

Future Role and Shape of Government and Public Governance
in the Era of Anthropocene: Call for New Research Agenda

**Analyzing the Effects of Goal Setting
on Budget Allocation Behavior**

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Theory

1-1. Research Motivation

- Setting a valid goal is critical for any organization. It helps ensure that people know what the organization seeks to accomplish and whether the organization is on track to achieve its goals. Effective performance management also begins with setting clear and measurable goals.
- Setting such performance goals has wide influences on employee motivation, attitudes, and behaviors, which ultimately affect organizational performance (Hoek et al., 2018; Kramer et al., 2013; Bronkhorst et al., 2015; Taylor, 2013).
- As goal-setting theory argues, setting challenging and specific goals has its own values by increasing employee motivation and producing directed efforts by employees, which leads to higher performance (Locke & Latham, 1990; Locke, 1968).

1–2. Research Motivation

- Despite such critical roles in goal setting, the public administration field was slow to respond to the need for research on goal setting. Although one can find some studies examining the influence of the goal given in a top–down manner on employee attitudes and behaviors (e.g., Wright, 2004; Talyor, 2013; Bronkhorst et al., 2015), there are relatively fewer studies to test the effect of self–determined goal setting on decision–making behaviors.
- To fill the gap, this research analyzes the effect of employees’ goal setting on their resource allocation behavior, especially decision–making about resource allocation for new investments.

2. Research Questions

- *‘Does goal setting affect the budget allocation decision-making behavior?’*
- Besides, the research also seeks to explore whether there are significant differences between public and private sector employees. The public–private distinction is a subject that the public administration field has explored for decades. This research seeks to add empirical evidence for whether decision–making behavior and its effect are differentiated across sectors.
- In addition, this research examines how the public service motivation (PSM) of survey respondents affects resource–allocative decision–making. Although the effect of PSM has been demonstrated by numerous studies, one can find fewer studies exploring how PSM affects a specific behavior such as resource allocation.

3-1. Literature: Importance of Goal Setting and Characteristics of Goals

- **Goal difficulty vs. Goal specificity** (Locke, 1968; Wright, 2004)
 - Goal difficulty: how challenging for an employee to achieve a given goal
 - Goal specificity: how much a goal is clearly defined and understood
 - The basic argument is that specific and challenging goals will lead to directed efforts of employees, which results in high performance (Locke & Latham, 1990; Steers & Porter, 1974).
- **A nonlinear relationship between goal difficulty and work motivation**
 - Regarding goal difficulty, the basic condition is that the goal should be perceived as achievable for an employee. If an employee feels that achieving the goal is beyond his or her ability, the goal difficulty will not motivate him or her.
 - However, when one participates in the goal-setting process, the situation will be different because he or she will set the goal within his or her capability.
 - If the participation opportunity is not available, leaders should at least facilitate the goal acceptance of employees to enhance their motivation (Locke & Latham, 1990).

3-2. Literature: Effects of Goal Setting

- Positive effects vs. Negative effects

– employee motivation, satisfaction, commitment, organizational citizenship behavior (OCB), and performance (e.g., Hoek et al., 2018; Kramer et al., 2013; Bronkhorst et al., 2015; Taylor, 2013; Wright, 2004).

- Top-down goal vs. Self-determined goal

– While many studies have focused on the characteristics of the given goal in a top-down manner, one can find few studies dealing with the self-determined goal in the public management field.

- This research seeks to fill this gap by focusing on the effect of self-determined goals on participants with the gamification method. The dependent variable is resource allocation, especially budget-allocative decision-making for the new investment of an organization. When considering that such decisions include some degrees of uncertainty and risk-taking for organizational development, it is similar with innovative work behaviors.

3-3. Literature: Public-Private Distinctions

- **Debates**

- Similarities: Daft, 2013; Thomson, 1962

- **Differences**: Rainey et al., 1976; Rainey & Bozeman, 2000; Rainey, 2014

- **Public organizations** have more ambiguous and often conflicting multiple goals (Perry & Porter, 1982; Baldwin & Farley, 1991; Rainey, 2014).

- Simultaneously, **public managers** have less autonomy in defining purposes (goals) (Rainey et al., 1976).

- **Negative effects of ambiguous goals** (Chun & Rainey, 2005)

- Although there is an argument that ambiguous goals help organizations deal with political conflicts by increasing flexibility and latitude (Stazyk et al., 2011; Pandey & Wright, 2006), most empirical evidence demonstrates the benefits of clear goals while warning about the potential negative effects of ambiguous goals.

- role ambiguity of employees (Pandey & Wright, 2006), a lower level of satisfaction (Jung, 2014), and lower innovative work behaviors (Danaeefard & Torshad, 2021).

3–4. Literature: Effects of Public Service Motivation

- **PSM only in the public sector:** an “individual’s predisposition to respond to motives grounded primarily or uniquely in public institutions and organizations” (Perry & Wise, 1990: 368)
- **Everywhere:** “a dynamic behavioral concept anchored in the type of behavior people exhibit rather than in the sectors in which they work” (Brewer and Selden, 1998: 416)
- **Positive effects of PSM:** PSM is positively associated with employee satisfaction, commitment, organizational citizenship behavior (OCB), performance, etc. (Harari et al., 2017; Ritz et al., 2016; Belle & Cantarelli, 2015; Esteve et al., 2015). One can also find several studies of PSM dealing with its effect on decision-making behaviors such as ethical behavior (Wright et al., 2016), collaboration (Esteve et al., 2015), volunteering (Heine et al., 2022), and job choice (Christensen & Wright, 2011).

4. Research Hypotheses

- Goal Setting

[Basic] H1: *The higher a goal is set by an employee; the more resource will be allocated for new services investment.*

[Budget] H2: *When the budget is increased larger than before, the effect of goal setting on resource allocation for new services will increase.*

[Public–Private Distinction] H3: *The effects of self-determined goal setting on resource allocation will be larger for public-sector employees than for private-sector employees.*

- PSM

[Basic] H4: *PSM will be positively associated with resource allocation for new services.*

[Budget] H5: *The effect of PSM on resource allocation for new services will be larger when the given budget is smaller.*

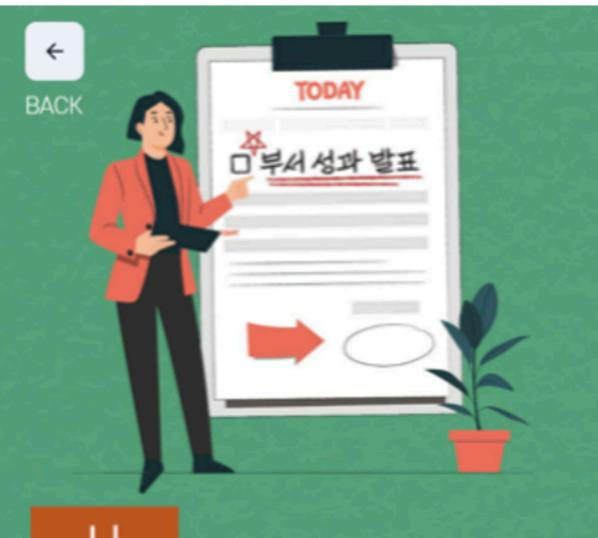
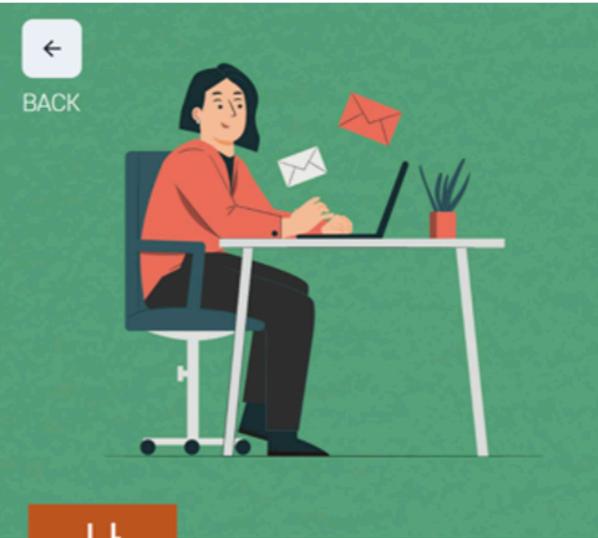
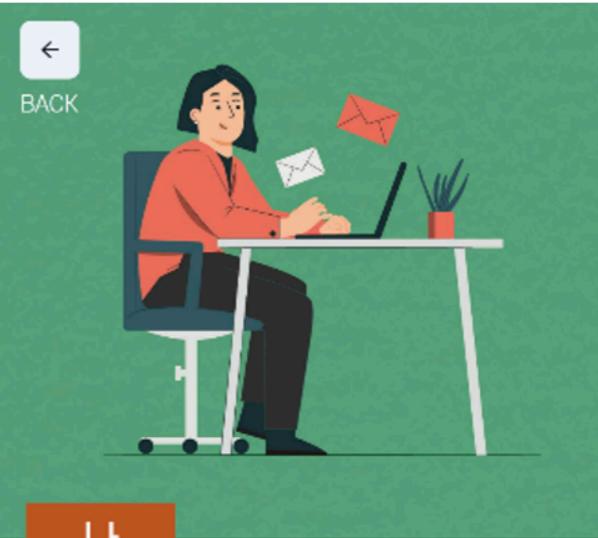
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Data & Methods

1. Data Collection

- In this study, we employed a gamification technique to gather data with the aim of exploring the connection between setting performance goals and behavioral patterns in budget allocation.
- Our research stands out for its innovative use of gamification, which enhances participant engagement and encourages more candid responses. While games have been acknowledged as a viable means of collecting data (Mayer et al., 2014), the incorporation of gamification into public sector research is an area that has received limited attention, except for the noteworthy work by Douglas et al. (2019).
- The dynamic visual environments and lifelike stimuli within games make the activities more enjoyable and elevate participants' sense of immersion (Asquer & Krachkowskaya, 2015).

2. Gamification Approach

 <p>당신은 귀하가 근무하는 조직의 부서장을 맡고 있으며, 부서성적을 관리합니다.</p>	 <p>나 내가 근무하는 조직은 매년 부서 성적을 평가한다.</p>	 <p>나 S(탁월), A(우수), B(양호), C(보통), D(미흡), E(매우 미흡)의 6단계로 상대평가를 실시하는데..</p>	 <p>나 부서 성과 평가 결과는 부서원들의 성과급 및 인사고과와도 연계되므로 중요하다.</p>
<p><i>“As the head of your department within your organization, you hold the responsibility of managing its performance.”</i></p>	<p><i>“Your organization conducts annual evaluations for each department.”</i></p>	<p><i>“These evaluations employ a grading system - S (Excellent), A (Superior), B (Good), C (Average), D (Poor), and E (Very Poor) - and involve a comparative assessment against other departments.”</i></p>	<p><i>“The results of these performance evaluations are crucial, as they influence both performance bonuses and personnel evaluations for department members.”</i></p>

3. Two Decisions at Two Stages

- The study comprised two distinct phases, each focusing on managerial decision-making regarding goal setting and budget allocation.
 - Setting a Performance Goal
 - Allocating Budget: Exploring new services vs. Finding flaws of existing services
 - **Stage 1:** KRW ₩100 million won (approximately USD \$75,000)
 - **Stage 2:** KRW ₩200 million won (approximately USD \$150,000)
- It's essential to note that this budget augmentation was not attributable to any organizational reasons (e.g., the department's performance was good, so the budget was increased) or political factors (e.g., the department won an internal political battle and got more budget) but rather to an administrative error that unintentionally doubled the budget, keeping all other variables constant.

4. Budget Allocation Slider

- Respondents have the option to adjust the slider to align their budget allocation with the overall budget limit of KRW 100/200 million.



- **Exploring new services**
 - 1) Engaging a survey firm to investigate future customer preferences, 2) Conducting in-house research to gauge competitors' responses to new business ventures, 3) Enlisting a big data analytics firm to explore emerging trends.
- **Finding flaws of existing services**
 - 1) Employing a consulting firm for a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis of the existing business, 2) Organizing departmental workshops to scrutinize issues with the current business model, 3) Hosting a social media event to solicit opinions on the ongoing business operations and rewarding customers with the most valuable suggestions.

5. IRB Approval & Survey Company

- We conducted an online survey utilizing a gamified tool over a two-week period in March 2023, following the receipt of ethical approval from the Institutional Review Board (IRB number: ****-202302-0018-01).
- The study was directed toward employees working within the central government, local governments, and public institutions in South Korea. In addition, to facilitate a comprehensive comparison, participants from small, medium, and large enterprises in the private sector were also incorporated into the study.
- Participant recruitment was facilitated through a pre-registered online panel offered by Gallup Korea. From the original cohort of 7,392 panelists engaged in the preliminary screening survey, we successfully gathered responses from 1,021 participants in the public sector and 1,043 participants in the private sector, constituting the completed surveys.

6. Manipulation Check

- Prior to commencing the analysis, we conducted a manipulation check. The objective of this manipulation check was to ensure that the survey's intent was not misrepresented to the participants. This was done to ascertain that participants didn't misinterpret the survey's content or provide dishonest responses. To accomplish this, after the game concluded and before proceeding to the post-survey section, all participants were queried about a pivotal, yet straightforward piece of information presented during the game—specifically, the amount of budget allocated to their department. This query was posed to every participant.
- Upon aggregating the responses, it was found that out of the total 2,063 respondents, approximately 80.76% (1,666 participants) selected the correct answer. This demonstrates that a significant number of participants accurately recognized the information conveyed within the game. Furthermore, the incorporation of the non-compliance variable as a control in the subsequent statistical analysis ensures that the effectiveness of the manipulation design contributes to the resilience and reliability of the statistical findings.

7. Variables & Measurement

Variable	Measurement
g1_score	Target score for a department with a KRWW100 million (USD\$75,000) budget (out of 100)
g2_score	Target score for a department with a KRWW200 million (USD\$150,000) budget (out of 100)
g1_bper	$g1_new / (g1_new + g1_old) * 100$
g2_bper	$g2_new / (g2_new + g2_old) * 100$
gender	1=male, 0=female
age	1=20s, 2=30s, 3 = 40s, 4 = 50s, 5 = 60s and older
edu	1=High school diploma or less, 2=Completed 2-year college or less, 3=Completed 4-year university or less, 4=Attained graduate school education or higher
pubsec	1=Public sector, 0=Private sector
company	1=Central government, 2=Local government, 3=Public organizations (public enterprises, quasi-government organizations, other public organizations, etc.), 4=Private large enterprises, 5=Private medium enterprises, 6=Private small enterprises
grade	1=(public sector) Grades 1, 2, 3 / (private sector) Executive-level or higher 2=(public sector) Grade 4 / (private sector) General Manager 3=(public sector) Grade 5 / (private sector) Deputy General Manager 4=(public sector) Grade 6 / (private sector) Manager 5=(public sector) Grade 7 / (private sector) Assistant Manager 6=(public sector) Grades 8, 9 / (private sector) Assistant
period	1=Less than 5 years, 2=6-10 years, 3=11-15 years, 4=More than 20 years
risk aversion	Mean of the responses on a 7-point Likert scale for the following three questions - I dislike uncertainty about the future. - I lean towards risk avoidance. - My priority is safety.
psm	Mean of the responses on a 7-point Likert scale for the following five questions - (PSM1) Making a difference in society means more to me than personal achievements. - (PSM13) I am often reminded by daily events how dependent we are on one another. - (PSM26) I am prepared to make enormous sacrifices for the good of society. - (PSM30) Meaningful public service is very important to me. - (PSM38) I am not afraid to go to bat for the rights of others even if it means I will be ridiculed.
self	Mean of the responses on a 7-point Likert scale for the following five questions - I believe I possess the same worth as others. - I am capable of performing tasks as competently as others. - I maintain a positive self-view. - I generally feel content with myself. - I believe I possess a favorable personality.
logdecision	Natural logarithm of the number of seconds to make 4 responses in the game
non-compliance	1=Provided an incorrect response (indicating a KRWW100 million (USD\$75,000) budget) when asked about the final budget for the department in the game (which was actually KRWW200 million (USD\$150,000)) 0=Provided a correct response (indicating a KRWW200 million (USD\$150,000) budget)

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Results

1. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
g1 score	2062	81.426	10.199	15	100
g2 score	2063	82.565	11.533	19	100
g1 bper	2062	60.934	15.386	0	100
g2 bper	2063	63.938	15.683	0	100
g1 score	2062	81.426	10.199	15	100
g2 score	2063	82.565	11.533	19	100
gender	2063	.58	.494	0	1
age	2063	2.794	1.01	1	5
edu	2063	2.961	.712	1	4
pubsec	2063	.494	.5	0	1
company	2063	3.8	1.711	1	6
grade	2063	10.702	2.554	1	15
period	2063	2.139	1.073	1	4
risk aversion	2063	5.134	.966	1.333	7
psm	2063	4.577	.991	1	7
self	2063	5.318	.962	1	7
logdecision	2063	11.799	.651	10.001	19.235
non-compliance	2063	.192	.394	0	1

2. OLS Regression Results *H2*

	Decision 1 (DV: g1_bper)			Decision 2 (DV: g2_bper)			
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>	<i>Model 6</i>	<i>Model 7</i>
g1_score	.077** (.038)	.076** (.038)	.066* (.037)				-.024 (.053)
g2_score				.198*** (.033)	.192*** (.033)	.178*** (.034)	.193*** (.051)
gender		.660 (.734)	.414 (.740)		1.525** (.754)	1.42* (.759)	1.445* (.759)
age		1.525*** (.420)	1.291*** (.422)		1.756*** (.416)	1.585*** (.418)	1.586*** (.418)
edu		-.797 (.505)	-.867* (.505)		.142 (.503)	.024 (.504)	.059 (.504)
pubsec		-.066 (1.541)	-.418 (1.541)		-1.862 (1.508)	-2.118 (1.505)	-2.088 (1.504)
company		.084 (.515)	.121 (.514)		-.559 (.522)	-.483 (.524)	-.460 (.524)
grade		-.181 (.202)	-.183 (.202)		-.099 (.195)	-.123 (.196)	-.122 (.196)
period		.586 (.385)	.500 (.383)		.292 (.396)	.214 (.393)	.237 (.395)
risk aversion			.802** (.378)			.789** (.374)	.782** (.373)
psm			1.554*** (.418)			.977** (.421)	.944** (.421)
self			-.065 (.417)			.481 (.417)	.508 (.416)
logdecision	-1.386** (.597)	-1.860*** (.639)	-1.707*** (.629)	-.546 (.516)	-.888 (.541)	-.772 (.534)	-.779 (.533)
non-compliance	1.336 (.916)	.880 (.913)	.762 (.898)	-.869 (.918)	-1.286 (.913)	-1.346 (.904)	-1.387 (.905)
Constant	70.736*** (6.781)	74.606*** (7.271)	64.024*** (7.659)	54.178*** (6.087)	56.053*** (6.569)	45.960*** (6.893)	46.557*** (6.949)
No. of Obs.	2,062	2,062	2,062	2,063	2,063	2,063	2,062
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*H1**H4*

3. Public Sector

H3

	Decision 1 (DV: g1_bper)				Decision 2 (DV: g2_bper)				
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>	<i>Model 6</i>	<i>Model 7</i>	<i>Model 8</i>	<i>Model 9</i>
g1_score	.042	.108*	.105*	.093					-.054
g2_score					.234***	.237***	.226***	.21***	.243***
gender			.866	.543			2.294**	2.298**	2.302**
age			.976	.835			.474	.444	.386
edu			-.412	-.517			-.207	-.325	-.301
company			-.842	-.743			.33	.418	.447
grade			.112	.087			-.294	-.319	-.328
period			.911	.795			1.385**	1.338**	1.385**
risk aversion				.48				.609	.603
psm				1.41**				.218	.213
self				.029				.725	.753
logdecision		-2.135**	-2.317**	-2.276**		-.131	-.213	-.234	-.174
non-compliance		2.749*	2.087	1.784		.02	-.722	-.861	-.891
Constant	57.537***	76.784***	76.22***	68.594***	44.594***	45.928***	44.736***	38.844***	39.707***
No. of Obs.	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020
Prob > F	0.425	0.013	0.003	0.001	0.000	0.000	0.000	0.000	0.000

H5

5. Hypotheses Testing

- Goal Setting

[Basic] H1: *The higher a goal is set by an employee; the more resource will be allocated for new services investment.*

[Budget] H2: *When the budget is increased larger than before, the effect of goal setting on resource allocation for new services will increase.*

[Public–Private Distinction] H3: *The effects of self-determined goal setting on resource allocation will be larger for public-sector employees than for private-sector employees.*

→ All Supported

- PSM

[Basic] H4: *PSM will be positively associated with resource allocation for new services.*

[Budget] H5: *The effect of PSM on resource allocation for new services will be larger when the given budget is smaller.*

→ Partially Supported

6. Hypothesis 1

	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>	<i>Model 6</i>	<i>Model 7</i>
g1_score	.077** (.038)	.076** (.038)	.066* (.037)				-.024 (.053)
g2_score				.198*** (.033)	.192*** (.033)	.178*** (.034)	.193*** (.051)

H1

First, Hypothesis 1, postulating a discernible relationship between performance goals and the inclination to allocate budgets, is substantiated by our comprehensive dataset. Across all models, the target score variables (i.e., g1 score, g2 score) consistently demonstrate statistical significance. This signifies that, in both the initial and subsequent phases, the establishment of higher performance goals is strongly correlated with an increased propensity to allocate budgetary resources toward the realization of novel business endeavors.

7. Hypothesis 2

H2

	Decision 1 (DV: g1_bper)			Decision 2 (DV: g2_bper)			
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>	<i>Model 6</i>	<i>Model 7</i>
g1_score	.077** (.038)	.076** (.038)	.066* (.037)				-.024 (.053)
g2_score				.198*** (.033)	.192*** (.033)	.178*** (.034)	.193*** (.051)

H1

Second, Hypothesis 2 garners robust empirical backing, unveiling that the association between performance goal setting and budget allocation is particularly pronounced within contexts characterized by more organizational slacks.

However, Model 7 introduces an intriguing facet to this relationship, indicating that the establishment of performance goals within a constrained budgetary framework does not exert a statistically significant influence on budget allocation in a scenario characterized by a more abundant budgetary allocation.

8. Hypothesis 3

3. Public Sector

H3

	Decision 1 (DV: g1_bper)				Decision 2 (DV: g2_bper)				
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>	<i>Model 6</i>	<i>Model 7</i>	<i>Model 8</i>	<i>Model 9</i>
g1_score	.042	.108*	.105*	.093					-.054
g2_score					.234***	.237***	.226***	.21***	.243***

4. Private Sector

H3

	Decision 1 (DV: g1_bper)				Decision 2 (DV: g2_bper)				
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>	<i>Model 6</i>	<i>Model 7</i>	<i>Model 8</i>	<i>Model 9</i>
g1_score	.038	.049	.041	.034					-.007

Third, while Table 3 displays no significant difference between the public sector and private sector, Tables 4-1 and 4-2 show that target scores may be more meaningful in the public sector, especially when organizational slack is not necessarily affluent. It appears to be consistently insignificant in the private sector (Table 4-2), whereas there seems to be a stronger relationship in the public sector (Table 4-1), as Hypothesis 3 posits.

9. Hypothesis 4

			(.378)			(.374)	(.375)	<i>H4</i>
psm			1.554***			.977**	.944**	
			(.418)			(.421)	(.421)	
			-.065			.481	.508	

In addition, the affiliation with the public sector, while not consistently statistically significant across both phases, presents a noteworthy facet of our analysis. Notably, a heightened sense of PSM emerges as a consistent and positively correlated factor across all organizational contexts, thus supporting Hypothesis 4.

10. Hypothesis 5

psm				1.41**				.218	.213
self				.029				.725	.753
logdecision		-2.135**	-2.317**	-2.276**				-2.234	-1.174
non-compliance		2.749*	2.087	1.784				-.722	-.861
Constant	57.537***	76.784***	76.22***	68.594***	44.594***	45.928***	44.736***	38.844***	39.707***
No. of Obs.	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020
Prob > F	0.425	0.013	0.003	0.000	0.000	0.000	0.000	0.000	0.000

H5

As expected by Hypothesis 5, this implies that individuals displaying a stronger commitment to public service ideals are more inclined to allocate budgetary resources toward innovative projects, when the given budget is smaller. These variables, however, do not consistently exhibit consistent significance in the public sector (see Table 4-1).

0 4

Discussion

1. Conclusions

- Goal Setting

[Basic] H1: *The higher a goal is set by an employee; the more resource will be allocated for new services investment.*

[Budget] H2: *When the budget is increased larger than before, the effect of goal setting on resource allocation for new services will increase.*

[Public–Private Distinction] H3: *The effects of self-determined goal setting on resource allocation will be larger for public-sector employees than for private-sector employees.*

→ All Supported

- PSM

[Basic] H4: *PSM will be positively associated with resource allocation for new services.*

[Budget] H5: *The effect of PSM on resource allocation for new services will be larger when the given budget is smaller.*

→ Partially Supported

2. Implications

- **Positive Effects of Goal Setting on Budget for New Services**

- Positive Effects of Organizational Slack
- Public–Private Distinction: Larger Effects in Public Sector
- Positive Effects of PSM (albeit partially)

- **Gamification Approach**

- Our findings contribute substantively to the literature on decision–making processes in diverse budgetary contexts, opening avenues for further research and practical applications in both public and private sectors.

Questions & Answers
