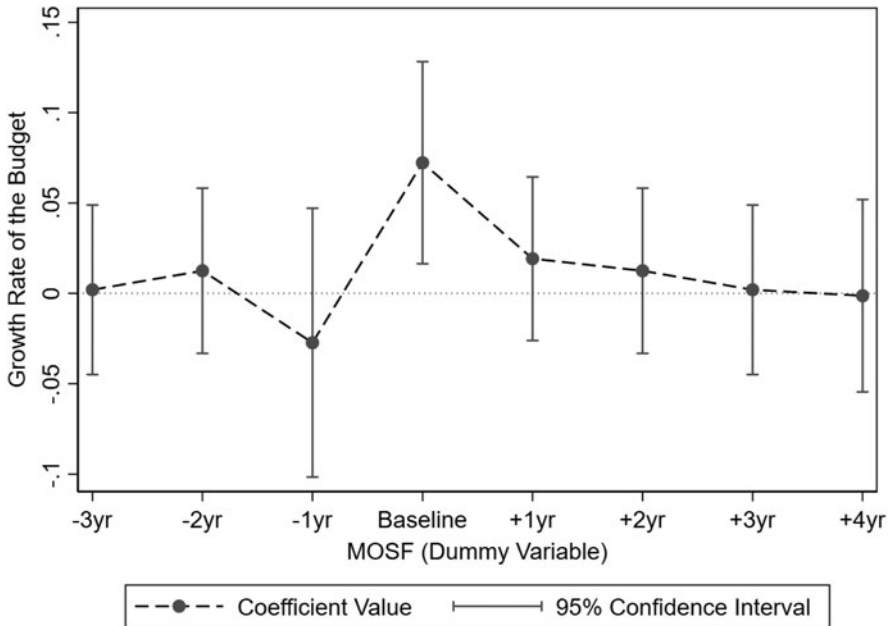
Figure 4 Robustness check: Falsification test

Placebo region effect

As another robustness check for hometown preference, I performed a placebo test. I assessed whether hometown favoritism existed even after extending the analysis unit *i* to include neighborhoods outside the hometown. If bureaucrats affect the budget allocation via hometown preference, then the effect should appear only when targeting the region exclusively, and it should dissipate when arbitrarily expanding the hometown's scope. To perform the test, I randomly chose one neighborhood that shares a border with a bureaucrat's hometown and falsely assumed that this connected community was part of the hometown.

Panel B of Table 8 shows the results, which support my hypothesis. The hometown's effect on budget allocation disappeared when the local district was widely and inaccurately defined. The coefficient became nonsignificant when controlling for all covariates and fixed effects (column 3).

Other dependent variables

My main hypothesis concerns whether bureaucrats and politicians influence budget allocation, but I applied it to other dependent variables, namely the Subsidized Project Budget and the Total Budget. These measures go beyond bureaucrats' discretion, so they are less precise components that I wished to capture in the analysis. However, if sufficiently robust, similar results should emerge with respect to these modified variables, as they are closely related to the National Subsidy.

Table 8 Robustness check (2): Changing explanatory and dependent variable

Variable	(1)	(2)	(3)	(4)
Panel A. Other Bureaucrats				
Other Governments	0.000	0.000	-0.008	-0.009
	(0.018)	(0.019)	(0.017)	(0.016)
MOSF				0.073*
				(0.028)
R^2	0.6052	0.6437	0.6723	0.6743
N	1227	1227	1227	1227
Panel B. Placebo Region				
MOSF	0.025	0.025	0.019	
	(0.024)	(0.023)	(0.025)	
R^2	0.6056	0.6440	0.6725	
N	1227	1227	1227	
Panel C. Dependent Variable: Subsidized Project Budget				
MOSF	0.074**	0.088**	0.099**	
	(0.024)	(0.025)	(0.026)	
MOSF (Core)				0.102**
				(0.026)
R^2	0.5138	0.5413	0.5716	0.5719
N	1227	1227	1227	1227
Panel D. Dependent Variable: Total Budget				
MOSF	0.064**	0.079**	0.094**	
	(0.023)	(0.025)	(0.025)	
MOSF (Core)				0.097**
				(0.025)
R^2	0.3635	0.3796	0.4176	0.4181
N	1227	1227	1227	1227
Panel E. Dependent Variable: Autonomous Financial Resources				
MOSF	-0.039*	0.006	0.019	
	(0.018)	(0.016)	(0.014)	
MOSF (Core)				0.023
				(0.014)
R^2	0.4179	0.7393	0.7743	0.7745
N	1227	1227	1227	1227
Budget Committee	Y	Y	Y	Y

(*Continued*)

Table 8 (*Continued.*)

Variable	(1)	(2)	(3)	(4)
Covariates	N	Y	Y	Y
Region FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Region-specific Linear Trend	N	N	Y	Y
Standard errors in parentheses, + p < .10, * p < .05, ** p < .01.				

Panels C and D of Table 8 report the results. In both cases, the dummy variable $MOSF_{i,c,t}$ still exhibited positive effects. One noteworthy consideration is that the magnitude of the effect became larger, at 9.9 percent for the Subsidized Project Budget and 9.4 percent for the Total Budget (column 3). This may suggest the existence of other unobserved budget components that bureaucrats engineer at their discretion.

I also used the revenue-related component as a dependent variable to corroborate the existence of hometown favoritism. Autonomous financial resources—the sum of the local tax and non-tax revenue—are determined mechanically by regional economic situations based on the Act and are not affected by bureaucrats' discretionary power. Thus, if my estimations are robust, the results of a regression analysis on autonomous financial revenue should not be influenced by hometown favoritism. Specifically, I estimated the equation by changing $Y_{i,c,t}$ to the sum of the local tax and non-tax revenue divided by the total population and then computing the natural logarithm.

The results were as expected (Table 8, Panel E). There was no evidence that high-ranking bureaucrats influenced autonomous financial revenue. This supports the hypothesis that hometown favoritism is prevalent only in budget allocation.

Influence of other congresspeople

Another way that politicians can influence budgeting is by joining the Standing Committee of Strategy and Finance. Committee members are more likely to be affiliated with bureaucrats from the Ministry of Strategy and Finance due to frequent meetings and inspections at the National Assembly. Their frequent social contact with bureaucrats increases the possibility of skewed budget allocation.

However, as shown in Table 9, the coefficient of the $FinanceCommittee_{i,c,t}$ was small and not statistically significant. This suggests no clear evidence of local budget allocation being influenced by members of the Standing Committee of Strategy and Finance.

Further, we should examine politicians' potential indirect influence. Local politicians can indirectly secure more funds for their constituency through affiliated bureaucrats to avoid "pork barrel" criticisms. That is, congresspeople may gain favor for their district through high-level bureaucrats, so they may not feel the need to act directly. Accordingly, I added an interaction term between bureaucrats and politicians to check for potential indirect influence.

Table 9 follows.

Table 9 Robustness check (3): Changing congresspeople's effects

Variable	National Subsidy		Subsidized Project Budget		Total Budget	
MOSF	0.070*	0.074*	0.094**	0.096**	0.087**	0.084**
	(0.027)	(0.029)	(0.027)	(0.027)	(0.025)	(0.026)
Budget Committee	-0.019		-0.012		-0.009	
	(0.018)		(0.019)		(0.018)	
Finance Committee		0.022		-0.009		-0.012
		(0.030)		(0.020)		(0.017)
MOSF x Budget Committee	0.011		0.020		0.027	
	(0.027)		(0.027)		(0.025)	
MOSF x Finance Committee		-0.015		0.019		0.058
		(0.039)		(0.037)		(0.037)
Covariates	Y	Y	Y	Y	Y	Y
Region FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Region-specific Linear Trend	Y	Y	Y	Y	Y	Y
R^2	0.6743	0.6741	0.5718	0.5716	0.4182	0.4193
N	1227	1227	1227	1227	1227	1227

Standard errors in parentheses, + p < .10, * p < .05, ** p < .01.

The results show that the interaction term was small and nonsignificant irrespective of the type of politician (Table 9). This corroborates the finding that local politicians have limited power in budgeting in South Korea.

Discussion: Effects of the transparency system on budget allocation

To reduce fraud and enhance work efficiency, the Korean government has launched the online Government Subsidies Integration Management System. They established this portal based on the Act on the Budgeting and Management of Subsidies and the Act on Disclosure of Information by Public Agency. It was introduced partially in January 2017 and became fully available to the public in July 2017. The newly introduced system provides detailed information about government subsidy programs to the public. Thus, it provides opportunities to third parties, including civic groups and the press, to monitor and evaluate the implementation of the National Subsidy. Improved transparency in the allocation and execution of the National Subsidy can decrease bureaucrats' and local governments' incentives to exploit social connections to secure more budgetary resources. If this is the case, it might further confirm the existence of hometown favoritism in budget allocation. I explore whether such mechanisms remain effective.[15]

As the Ministry of Strategy and Finance discussed the Government Subsidies Integration Management System in 2015, I expected budget allocation to be influenced by the newly adopted system beginning in 2016. Thus, I introduced the $MOSF_{i,c,t}$ term in interaction with the post-2015 dummy variable to examine whether the introduction of the system affected the budget allocation.

Table 10 shows the results.[16] Surprisingly, the effect has changed significantly. After the introduction of the transparent system, the growth rate of per-capita National Subsidy, Subsidized Project Budget, and Total Budget turned negative, decreasing by approximately 21.5%, 19.4%, and 9.8%, respectively (Table 10, Panel A). The results were similar when I limited the samples to the non-Greater Seoul Metropolitan Area (Table 10, Panel B), and the effects were dissipated when I applied a placebo dummy that falsely assumed the introduction of the transparency system in 2014 (Table 10, Panel C), further supporting the initial results.

The stark decline in hometown favoritism after the adoption of the Government Subsidies Integration Management System has important implications. Although it is not possible to fully rule out all other interpretations, these empirical findings are most consistent with the inference that budget officials had been susceptible to rent-seeking intentions to exploit their personal interests (e.g., career concerns) prior to the introduction of transparency systems; then, the increased transparency prevented bureaucrats from engaging in preferential budgeting—even decreasing the budget allocation to their hometown—to offset any concerns about budget misallocation. This is plausible considering that, first, the outcome would not have changed much regardless of the transparency system if the local budget had been formulated based on bureaucrats' intrinsic preference toward or informational advantage about their hometown and that, second, any risk of involvement in corrupt behaviors would prevent bureaucrats concerned about their careers from engaging in rent-seeking behaviors preemptively in their public affairs. Thus, making the

Table 10 Effects of transparency system on budget allocation

Variable	National Subsidy	Subsidized Project Budget	Total Budget
		Dependent Variable	
Panel A. All Districts			
MOSF	0.103**	0.101**	0.058*
	(0.030)	(0.029)	(0.029)
MOSF x After 2015 Dummy	-0.215*	-0.194**	-0.098*
	(0.090)	(0.043)	(0.040)
R^2	0.6601	0.5650	0.4402
N	1538	1538	1538
Panel B. Excluding the Greater Seoul Metropolitan Area			
MOSF	0.056+	0.071*	0.068*
	(0.033)	(0.031)	(0.030)
MOSF x After 2015 Dummy	-0.116+	-0.108+	-0.126*
	(0.064)	(0.057)	(0.053)
R^2	0.6137	0.5203	0.4397
N	968	968	968
Panel C. Placebo Dummy			
MOSF	0.041	0.056+	0.052
	(0.028)	(0.033)	(0.034)
MOSF x After 2013 Dummy	0.059+	-0.051	-0.054
	(0.032)	(0.041)	(0.039)
R^2	0.6546	0.5566	0.4375
N	1538	1538	1538
Budget Committee	Y	Y	Y
Region FE	Y	Y	Y
Year FE	Y	Y	Y
Region-specific Linear Trend	Y	Y	Y

Standard errors in parentheses, + p < .10, * p < .05, ** p < .01.
Note: The analysis period has been extended from 2008–2015 to 2008–2017. The transparency system has been in place since 2015. The regression omits the covariates.

budget allocation system transparent and sharing information with the public can be effective ways to achieve budget efficiency (Jung 2022).

Concluding remarks and policy implications

In this study, I examined whether hometown favoritism exists in budget allocation using the example of South Korea. I found that the hometowns of high-ranking executives

tend to experience a higher growth rate of governmental subsidies, whereas there was no evidence that politicians affected budget allocation. Many sensitivity checks support my argument. Furthermore, the results show that improving the transparency of the budget allocation system decreases budget allocation to bureaucrats' hometowns.

Professional bureaucrats are expected to put public interests above private benefits. Thus, local budget allocation should strive for integrity, efficiency, and fairness. However, my findings indicate the presence of significant biases in the Korean budget allocation system due to bureaucrats' hometown favoritism. We can attribute this finding to two unique aspects of South Korea's environment. First, demographic identity combined with future career concerns can affect a bureaucrat's decision making in the public area. Second, the budgeting process itself, wherein the administration drafts the budget in advance and the legislature merely finalizes it, has a significant impact on budget allocation.

My analysis suggests the possibility of biased budget allocation by high-ranking bureaucrats. The finding that a demographic linkage exists between bureaucrats and local governments in budgetary resource allocation has serious policy implications. Hometown favoritism's potential weakening of the advantages afforded by the merit-based civil service exam may pose a threat to Korean society. Accordingly, the government can enhance the efficiency of the budgeting process by allowing citizens to monitor the allocation and implementation of the National Subsidy through easy access to data.

Fundamentally, more research is necessary to design an institutional setting ensuring efficiency and fairness in budget allocation. Organizational performance can be enhanced by reassigning high-ranking public officials in budgeting so that they do not hold positions vulnerable to hometown social ties. For example, a personnel system that deliberately assigns senior officials' positions by considering their hometown may prevent them from being overcome by private interests as well as improve budgeting performance in a cost-effective manner. Considering that modern society is transitioning from a state-led to a private sector-led development economy, budgets that induce public participation away from government-led formulation could be another way to redesign the budget system to ensure transparency and democracy in the budgeting process (Hong 2015),

Conflict of Interests. The author declares none.

Notes

1. Hometown favoritism is a kind of *guanxi*, which is also popular in China. *Guanxi* refers to a broader social network, including hometown, school, and workplace connections, among others. According to Douw, Huang, and Godley (1999), cultivating hometown ties is "part and parcel of the Chinese culture of establishing guanxi, or relationships of mutual obligation between individuals, and is therefore also an inherent part of the social structure in which doing business in China is embedded at present."
2. It is not unusual for high-profile central governmental bureaucrats to begin a new career as a politician or bureaucrat in their hometown. As they are commonly viewed as symbols of social success in their hometown, they receive implicit support from their people in their birthplace, which yields more social benefits and favorable budget allocations in exchange.
3. Both the Ministry of Strategy and Finance and the National Assembly are depicted based on their structures in 2016. The Ministry of Strategy and Finance (MOSF) was renamed the Ministry of Economy and

Finance (MOEF) in 2018, but I use the term MOSF as this article covers the period before 2018. For detailed information, refer to the following website: http://english.moef.go.kr/main.do.

4. Appendix 1 provides detailed information on the budgeting procedure.

5. For example, from 1973 to 2013, the total budgetary review period provided to the National Assembly was only about 60 days, which is far shorter than those of the United States (240 days), the United Kingdom (120 days), Germany (120 days), and Sweden (90 days; Kim, Ahn, and Jung 2021).

6. This system is different from that of other countries, such as the United States, where the spoils system prevails. In South Korea, bureaucrats are exempt from the public's vote, and appointments to major government positions are relatively independent of political influence.

7. The following describes a senior bureaucrat's general career path: Start as *Deputy Director* (8–12 years) → Be promoted to *Director* (8–10 years) → Enter the *Senior Executive Service* category, and advance to *Director General*, *Deputy Minister*, *Vice Minister*, and *Minister*.

8. Total 154 local districts (*i*) and 17 upper-level local autonomies (*c*). Upper-level regions include special cities (Seoul), metropolitan cities (Busan, Daegu, Incheon, Gwangju, Daejeon, Ulsan), and provinces (Gyeonggi, Gangwon, Chungbuk, Chungnam, Sejong, Jeonbuk, Jeonnam, Gyeongbuk, Gyeongnam, and Jeju). Appendix 2 provides a more detailed explanation of analyzing the unit i.

9. The Subsidized Project Budget consists of the National Subsidy plus the corresponding proportional matching fund (Subsidized Project Budget = National Subsidy + Matching Fund). Local government is responsible for the matching fund when it operates policies or projects supported by the National Subsidy. Adding the Autonomous Project Budget to the Subsidized Project Budget yields the Total Budget (Total Budget = Subsidized Project Budget + Autonomous Project Budget).

10. To reflect a general conception of hometown in which one official connects several locations simultaneously with respect to special and metropolitan cities, a value of 1 is assigned to the upper-level local autonomy if at least one of its local districts is under treatment.

11. As of 2016, the South Korean central government consisted of 17 ministries and six government commissions.

   1) I included 11 ministries and one commission. They are directly involved in local budgeting and assume responsibility for more than 70% of the total government budget (Ministry of Science, ICT and Future Planning; Ministry of Education; Ministry of the Interior; Ministry of Culture, Sports and Tourism; Ministry of Agriculture, Food and Rural Affairs; Ministry of Trade, Industry and Energy; Ministry of Health and Welfare; Ministry of Environment; Ministry of Employment and Labor; Ministry of Land, Infrastructure and Transport; Ministry of Oceans and Fisheries; and the Financial Service Commission).

   I excluded five ministries and five commissions. These agencies are not directly involved with local budgeting and mainly deal with regulatory policy (Ministry of Foreign Affairs, Ministry of Unification, Ministry of National Defense, Ministry of Justice, Ministry of Gender Equality and Family, Korea Communications Commission, Korea Fair Trade Commission, Anti-corruption and Civil Rights Commission, Nuclear Safety and Security Commission, and National Human Rights Commission).

12. Skillful applicants are probably not equally distributed across the country. It implies that regions more educated residents are more likely to receive positive treatment in this setting. However, this concern is unwarranted if we examine the Population Census by Statistics Korea. For example, the Population Census of 1985, which included high-ranking officials in the dataset, showed that the proportion of people with college-level education or higher did not vary much across the metropolitan regions (9–13%). Additionally, considering that the test is highly competitive, with the selected applicants from a few prestigious universities in South Korea, we can estimate that the exam results are random across local districts.

13. While the president appoints ministers and vice ministers, the appointment and allocation of high-ranking officials at the executive level fall within the ambit of the seniority rule.

14. Based on the upper-level local autonomy (*c*), Yeongnam comprises Busan, Daegu, Ulsan, Gyeongbuk, and Gyeongnam. Honam comprises Gwangju, Jeonbuk, and Jeonnam.

15. For example, publicly released audit reports in Brazil improved political accountability and reduced corruption (Avis, Ferraz, and Finan 2018; Ferraz and Finan 2008). Appendix 3 outlines a simple framework of the transparency mechanism.

16. We should interpret the result cautiously, as it has several limitations. The analysis unit should have been altered to reflect the fact that the electoral constituency changed in 2016, but I could not accommodate this change. Additionally, the regression omits the covariates due to the data's limitations.

17. The National Finance Act, amended in April 2013, changed the timeline for the budget proposal. As of 2016, it must be submitted 120 days before the fiscal year, compared to the previous deadline of 90 days before the fiscal year.

18. Here, I focus on local governments rather than bureaucrats. I base this on Basu's (2011) reasoning.

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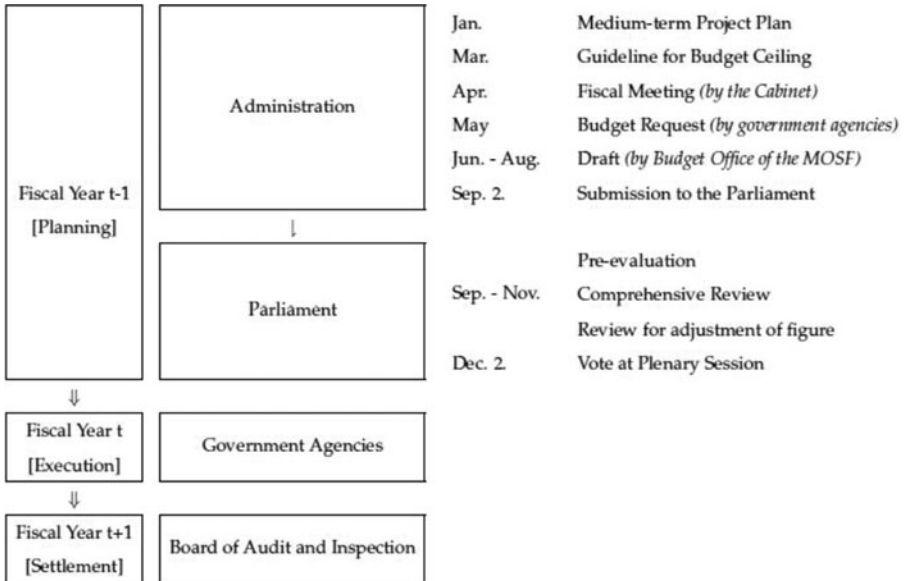Wildavsky, Aaron B. 1964. *The Politics of the Budgetary Process*. Boston: Little, Brown.
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Appendix 1. Budgeting procedure

The Ministry of Strategy and Finance and the National Assembly centrally coordinate the government spending plan. The fiscal management process involves three stages: planning $(t-1) \rightarrow$ implementing $(t) \rightarrow$ reconciling $(t+1)$. In the planning period $(t-1)$, the government prepares the annual budget plan for fiscal period t. The central and local governments, as well as governmental agencies, implement the budget predetermined in period $t-1$, and the budget is reconciled and audited in period $t+1$. In what follows, I explain planning period $t-1$ in greater detail.

Fiscal Year t-1 [Planning]	Administration	Jan.	Medium-term Project Plan
		Mar.	Guideline for Budget Ceiling
		Apr.	Fiscal Meeting *(by the Cabinet)*
		May	Budget Request *(by government agencies)*
		Jun. - Aug.	Draft *(by Budget Office of the MOSF)*
		Sep. 2.	Submission to the Parliament
	↓		
	Parliament		Pre-evaluation
		Sep. - Nov.	Comprehensive Review
			Review for adjustment of figure
		Dec. 2.	Vote at Plenary Session
⇓			
Fiscal Year t [Execution]	Government Agencies		
⇓			
Fiscal Year t+1 [Settlement]	Board of Audit and Inspection		

The administration process

The Budgeting Office in the Ministry of Strategy and Finance prepares the annual budget draft for the upcoming year. This procedure begins in January and ends on September 3. After preparing the draft, the government submits it to the National Assembly.[17]

The budgeting process starts with the consideration of the National Fiscal Management Plan and Medium-term Project Plan to ensure the fiscal soundness and predictability of the national budget. The Ministry of Strategy and Finance delivers a guideline describing how central and local governments should formulate next year's budget. The agencies set the total spending and ceiling first, then fiscal resources are allocated to central and local governments. All the government agencies must follow the guideline when drafting the budget. The Ministry of Strategy and Finance imposes a penalty for noncompliance. This strengthens the Ministry of Strategy and Finance's budgeting authority.

Each governmental department formulates its own budget plan before June, taking into consideration its priorities and major project investment plans. During the process, the Fiscal Strategy Meeting of cabinet members chaired by the President occurs in April to determine the departments' needs and difficulties in formulating the new budget plan. Meeting attendees finalize the budget requests and submit them to the Ministry of Strategy and Finance.

The Ministry of Strategy and Finance centrally coordinates the budget plan. The process lasts three months (June to August). The Ministry reviews and revises the proposed plan using the budgeting guidelines and in accordance with national priorities and macroeconomic forecasts. Public officials from the Budget Office conduct the budget reviews, examining the validity of each project in detail. Because public officials in the Ministry of Strategy and Finance centrally organize the procedure, the person in charge of budgeting has enormous power over allocation. For instance, if local governments cannot address why planned projects are necessary or provide valid arguments, the plans can be modified or even repealed at a public official's discretion. Thus, local government officials and National Assembly members seek to use their social capital with the Ministry of Strategy and Finance's public officials to gain more budgetary resources. Here, social connections based on regional homophily can play a crucial role in gaining access to public officials.

The National Assembly process

After the Ministry of Strategy and Finance finishes coordinating the whole budget plan, it submits the draft to the National Assembly. The National Assembly's finalization lasts from September 3 to December 2. The National Assembly's scrutiny of and deliberation on the budget comprises three steps: (1) preliminary review by the Standing Committee, (2) comprehensive review by the Special Committee on Budget and Accounts, and (3) plenary session vote.

Of the three, the comprehensive review by the Special Committee on Budget and Accounts is the most important phase for securing the local budget. During the Special Committee meeting, the Minister of Strategy and Finance introduces the budget draft, which is then reviewed by 50 committee members. The committee holds a questioning session in the presence of affiliated bureaucrats. In the final stage, it falls on the budget adjustment subcommittee to fine-tune and finalize the figures for each budget component. During the review procedure, members of the National Assembly try to increase their electoral district's budget shares. Because the official term for a member of the Special Committee on Budget and Accounts is only one year, the incentive for securing additional funds is quite strong.

Following this process, the modified budget is introduced and finalized in the general meeting of the Special Committee on Budget and Accounts. One interesting aspect of this stage of the process is that the Special Committee on Budget and Accounts tends to decrease the total size of the next year's budget by 1 percent compared to the original draft formulated by the government (Table A1). This implies that the congressional budget process usually concerns reallocation among policies, projects, and regions. Thus, a politician's socioeconomic characteristics, such as position in the party and multiterm serving status, can play a significant role in securing each local district's budget.

Appendix 2. Analysis unit

I constructed a unique panel dataset covering a period of eight years. One problem is that there is a discrepancy between the administrative district and the electoral constituency. According to Cox (2009), many researchers commit analytical errors when they define the unit of analysis. That is, existing literature considers an administrative district as the analysis unit (instead of an electoral constituency) when

Table A1 Budget Draft and Finalized Budget (2013–2016)

Budget Field	2013		2014		2015		2016	
	MOSF	Parliament	MOSF	Parliament	MOSF	Parliament	MOSF	Parliament
Total	342.5	342.0	357.7	355.8	376.0	375.4	386.7	386.4
Welfare, Health	97.1	97.4	105.9	106.4	115.5	115.7	122.9	123.4
Education	49.1	49.8	50.8	50.7	53.0	52.9	53.2	53.2
Culture, Tourism	4.8	5.0	5.3	5.4	6.0	6.1	6.6	6.6
Environment	6.3	6.3	6.3	6.5	6.7	6.8	6.8	6.9
R&D	16.9	16.9	17.5	17.7	18.8	18.9	18.9	19.1
Industry, SMEs, Energy	15.7	15.5	15.3	15.4	16.5	16.4	16.1	16.3
SOC	23.9	24.3	23.3	23.7	24.4	24.8	23.3	23.7
Agriculture, Food	18.3	18.4	18.6	18.7	19.3	19.3	19.3	19.4
National Defense	34.6	34.3	35.8	35.7	37.6	37.5	39.0	38.8
Diplomacy, Unification	4.1	4.1	4.2	4.2	4.5	4.5	4.7	4.7
Public Order, Safety	15.0	15.0	15.7	15.8	16.9	16.9	17.5	17.5
General Public Service	57.3	55.8	58.7	57.2	59.2	58	60.9	59.5

Data from: Press Release (Ministry of Strategy and Finance 2012–2015)
Note: The unit is 1 trillion KRW.

examining political influences on the budget because allocation is based on the administrative unit. However, it can lead to inaccurate estimation because the purpose is to examine the precise bureaucratic and political effects on budget allocation. Thus, researchers should choose the electoral constituency as the analysis unit.

There are three specific issues. First, the National Subsidy is allocated to localities based on the administrative district, which is not identical to the electoral constituency. Second, politicians serve their regions' electoral constituency (not administrative unit). Third, I had to define the scope of the bureaucrat's hometown. To resolve the issue, I defined the analysis unit as follows:

1. When the administrative district was the same as the electoral constituency, I calculated per-capita budget as usual.
2. When one administrative district was divided into several electoral constituencies, I calculated per-capita budget as above. I then coded the variable $BudgetCommittee_{i,c,t}$ as 1 if at least one politician in the analysis unit was a member of the Special Committee of Budget and Accounts.
3. When several administrative districts constituted one electoral constituency, I aggregated the total budget of each administrative district and divided it by the total population.

Defining the analysis unit i as mentioned above can yield a unit that is different than a bureaucrat's hometown because people usually consider their hometown based on the administrative district. However, the National Election Commission considers multiple socioeconomic properties and cultural characteristics when demarcating electoral constituencies. For example, it examines whether each local district shares commonalities or whether the demarcation is likely to distort election results. Specifically, Article 25 of the Public Official Election Act states that an electoral constituency "shall be demarcated in the area under jurisdiction of the City/Do (a unit of a metropolitan area in South Korea), in consideration of the population, administrative districts, geographical features, traffic, and other conditions, but an autonomous Gu, Si, or Gun (a unit of municipality in South Korea) shall not be divided to make part of it belong to another constituency for the National Assembly member." Thus, each electoral constituency preserves its socioeconomic and cultural proximity, which is aligned with the bureaucrat's hometown.

Appendix 3. A simple framework of the transparency mechanism

Consider a career-concern model in which bureaucrats' motivation to continue their career in a senior position after retirement interacts with a local government's incentive to secure more funding. Using hometown connections, high-ranking public officials and the concerned local governments may make an implicit contract, through which bureaucrats will receive benefits such as senior positions if they allocate more resources to the local district. In this situation, local governments face two possible value functions[18]:

$$V_t = qY_H + (1-q)Y_L + \beta \max\{V_{t+1}, \ W_{t+1}\}$$

$$W_t = Y_H + \beta[(1-p)\max\{V_{t+1}, \ W_{t+1}\} + p(Y_L - l)],$$

where V_t is the value of a local government without an implicit contract, W_t is the value of a local government with an implicit contract (V_{t+1} and W_{t+1} are value functions in the next period), Y_t is the size of the local budget (i{H, L}, $Y_H > Y_L$), q is the probability of obtaining Y_H without an implicit contract $(0 < q < 1)$, p is the probability of being investigated by a third-party agency and found guilty $(0 < p < 1)$, l is the penalty cost associated with these behaviors, and β is the discounting rate. To consider an interesting case, I assume that $qY_H + (1-q)Y_L > p(Y_L - l)$.

The first equation shows the case when there is no implicit contract. The local government obtains an average budget amount $E(Y)(= qY_H + (1-q)Y_L)$ in the current period and faces the same problem in the next period. The second equation describes the case wherein there is an implicit contract. The local government obtains Y_H in the current period by using social capital but is punished and obtains only $Y_L - l$ in the next period over the probability of being investigated p.

The local government does not differ between the two situations when $V_t = W_t$. If I solve the equations with a stationary equilibrium condition where $V_t = V_{t+1}$ and $W_t = W_{t+1}$, it yields the threshold

$$\bar{p} = \frac{(1 - \beta)(Y_H + E(Y))}{\beta(E(Y) - (1 - \beta)(Y_L - l))},$$

where the local government makes an implicit contract with bureaucrats if $p \leq \bar{p}$ but does not if $p > \bar{p}$.

The theoretical model predicts that newly released information about budget usage can regulate the behavior of local governments and executives. Here, we can improve budgetary transparency in two ways. One is to increase p, which would discourage a local government from making an implicit contract with a high-ranking bureaucrat. The other is to decrease $\bar{p}$ by increasing l. If the cost of having ties to a bureaucrat is high enough, the local government will not make any implicit contract with the bureaucrat.

Hoyong Jung is an assistant professor in the Department of Economics at Kookmin University, Seoul, South Korea. He obtained his Ph.D. in economics from the University of Wisconsin-Madison.