

RESEARCH ARTICLE

The Role of Media in Diffusing Participatory Budgeting: News Coverage Between 1991 and 2022 in Korea Using Topic Modelling

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The global diffusion of participatory budgeting (PB) has attracted scholarly attention, particularly regarding how PB is institutionalised across different contexts. This article argues that institutionalisation requires both top-down and bottom-up efforts to introduce and promote PB, with media framing playing a crucial role in shaping how it is presented to the public. Using South Korea as a case study, this article analysed 28,480 news articles mentioning PB from 1991 to 2022, sourced from a digital news archive. A structural topic model was employed to identify major frames and trends in the extensive textual data. The analysis revealed 17 topics, with PB framed as a tool for regeneration and decentralisation strategies, distinct from the original Porto Alegre model. The findings also showed that media frames shifted after PB became mandatory in 2011 and varied between national and local newspapers, reflecting its dynamic nature. This study demonstrates the application of the media framing approach for both single and comparative contexts, offering a valuable framework for advancing research on the global diffusion of PB.

Keywords: participatory budgeting; framing; media framing; diffusion; institutionalisation; topic modelling; korea

1. Introduction

Let us decide for ourselves how our city budget will be spent.

– the first Korean news article reporting on participatory budgeting (Kim, 2001, August 21).

Participatory budgeting (PB) is a form of democratic innovation that enables ordinary citizens to participate in and influence the public budgeting process (Abers, 2000; Sintomer et al., 2016). PB emerged in Porto Alegre, Brazil, in the late 1980s, specifically concerned with reflecting the voices of deprived neighbourhoods in deliberation, decision-making and accountability in an iterative municipal budgeting process (Sintomer et al., 2008, 2012). The novel concept of incorporating citizens into the budgeting process appealed to political reformers around the world (Sintomer et al., 2008; Touchton et al., 2023b), leading to the widespread diffusion of PB over the past three decades (Dias et al., 2021).

PB was first introduced in South Korea (hereafter, Korea) in 2001, when the Democratic Labour Party (currently the

Unified Progressive Party) launched a campaign advocating for a PB committee (Kwack, 2007; No, 2017). A successful pilot initiative in 2003 caught the attention of the national government and became part of the broader national policy reform agenda. Prior to this, citizen participation in PB was limited to monitoring how budgets were spent after budgetary decisions, with no formal involvement in budgetary processes (Im et al., 2014; M. Kim, 2015; S. Y. Lee & Lee, 2017). Therefore, the initial introduction of PB represented a new concept for the public. A decade later, in 2011, PB became a practice mandated by national law, signifying a dramatic transition from a novel idea to an institutionalised process.

Given the challenges associated with institutionalising novel ideas (Meyer et al., 2018), previous studies have highlighted the crucial role of the national government in promoting PB as a tool for decentralisation reform following Korea's long authoritarian regime (Cho et al., 2020; No, 2017; Yoon et al., 2022). Other countries, including Indonesia, the Philippines, Peru, Poland and the Dominican Republic, have similar mandated PB adoption (Touchton et al., 2023b). Without top-down support, PB would likely remain limited to a few municipalities, lacking coherent guidelines and full-scale implementation. Nevertheless, recent studies in Peru (McNulty, 2020) and Poland (Sroska et al., 2022) have found that a top-down

model does not fully explain how municipalities and citizens contextualise the idea because bottom-up support at the local level is often critical. In this regard, Sintomer et al. (2008, p. 167) observes that PB evolves as “the result of a conjunction of top-down and bottom-up processes,” highlighting the need for both national and local efforts in shaping PB.

This article contributes to the debate by adding a crucial but underexplored element: the news media. Rather than positioning the news media as the sole drivers of PB’s institutionalisation, the study argues that they act as key agents in framing how PB is presented, reflecting both top-down and bottom-up approaches. By highlighting specific aspects of PB, journalists and media outlets help familiarise the public with the concept, often disentangling it from the original Brazilian model. Through consistent framing, the media contribute to transforming PB from a new idea into a widely accepted and localised practice.

This article links PB to media framing, a subfield in media studies (Entman, 1993; Goffman, 1974; Pan & Kosicki, 1993). The central premise is that the news media serve as a gatekeeper for various information that not only reflects real-world phenomena but also shapes or alters audiences’ interpretations (Entman, 1993, 2007; Vliegenthart & Van Zoonen, 2011). *Media framing* refers to the selective highlighting of certain aspects of an issue, increasing their salience in communication while reducing the salience of others (Entman, 1993). Therefore, media framing provides an empirical lens to examine the media discourse surrounding PB.

This article uses media framing as an analytical lens to investigate how the news media have portrayed PB in Korea. As one of the few countries to mandate PB (Dias et al., 2021; Touchton et al., 2023b), Korea provides a valuable case study for countries and cities currently navigating the institutionalisation of PB. This article attempts to answer the following research questions:

Q1: What are the main PB topics framed by the news media?

Q2: How has the prevalence of frames changed after PB was mandated?

Q3: How do local and national newspapers differ in framing PB?

These research questions provide an essential focus for understanding the landscape of public discourse around PB and its dynamic, multi-perspective nature. The first research question investigates prominent topics covered by Korean newspapers, addressing the core issue of how PB has been framed within the public discourse. This framing likely shares common features with yet remains distinctive from other countries. Since media frames evolve over time, shaped by societal development, the second question examines how media framing has changed after PB was mandated in 2011. It sheds light on the role of the media in reflecting policy transitions. The third question investigates differences in framing patterns between national and local newspapers. Given Korea’s strong

national government-led PB reform (Cho et al., 2020; No, 2017; Yoon et al., 2022), it is crucial to assess whether national newspapers adopt a top-down perspective while local newspapers suggest alternative views that address diverse community issues. Overall, these three questions offer a comprehensive exploration of PB media framing from holistic, temporal, and national-local perspectives.

The primary data are Korean news articles that mention PB, collected using the Korean news archive BigKinds, which retrieved 28,480 news articles (1991–2022). An increasing number of studies have used topic modelling to analyse the media framing of multiple newspapers (Dehler-Holland et al., 2021; Shin & Boonjubun, 2021; Ylä-Anttila et al., 2022; Zhang et al., 2021). This article applies topic modelling, particularly the structural topic model (Roberts et al., 2016), to identify significant frames and infer the effects of the intervention and newspaper types on framing.

This article proceeds as follows: the second section discusses the notion of framing and media frames in the literature. The third section explains data collection and the method of topic modelling. The fourth section reports the empirical results. The article then concludes by discussing the results and implications for future research.

2. Theoretical Background

2.1 The concept of framing

Scholars have explored how PB travels and becomes integrated into local political systems using terms such as “idea journey”, “transfer”, and “diffusion” (Bartocci et al., 2023; Ganuza & Baiocchi, 2012; Röcke, 2014; Sintomer et al., 2008, 2016). Sintomer et al. (2008) summarise the three principles of the Porto Alegre model: grassroots democracy (where citizens’ assemblies set priorities and elect representatives), social justice (which ensures more funds go to areas with deficient infrastructure), and citizen control (where elected boards oversee the budget process to ensure local priorities are included). Therefore, the model is designed to render governance more inclusive and equitable, addressing inequality and promoting the well-being of residents, especially in disadvantaged areas.

However, Sintomer et al. (2008) found the diverging patterns of PB adoption in Europe, noting that while the Porto Alegre model served as an initial inspiration, no direct replication of the model has been implemented. In Asia, countries like the Philippines, Indonesia, and Korea began developing “PB-like” programmes in the 2000s, aiming to promote citizen participation in municipal-level policymaking within a broader context of national democratic reforms (Touchton et al., 2023b). In contrast to the grassroots activism seen in the Porto-Alegre model (Sintomer et al., 2008), national governments in these countries have mandated PB after evaluating local pilot programmes (Touchton et al., 2023b).

While some scholars have raised concerns about the lack of conceptual clarity caused by this diversity of PB (Miller et al., 2017), others, such as Röcke (2014, p. 9), have adopted a different approach by the reasons that people have “framed” PB differently in different national

contexts. Röcke (2014) argues that frames matter when new ideas like PB are imported and transformed into policy practices. Frames are “relatively coherent but flexible idea packages that transport a certain meaning and change over time” (Röcke, 2014, p. 10). Framing might shape different discourses of “equality” (participation for everyone) or “equity” (participation for disadvantaged groups) regarding PB, creating distinctive guiding principles, values and practices (Escobar, 2021; Pape & Lerner, 2016). For instance, PB in Seoul, the capital city of Korea, has prioritised equality over equity with a vision of broad and open participation without an explicit goal of redistribution (No & Hsueh, 2022). Therefore, framing highlights specific aspects of an issue rather than simply its presence or absence (Hänggli, 2012).

Frames also facilitate political communication by providing common ground for discussing complex issues (Calvert & Warren, 2014; Van Gorp, 2010). In policy discourse, frames define social issues in a particular way and set the boundaries of cognitive representations, influencing how specific problems are defined, interpreted, and become policy agendas (Pan & Kosicki, 1993; Rein & Schön, 1993). Therefore, previous studies have examined how actors strategically create frames to influence public deliberation (Brewer & Gross, 2005; Pan & Kosicki, 2001).

If framing is a crucial practice, it is important to know whose frames matter most. Frames constructed by powerful actors, such as politicians and high-profile officials, could be more influential than those created by ordinary individuals. Therefore, Röcke (2014) studied framing in public discourses at the micro (e.g., politicians), meso (e.g., policy frames) and macro levels (e.g., nation-state framework) to provide empirical evidence on the power relationship between actors who diffuse PB frames. Röcke (2014, p. 5) found that the nation-state framework was crucial for developing country-specific PB features, as shown in the cases of France, Germany, and the UK.

France, known for having one of the most centralised state systems in Europe, framed PB as part of broader decentralisation reforms aimed at bridging the gap between municipal governments and the public. French politician Jean-Pierre Raffarin played a key role in promoting the concept of *proximity democracy*, which influenced how PB was framed in the country. In Germany, PB was framed with a focus on modernisation and transparency in public administration. Under the concept of the *Citizens' Town*, citizens were encouraged to consult and offer perspectives on budgetary decisions, though their role remained largely advisory. In the United Kingdom, PB was integrated into a national strategy for *community empowerment*, particularly under the New Labour government. The focus was on empowering marginalised groups and addressing social exclusion through participatory processes.

Röcke (2014) observed that concepts like proximity democracy, the citizens' town, and community empowerment became intertwined with PB in these countries, creating distinct approaches to the practice.

These unique frames illustrate how PB is shaped by local contexts and political cultures. Overall, framing analysis helps to understand how PB is interpreted, adapted, and ultimately accepted by local institutions, allowing it to become indigenised (Escobar, 2021; Yoon & Lim, 2019).

2.2 Media framing

While the news media have received limited attention in the PB literature, media studies have long investigated media frames, recognising that people rely on the mass media for political information (Entman, 1993, 2007; Vliegthart, 2012; Vliegthart & Van Zoonen, 2011). At the micro-level, journalists and news outlets bring multiple frames to an issue, resulting in macro-level patterns of framing (Entman, 2007; Hendrickson & Tankard Jr, 1996). Therefore, news content is viewed “as a system of organised signifying elements that both indicate the advocacy of certain ideas and provide devices to encourage certain kinds of audience processing of the texts” (Pan & Kosicki, 1993, p. 55). Communication texts are essential for understanding the persistent selection and emphasis of metaphors, catchwords, slogans and symbols (Calvert & Warren, 2014; Entman, 2007; Pan & Kosicki, 1993; Vliegthart & Van Zoonen, 2011).

Originating from Goffman (1974), frame(ing) analysis has become an established method in the social sciences for studying how frames shape perceived reality (van Dijk, 2023; Vliegthart & Van Zoonen, 2011). This article adopts Entman's (1993, p. 52) classical definition of framing:

To frame is to *select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation* for the item described (emphasis in original).

In this definition, selection and salience are crucial elements (Entman, 1993). Like cropping an image, selection involves setting boundaries within which a phenomenon is described, labelled, and classified, manifested by “the presence or absence of certain keywords, stock phrases, stereotyped images, sources of information, and sentences” (Entman, 1993, p. 52). Salience is about highlighting, referring to “making a piece of information more noticeable, meaningful, or memorable to audiences” (Entman, 1993, p. 53). If this pattern persists across time and outlets, it signifies a systematic media bias (Entman, 2007).

Previous studies have identified several factors influencing media framing, including political power, readership, partisanship, ownership and market competition (Hänggli, 2012; Puglisi & Snyder Jr, 2015). This article focuses on two factors: government intervention (legislative amendments) and newspaper types (local/national). First, government intervention, specifically through legislative amendments, has significantly transformed how PB has been practised in

Korea, as municipalities are obliged to engage in it (No, 2017). Cho et al. (2020, p. 196) found that the government intervention “standardised the academic discussion”, with most studies after 2011 adhering to implementation and national PB guidelines. This article investigates how media framing has changed post-reform.

Second, newspaper type constitutes another crucial factor. Holt and Major (2010) argue that national and local newspapers differ in framing due to the scope of coverage and readership. Local newspapers often reflect local perspectives, covering detailed specific issues and promoting citizen participation because of their area-based readership. For instance, during the coverage of Korea’s nuclear safety inspection forgery scandal, Choi et al. (2016) found that national newspapers relied more on public officials as sources, while local newspapers interviewed residents and non-governmental organisations to highlight local concerns about safety and health. By analysing the national-local media framing of PB, this study provides insight into how the news media reflect varying perspectives from both national and local contexts.

3. Data and Method

3.1 Data

This article employed a structural topic model to analyse the media framing of PB in Korea. All news articles mentioning PB between 1991 and 2022 was collected using BigKinds, a Korean newspaper digital archive hosted by the Korea Press Foundation (<https://bigkinds.or.kr>). BigKinds provides access to daily news content and metadata from 54 Korean media organisations dating back to 1990.

The following Boolean search string was used to capture relevant articles: (resident OR citizen OR people) AND (“participatory budget”).¹ The search retrieved 31,259 records, including titles, content, keywords, publishing dates and newspaper names. While content refers to the unstructured text data of original news articles (e.g., “participatory budgeting is a good programme”), keywords are word tokens (e.g., “participatory budgeting,” “good,” “programme”), which are units in natural language processing. Common words, such as “is” and “a,” known as stopwords, were excluded as they offer little informational value. BigKinds provides all keywords from each news article and written content up to 200 words. Keywords were used for topic modelling after removing duplicate articles (with the same title and texts), empty strings, numbers, and website links. The number of articles processed for the analysis was 28,480.

3.2 Structural topic model

In recent years, topic models have received increasing attention as an automated content analysis method for investigating recurring topics in extensive text corpora (Heidenreich et al., 2019; Shin & Boonjubun, 2021; Walter & Ophir, 2021; Ylä-Anttila et al., 2022). These models operate based on the principle that a news article contains multiple topics in varying proportions, and each topic consists of words that tend to co-occur within a context

(Blei, 2012). When sets of words frequently co-appear across documents, topic models identify these word clusters as distinctive *topics*. In this statistical approach, a word derives meaning from its relationship with other words (DiMaggio et al., 2013). For instance, the word “Donald Trump” might signify a president when associated with words like “election” and “Republican Party”, but it can also refer to an entrepreneur when combined with “real estate” and “golf clubs”. Researchers label these word clusters (e.g. Topic 1: *President*) by interpreting their meanings based on domain knowledge.

Ylä-Anttila et al. (2022) argue that topics derived from topic models can approximate frames based on two conditions. First, topic model outputs must enable researchers to discern how the media define a general problem, subject, causal interpretation and judgment, and recommendation – aligning with Entman (1993)’s definition of framing. The keywords in each topic must be interpretable, allowing researchers to identify distinct frames (internal validity). Second, external validity is another crucial checkpoint: the identified topics should align with the findings of previous studies (Ylä-Anttila et al., 2022). The present study assessed the external validity of the model by matching the model outputs with previous Korean PB studies (for a review, see Cho et al., 2020).

There exists a wide range of topic models, such as Latent Semantic Analysis (LSA), Latent Dirichlet Allocation (LDA) (Blei, 2012), the Structural Topic Model (Roberts et al., 2016), and, more recently, Top2Vec (Angelov, 2020), BERTopic (Grootendorst, 2022), and the Contextualized Topic Model (CTM) (Bianchi et al., 2021), which use pre-trained models to account for semantic similarity between words or sentences. Despite these advances, reviews comparing models have found that no single model performs best across all applications and settings (see Churchill & Singh, 2022; Egger & Yu, 2022). Therefore, it is crucial to clarify the rationale behind selecting a specific model for a given purpose.

This article employed the Structural Topic Model (STM), developed by Roberts and colleagues (2014, 2016, 2019), to infer hidden topic structures within a large corpus of news articles. The STM was particularly developed for social sciences, as it allows researchers to examine how document-level covariates (e.g., author, date) influence the content of the text (Roberts et al., 2016). This function is relevant to this study, which examines a collection of news articles contributed by various outlets over different periods. Previous studies found that the STM outperforms the popular LDA in capturing the relationships between covariates and the content of the text (Schmiedel et al., 2019; Wesslen, 2018). Therefore, STM has been widely used in studies analysing customer reviews (Hu et al., 2019; Park et al., 2020), social media (Dehler-Holland et al., 2021; Jo et al., 2022; Shin & Boonjubun, 2021; Stelmach & Boudet, 2022; Zhang et al., 2021) and academic literature (Bai et al., 2021). The present study used STM to examine the effects of government intervention (before/after becoming mandatory) and newspaper types (local/national) on the prevalence of topics (the proportion

of a document devoted to a topic) using a generalised framework (Bai et al., 2021; He et al., 2020):

$$Prevalence = g(Intervention, Type, Intervention \times Type)$$

4. Results

4.1 Media coverage of participatory budgeting

Figure 1 shows the number of news articles mentioning PB over the past three decades (1991–2022). In Korea, PB was first introduced in 2001 through social campaigns led by a minor left-wing party and civic society organisations (Yoon & Lim, 2019). In 2002, PB entered the public discourse for the first time during local elections, when the party pledged to engage in PB (Kwack, 2007; No, 2017). Media discourse on PB began the same year, as shown in **Figure 1**.

In 2003, Bukgu, a district in the City of Gwangju, piloted PB for the first time, formalising the process with an ordinance the following year as part of the pledge. Other early adopters, such as Ulsan and Daejeon, also implemented the Porto Alegre model, influencing subsequent initiatives (Kwack, 2007; Yoon & Lim, 2019). These local efforts attracted attention from national policy-makers and soon aligned with the participatory agenda of the Roh Moo-Hyun government (2003–2007), which identified itself as the “Participatory Government” (Sintomer et al., 2012). The national government’s first recommendation for public participation in local budgeting came in 2003, encouraging municipalities to use online polls, public hearings and meetings (Ministry of the Interior and Safety, 2003).

After these initial pilots, **Figure 1** shows three significant peaks in media coverage: 2006, 2011 and 2019. The first peak in 2006 followed the revision of the Local Finance Act in June 2005, which introduced Article 39, allowing local governments to implement PB at their discretion. The

Article reads as follows: “The head of a local government *may* prepare and implement procedures for residents to participate in local budgeting processes, as prescribed by Presidential Decree [emphasis by the author]”. As a result, the idea of PB was first enshrined in national law, albeit on a non-mandatory basis. Although the national government provided the first national guidelines in 2006, municipalities were slow to adopt it due to inadequate training for public officials and negative attitudes from local councils, possibly due to perceptions that it would infringe their right to set budgets (Kwack, 2007). By 2007, only 62 municipalities (25.2%) had adopted PB (Kwack, 2007), leading to decreasing media attention between 2005 and 2010.

A second peak occurred in 2011, driven by the national government’s decision to mandate PB after a public scandal in Seongnam, which declared an unprecedented moratorium on its debts in 2010, and revelations of inefficient spending and corruption in a few municipalities (K. W. Lee, 2018). The national government introduced the second version of its guidelines with three exemplary models to enhance the transparency and capacity of local finance (No, 2017). In 2011, the revision of the Local Finance Act required all municipalities to adopt PB. However, the national government focused on standardising PB ordinances across municipalities while neglecting their local contexts (Yoon & Lim, 2019), thus limited the media’s interest in the topic.

The third peak began in 2017, following the Moon Jae-In government’s inclusion of PB as a national task. A 2018 revision of the Local Finance Act expanded PB to cover all budgeting processes, including national budgeting. By 2022, 235 municipalities (98%) were operating PB, a 67% increase from 2019, with 32,787 PB cases with a total budget of €5.6 billion (2.3% of municipal expenditure) (Ministry of the Interior and Safety, 2023).

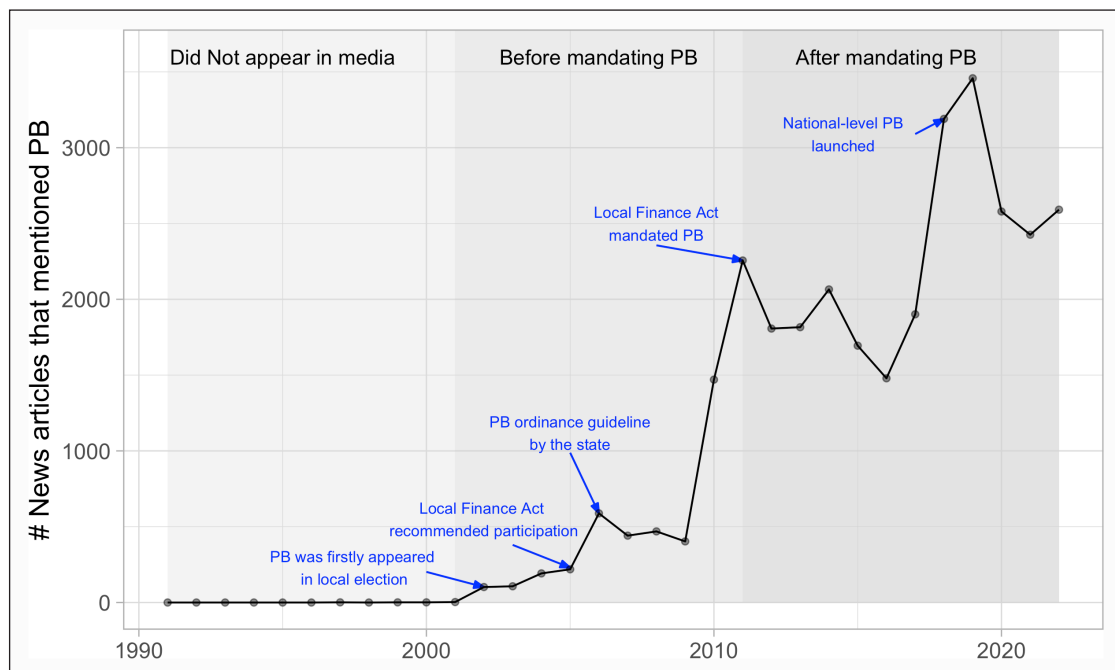


Figure 1: The number of news articles that mentioned PB.

Overall, **Figure 1** reveals an increasing trend in media coverage, with 3,633 articles mentioning PB before it became mandatory and 24,847 articles afterwards. Local newspapers accounted for most of the coverage (68.7%, 19,559 articles), followed by business/finance newspapers (4,941), national newspapers (3,634) and broadcasting companies (346).² This distribution highlights the significant role of local media in framing PB.

4.2 Major topics and interpretation

A prerequisite of the STM involves specifying a hyperparameter, K , which controls the number of topics to be generated by the model. The present study used *exclusivity* and *semantic coherence* metrics to find the optimal range of topic numbers, and 17 topics were selected in this analysis (see Appendix 1).

Table 1 presents the results of the 17-topic model, showing the most representative keywords for each topic.

Table 1: Outputs of the 17-topic model.

ID	Keywords	Label	%
Information			
1	P: budget, participation, resident, operation, committee F: budget school, member, appointment, collection, open recruitment	Announcement	16.9
2	P: project, budget, participation, resident, proposal F: proposed project, application, open call, proposal, final	Open call	13.5
Regeneration			
3	P: city, creation, project, push ahead, local F: attract, construction, old downtown, cultural city, growth	Regeneration	7
4	P: citizen, mayor (city), city administration, policy, participation F: City A, Mayor A, governance, City B, City C	Governance (city)	5.8
5	P: county, governor, resident, project, agriculture F: county resident, county administration, County A, County B, County C	Governance (county)	3.7
Politics			
6	P: councillor, ordinance, council, bill, budget F: bill, special meeting, public audit, political finance, discretionary expense	Ordinance	5.8
7	P: budget, finance, compilation, project, City D F: expenditure, local government bond, general account, revenue, special account	Budgeting	5.7
8	P: local, autonomous, government, people, decentralisation F: constitutional amendment, transfer, fiscal decentralisation, local government, decentralisation	Decentralisation	4.7
9	P: candidate, election, pledge, politics, citizen F: candidacy, candidate, nomination race, Party A, voter	Election	3.4
10	P: pledge, candidate, policy, welfare, increase F: pledge, free school meal, tuition fee, corruption, eradication	Pledge	3.1
11	P: resident, autonomy, village, participation, mayor (borough) F: self-governing council, Borough A, Borough B, residents' assembly, residents' meeting	Participatory activities	6
Implementation			
12	P: education, youth, school, student, operation F: youth, student council, democratic citizen, class, parent	Cases (youth)	5.3
13	P: resident, installation, space, project, village F: graffiti, flowerpot, wall, pedestrian crossings, trail	Cases (community)	4.7
14	P: evaluation, excellence, national, selection, the best award F: award, commendation, the second-best award, excellent institution, excellence award	Award	4.4
15	P: support, project, disabled, service, COVID-19 F: pregnant women, family, atmospheric aerosol particles, wheelchair, vaccination	Cases (welfare)	4.3
16	P: installation, City S, safety, resident, maintenance F: pedestrian crossings, Borough K, toilets, Borough D, snowplough	Cases (facility)	4.1
17	P: youth, citizen, policy, support, government F: Ministry of Trade Industry and Energy, morning, Ministry of Oceans and Fisheries, Ministry of Employment and Labour, Fair Trade Commission	Change in personnel	1.6

The second column lists five keywords, with “P” indicating the highest probability words based on occurrence frequency. These probability-based keywords help identify words that frequently appear in each topic; however, common words, such as “budget” and “citizen”, appear across multiple topics due to the nature of the keyword search and thus may not provide semantic insight (Roberts et al., 2014, p. 5). Therefore, the second column also includes keywords ranked by the FREX metric, denoted as “F”. FREX is the weighted harmonic mean of a word’s rank based on frequency (how often it occurs in each topic) and exclusivity (how distinct it is to that topic compared to others), which provides more semantically distinct word sets (Lucas et al., 2015).

Topic correlations, which quantify the likelihood of two topics (e.g., Topic A and B), were then calculated. **Figure 2** illustrates the topic correlation network, focusing on the positive correlations (Lucas et al., 2015). Previous STM analyses have used the Louvain community detection algorithm (Blondel et al., 2008) to identify prominent clusters in the topic correlation network (Jo et al., 2020; Ophir, 2018). The algorithm assigns densely connected nodes to communities that maximised a modularity score Q , a measure of the quality of network partition (Blondel et al., 2008). In this analysis, the algorithm identified four clusters, with a modularity score of $Q = 0.5$. In the final step, representative articles associated with each topic were manually inspected. The topics are labelled in the

third column of **Table 1**. Topic labelling by reading highly associated articles is recommended in the STM manual (Roberts et al., 2019, p. 14).

Topic cluster 1: Information

A fundamental role of the mass media is to inform the public by providing neutral and accurate accounts of important events, actors and processes, thereby rendering political actions more transparent (Hänggli, 2012). The model results highlighted two prominent topics in this cluster, both centred around informing the public about PB. Topic 1 – Announcement (16.9% of expected topic proportion) – delivered information on when, where, and how residents could participate in PB activities, such as through resident committees and budget schools. The second most common topic – Topic 2: Open call – focused on how residents could submit proposals for open calls, providing details on the application process and contact information. Open calls, or *gong-mo-sa-eop* (proposal model), were the most common PB model in 2022 (Ministry of the Interior and Safety, 2023). The topic correlation analysis suggested that these two topics frequently co-appeared in the same article but were isolated from other topics (see **Figure 2**), indicating that news articles covering Topics 1 and 2 mainly focused on delivering practical information without engaging in broader discussions.

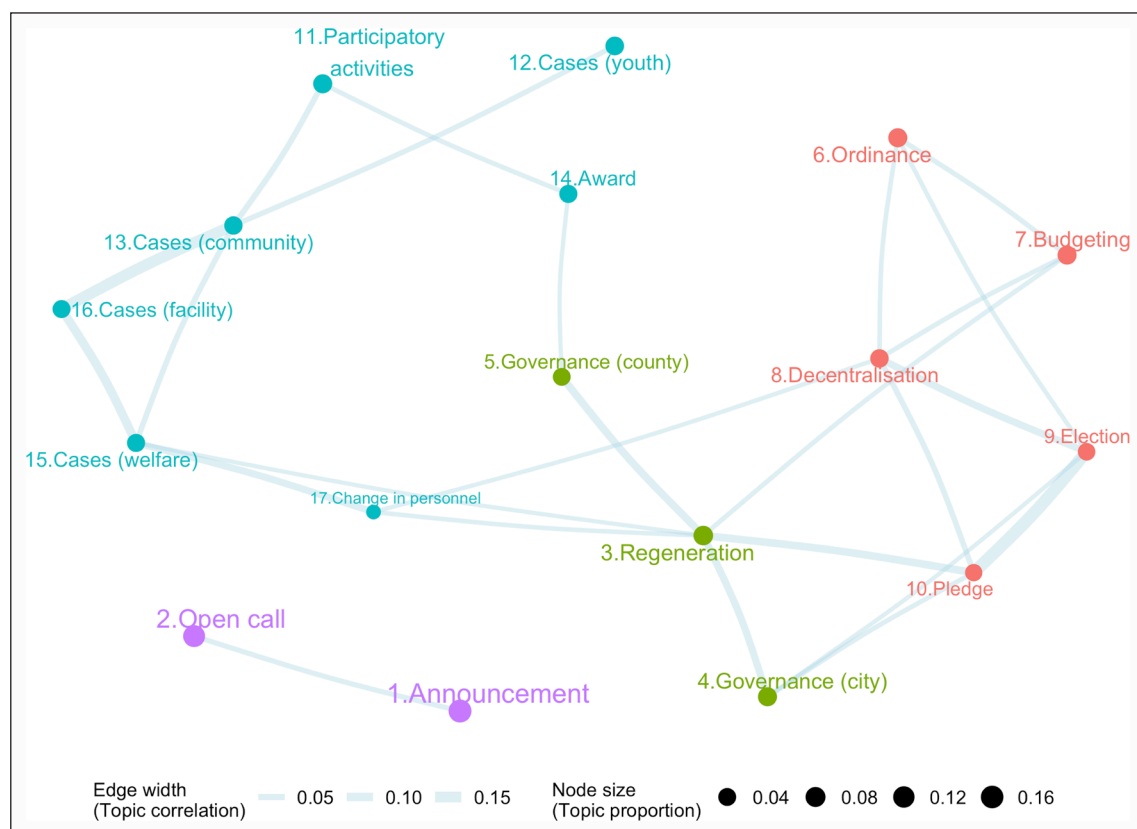


Figure 2: A network of correlated topics. Note: node size is proportional to the estimated proportion of the topic (the fourth column in **Table 1**), and edge width reflects the strength of the correlation between topics. Different colours are assigned by the Louvain community detection algorithm based on topic correlation, indicating that topics with the same colour are more likely to appear in the same news article.

Topic cluster 2: Regeneration

Topic 3: Regeneration was another significant theme, representing 7% of all topics and serving as a central hub connecting various other topics (see **Figure 2**). News articles linked to this topic often framed PB as a strategic tool for local urban growth, using keywords such as “city, creation, project, push ahead, local” (P) and “attract, construction, old downtown, cultural city, growth” (F). This framing presented PB as a method for driving regeneration efforts in cities and counties. Articles associated with Topic 3 also covered various governance practices at the city (Topic 4) and county levels (Topic 5).

The use of PB for regeneration is not unique to Korea. Similar patterns have been observed in cities across Finland, Latvia, Poland and Portugal, where PB has been employed to involve citizens in local regeneration projects (Falanga & Nunes, 2021; Kamrowska-Zaluska, 2016; Koroļova & Treija, 2019; Lehtonen, 2021). These studies commonly show that PB facilitates citizen engagement in decisions related to urban redevelopment, cultural projects, and infrastructure renewal.

Topic cluster 3: Politics

The third topic cluster focused on the political dimension of PB. The news media extensively covered the legislative aspects of PB, particularly the revision processes of local ordinances, highlighting the activities of councillors and their political involvement (Topic 6). In 2005, only four municipalities had legislated PB ordinances, but this number grew to 189 by 2011 (K. W. Lee, 2018), and by 2022, all 243 municipalities had adopted PB ordinances (Ministry of the Interior and Safety, 2023). The media also reported on the administrative side of PB, including budgeting processes that covered municipal expenditure, bonds, revenue, and the structure of general and special accounts (Topic 7).

As **Figure 2** shows, Topics 6 and 7 were closely correlated with Topic 8 (Decentralisation), which framed PB as part of a broader decentralisation policy. Keywords for Topic 8 included “local, autonomous, government, people, decentralisation” (P) and “constitutional amendment, transfer, fiscal decentralisation, local” (F). In Korea, decentralisation has been a top-down initiative led by the national government (Cho et al., 2020; No, 2017). After nearly three decades of military dictatorship, where mayors were appointed by the national government and a highly centralised regulatory system was in place (Bae & Sellers, 2007), the democratic movement in 1987 led the revival of local autonomy through the Local Autonomy Act. Similar to the Peruvian case (McNulty, 2020), this context motivated national policy-makers to implement PB as part of top-down initiatives, reflected in the media discourse.

Figure 2 further shows that Topic 8 connected with all other topics in the political cluster, including Topic 9 (Election) and Topic 10 (Pledge), as local politicians began using PB as an election strategy.

Topic cluster 4: Implementation

The largest topic cluster focused on the practical implementation of PB across various cases. Topic 12 highlighted youth PB and youth council activities, which

were integrated into democratic education programmes in schools. At the municipal level, the news media covered various community PB projects, including initiatives such as graffiti art installations, flowerpot placements, wall murals, pedestrian crossings, and trail maintenance (Topic 13). Welfare-related PB cases (Topic 15) addressed issues such as support for pregnant women, families and individuals with disabilities, as well as measures to reduce atmospheric aerosol particles and the impacts of COVID-19. Additionally, facility improvement projects (Topic 16) involved the installation of safety facilities, pedestrian crossings, public toilets, and snowploughs.

The national government has promoted PB through a combination of regulatory measures (Local Finance Act), information dissemination (the national PB guideline), and financial incentives, including state subsidies and local finance tax benefits (S. Y. Lee & Lee, 2017). This multifaceted approach, described as the “stick, sermon, and carrot” framework (Bemelmans-Videc et al., 2011), created a comprehensive set of policy instruments to drive PB adoption. Recognising the significance of these instruments, municipalities seized on the national government's awards for “innovation”, “excellence”, and “best PB practices” as valuable branding opportunities. Moreover, media coverage amplified the effect of these awards, further contributing to the wider diffusion of the initiative (Topic 14).

4.3 The effect of the intervention and newspaper types

Government intervention

Previous studies have shown that policy practices and academic discourse underwent significant change after PB was mandated in 2011 (Cho et al., 2020; No, 2017). In line with the STM manual (Roberts et al., 2019, p. 17), this study estimated the differences in the proportions of each topic between the pre-mandatory period (2001–2011) and the post-mandatory period (2011–2022) to investigate whether media discourse experienced a similar shift. Here, covariate analysis was used to evaluate how topic distributions varied across these periods, while confidence intervals were applied to assess the statistical significance of the changes (Roberts et al., 2014). **Figure 3** presents a graphical display of these estimated topic proportions, and a detailed table can be found in Appendix 2.

In **Figure 3**, the dots represent the mean differences in topic proportions between two periods, while the bars display the 95% confidence interval of these differences. Topics with dots and bars located either to the right or left of the central dotted line demonstrate a statistically significant difference in prevalence between the two periods. For instance, Topic 2 (Open call) appeared approximately 9% more frequently in news articles after 2011 with a confidence interval of 0.08–0.1%, indicating a statistically significant difference. By contrast, Topic 14 (Award) showed a slight decrease of 0.5%, but its confidence interval of -0.01–0.002% suggests that this difference was not statistically significant. Overall, most topics showed significant shifts in media coverage after 2011, except for Topic 14.

A distinct pattern emerges from these findings as the media shifted their focus from political to implementation topics. As Ganuza and Baiocchi (2012, p. 1) noted, the global diffusion of PB has transformed it into a “politically malleable device” that requires translation and adaptation to local contexts. During its early phases, PB functioned as “a centrepiece of a *political strategy*” (emphasis in original), involving various actors, values, and conflicts. **Figure 3** supports this observation, as all topics in the political cluster (e.g., governance, decentralisation, elections) were more prominent in media coverage before PB became mandatory. However, PB became decoupled from its Brazilian origins, evolving into a more “politically neutral device” (Ganuza & Baiocchi, 2012). The substantial increase in Topic 2 (Open call) reflects this transformation, as municipalities increasingly adopted PB in a more routine, operational context.

Newspaper types

Figure 4 illustrates the differences in how local and national newspapers framed PB, using the same method as in the earlier analysis. Local newspapers focused more on delivering practical information to residents about how to participate in PB processes, which is reflected in the higher prevalence of topics related to information

dissemination, such as Topic 1 (Announcement) and Topic 2 (Open call). Additionally, local newspapers framed PB as a tool for regeneration (Topic 3), emphasising its role in revitalising communities and improving local governance at the county level (Topic 5).

By contrast, national newspapers emphasised the political aspects of PB, highlighting national government initiatives and political campaigns that promoted PB as a mechanism for decentralisation. Topics such as budgeting (Topic 7), decentralisation (Topic 8), and elections (Topic 9) appeared more frequently in national coverage. National newspapers also tended to showcase actual cases illustrating what PB looked like in practice, reinforcing PB’s role as a political device through various implementation examples, including community (Topic 13), welfare (Topic 15), and facility improvements (Topic 16).

These findings indicate that national newspapers framed PB as part of the national government’s broader push for decentralisation, focusing on integrating PB into formal political structures and validating it through various local cases. By contrast, local newspapers framed PB as a tool for regenerating local communities, focusing more on local economic improvements and grassroots participation. Their neutral information dissemination was also key in helping residents stay informed about local affairs and events.

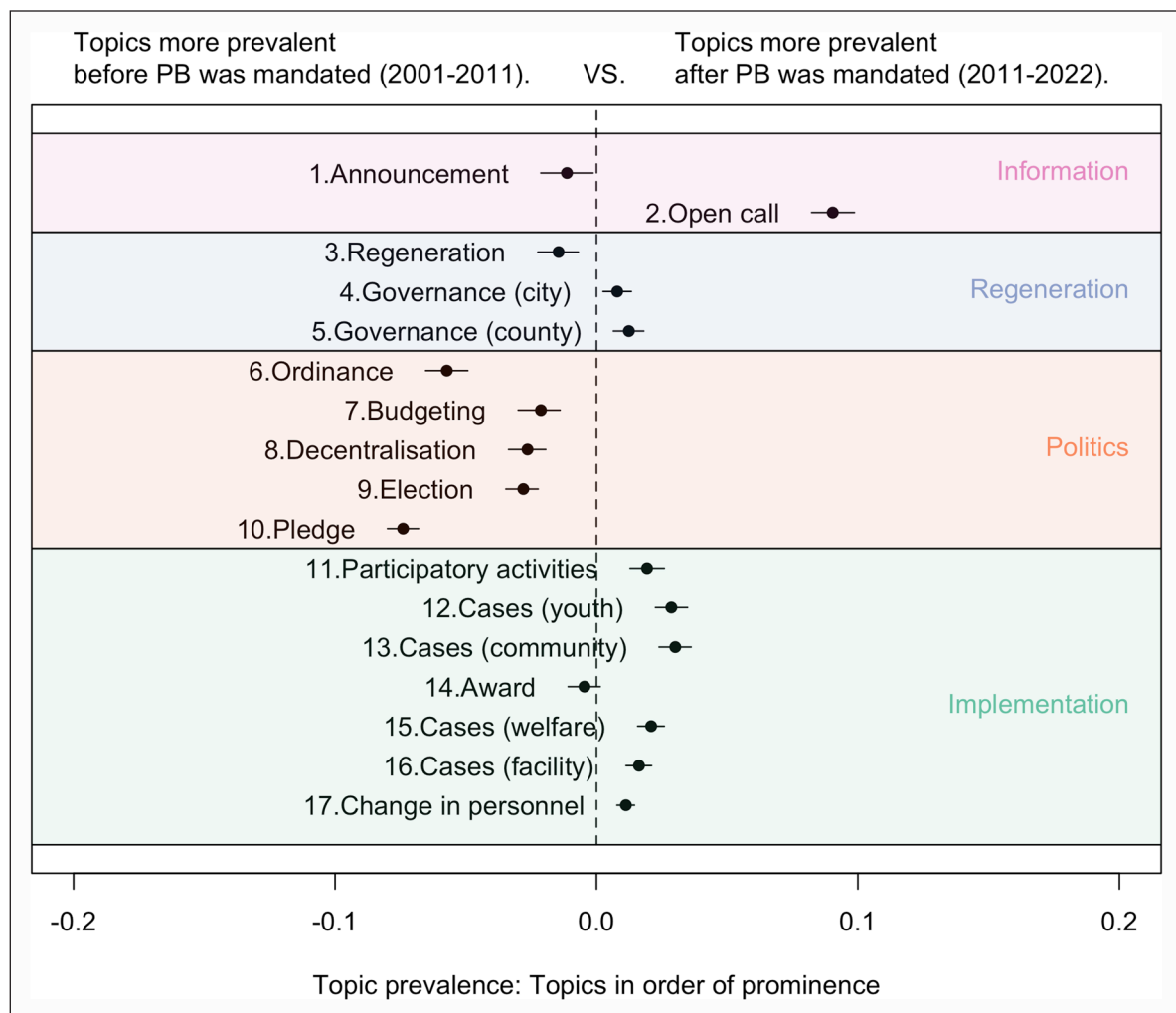


Figure 3: Difference in topic proportions (pre-mandatory period vs. post-mandatory period).

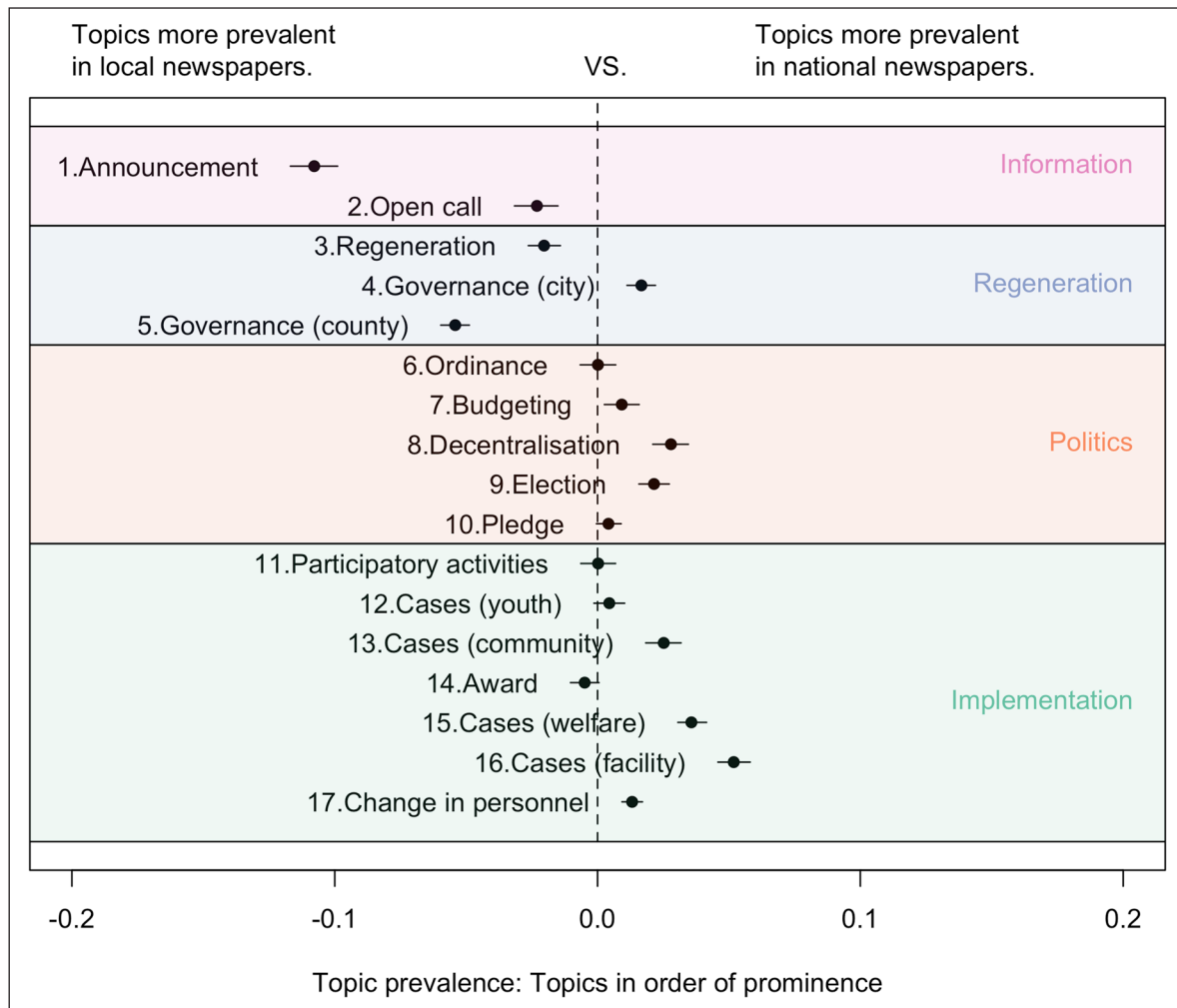


Figure 4: Difference in topic proportions (local vs. national newspapers).

5. Discussion

Based on the earlier contribution by Röcke (2014), this article utilised media framing (Entman, 1993) as an analytical lens and applied topic modelling to the analysis of extensive media content. Korea provides a valuable case study as the new idea of PB has become legislative practice, raising the question of how PB has been framed within the interplay of top-down and bottom-up approaches. Korean news articles published between 1991 and 2022 that mentioned PB were retrieved from a digital news archive, and the STM was applied to capture prominent media frames.

The first research question sought to identify the primary topics through which PB was framed in the news media. The findings reveal that over the last three decades decentralisation and regeneration have been the most distinct characteristics of Korea's media discourse on PB. The media has framed PB as both a political device for national reforms, particularly in decentralisation and budgeting, and as a local tool for regeneration to foster economic and social development in cities and counties. However, decentralisation and regeneration themselves are not unique to Korea.

The emphasis on decentralisation has been observed in Asian and South American countries, including the

Philippines, Indonesia (Touchton et al., 2023a), and Peru (McNulty, 2019, 2020), where it has formed part of national-level reforms following periods of authoritarian rule. Similarly, in France, decentralisation was central to the proximity democracy frame, which aimed to transfer traditional state power to citizens (Röcke, 2014). However, previous studies have consistently found that top-down-driven decentralisation often fails to meet the needs and expectations of local communities.

Regeneration frames are also common internationally. Cities in Finland, Latvia, Poland, Portugal, and the UK have used PB to revitalise communities to varying extents (Falanga & Nunes, 2021; Kamrowska-Zaluska, 2016; Koroļova & Treija, 2019; Lehtonen, 2021). For example, Röcke (2014) notes that Newcastle first encountered PB through the European URBACT programme, which promotes citizen participation in urban regeneration.

What is unique to Korea is that these two distinct frames – decentralisation and regeneration – are both highly prominent and serve as central hubs, connecting a range of other issues in the media discourse surrounding PB. However, there is a notable absence of the key principles that were foundational to the Porto Alegre model, such as grassroots democracy, social justice, and citizen control (Sintomer et al., 2008). The Korean media discourse

appears to have focused more on the administrative and developmental aspects of PB, overlooking discussions on inequality and inclusive decision-making.

The tendency for media discourse to treat PB as a policy instrument has become more prominent after it became mandatory in 2011. The second question examined changes in media coverage, revealing a significant shift from political framing to implementation-focused coverage. This pattern aligns with findings in the Korean PB literature observing that the pre-mandatory period featured diverse interpretations of PB models while the post-mandatory period shifted towards discussions on implementation and diffusion (Cho et al., 2020). The shift has two implications for other countries navigating the institutionalisation of PB.

First, public discourse during the pre-mandatory period is crucial because malleable ideas are still being conceptualised and gradually accepted by society. It is during this phase that forums for multiple actors are essential to define PB and establish its normative values for society, rather than allowing the process to be dominated by a single actor, such as the national government. Second, after PB becomes institutionalised, it is standardised and taken for granted by the public, thus increasing the difficulty of questioning its use. Lee and Seo (2019) noted that Korea has entered the second generation of PB in the post-mandatory period, where the risk is that PB could become just another bureaucratic and formal participatory programme unless bottom-up efforts continue to play a vital role in keeping it dynamic and responsive to local needs.

The third research question explored how local and national newspapers differed in their framing of PB. Local newspapers highlighted the role of PB in revitalising local economies and communities, portraying it as a regeneration tool for achieving local development goals. By contrast, national newspapers focused more on top-down processes, framing PB as part of the government's push for decentralisation and political reform. Topics such as budgeting, decentralisation, elections, and implementation cases were more prevalent in the national media, reflecting PB's integration into the political agenda and its institutionalisation as a formal policy tool. These contrasting perspectives highlight the dual nature of PB processes, as seen in the Porto Alegre model (Sintomer et al., 2012), where PB must achieve widespread, standardised national diffusion while also engaging local actors to adapt it to the specific needs of their communities.

6. Conclusion

In 2021, the 10th anniversary of mandated PB in Korea, a few news articles began to address previously overlooked issues, including limited public awareness, low participation rates, and a lack of representativeness and expertise among participants, critiquing PB as becoming a tokenistic system without meaningful participation. As Fung (2012) argues, democratic innovations are inherently imperfect, "full of bugs," and should therefore be treated as dynamic, open-ended institutions in constant need of revision rather than perfection. Therefore, while these

identified problems in PB might appear significant, they are not necessarily critical flaws *if* the system is designed to encourage learning from mistakes, experimentation, and adaptation to local needs.

However, Korea's PB has lacked this adaptive capacity. A fundamental challenge lies in the top-down institutionalisation of PB. Previous research has shown that the national government designed and promoted three standardised PB models, which local municipalities then adopted with minimal local adaptation or innovation (Cho et al., 2020; J.-W. Lee & Seo, 2019; No, 2017). This bureaucratic approach fostered procedural compliance rather than encouraging genuine democratic experimentation or bottom-up ownership. Consequently, while PB formally diffused widely across municipalities, its substantive democratic potential often remained unrealised.

Therefore, the most urgent issue facing Korea's PB is that it has been largely *given* rather than *generated*; transplanted from above, rather than co-created through local needs, capacities, and civic engagement. Addressing this stagnation requires moving beyond standardised models and empowering municipalities to experiment, fail, and adapt. A sustainable PB system should therefore be grounded in multi-actor collaboration among civil society, media, academia, and government, with each contributing to shaping, monitoring, and evolving the institution.

Within this collaborative framework, the media plays a crucial role, functioning as a lubricant in this engine of democratic innovation. As emphasised in this study, the media serves a critical democratic function as a "watchdog" (Whitten-Woodring, 2009). Although Korea's media has contributed significantly to promoting and diffusing PB, it must now adopt a more critical and investigative stance. By exposing implementation gaps, amplifying citizen voices, and holding institutions accountable, the media can help ensure that PB remains a responsive and vibrant democratic process rather than devolving into mere procedural formality.

This study contains several limitations. First, it is based on the case of Korea, rendering the findings context-specific and not directly generalisable to other countries. However, topic modelling, specifically the STM (Roberts et al., 2019), can be applied to news datasets from different countries or used for a cross-national comparison (e.g. between US and UK newspapers) to examine broader trends. Second, the STM itself contains some critical limitations: i) it requires high technical expertise, creating knowledge barriers to its use and ii) it lacks transparency in explaining why a specific result was produced by the algorithm (Wesslen, 2018). In addition, iii) it does not account for semantic relationships among words or sentences due to its reliance on Bag-of-Words (BoW) representation. In recent years, neural topic models based on large pre-trained language models have been proposed to overcome this limitation (Angelov, 2020; Bianchi et al., 2021; Grootendorst, 2022). Testing these newer models in social science research could yield valuable insights.

Democratic innovations, such as PB, citizens' assemblies, deliberative polling, and digital platforms,

introduce new concepts and values that aim to deepen citizen engagement and improve governance. However, their institutionalisation and integration into local contexts often require significant time and effort. This article highlights the crucial role of the media in shaping public understanding of these democratic innovations, demonstrating how analysing media discourse can effectively assess and support the institutionalisation of democratic innovations across different societal contexts.

Notes

¹ A simple search string, “participatory budgeting” (*chamyo yesan*), retrieves many non-PB-related articles because the term *yesan* has the dual meaning of budgeting and Yesan-gun (a county) in Korean. Therefore, a more refined Boolean search was employed to ensure relevant results.

² BigKinds collects news articles from 11 national newspapers, eight business/finance-related newspapers, 28 local newspapers, and five broadcasting companies. Incorporating finance-related newspapers is particularly pertinent to the study, which examines public budgeting and local finances. Broadcast companies contribute to the dataset by presenting their news services in written article formats, ensuring a comprehensive analysis of information from varied media outlets.

Additional Files

The additional files for this article can be found as follows:

- **Appendix 1.** The Optimal Number of Topics. DOI: <https://doi.org/10.16997/jdd.1464.s1>
- **Appendix 2.** Differences in Topic Prevalence. DOI: <https://doi.org/10.16997/jdd.1464.s2>

Competing Interests

The author has no competing interests to declare.

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