

DIFFUSION OF PARTICIPATORY BUDGETS IN POLAND: DO NEIGHBOURS MATTER?

DIFUSÃO DOS ORÇAMENTOS PARTICIPATIVOS NA POLÓNIA: OS VIZINHOS SÃO IMPORTANTES?

DIFUSIÓN DE LOS PRESUPUESTOS PARTICIPATIVOS EN POLONIA: ¿IMPORTAN LOS VECINOS?

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Abstract

Objective of the study: The subject of the study are participatory budgets – social innovations used by local municipalities to involve citizens in local budgetary decisions with roots in Brazil. The main objective was to determine how being part of a social network affects the decision to introduce participatory budgets made by municipalities in Poland, where a remarkable spread of the innovation has been observed since the early 2010s.

Methodology: Spatial autocorrelation tests and visualizations were used to uncover clusters of communes with most similar or dissimilar characteristics.

Originality/Relevance: Novelty of the study approach lies in the utilization of an own database – with the intention to overcome the problem of data insufficiency, typical of related research.

Main results: The presence of spatial proximity-based peer effects was confirmed in the study. The concentration of innovators has remained spatially uneven, which is to be linked to e.g. the cross-regionally diverse forms of social capital. The data-based study design allows to explore participatory budgets as products of social networks and not only individual strategies, as evidenced by numerous case studies in the field.

Methodological contributions: The study demonstrates the relevance of collecting longitudinal data for the development of research on participatory budgets.

Social/management contributions: Insights from the study are of practical value for recent and future adopters, wishing to understand the broader relevance of their policies, as well as for higher level policy-makers trying to better adapt their legal frameworks to the current and future waves of innovators.

Keywords: Participatory budget. Diffusion. Peer effects. Spatial proximity. Poland.

Resumo

Objetivo do estudo: O tema do estudo são orçamentos participativos - inovações sociais utilizadas pelos municípios locais para envolver os cidadãos nas decisões orçamentais locais com raízes no Brasil. O principal objetivo era determinar como o facto de fazer parte de uma rede social afeta a decisão de introduzir orçamentos participativos feitos pelos municípios na Polónia, onde se tem observado uma notável difusão da inovação desde o início da década de 2010.

Metodologia: Testes de autocorrelação espacial e visualizações foram utilizados para desvendar aglomerados de comunas com características mais semelhantes ou dissimilares.

Originalidade/Relevância: A novidade da abordagem do estudo reside na utilização de uma base de dados própria – com a intenção de superar o problema da insuficiência de dados, típico da investigação relacionada.

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Principais resultados: A presença de efeitos espaciais baseados na proximidade foi confirmada no estudo. A concentração de inovadores tem permanecido espacialmente desigual, que deve ser ligada, por exemplo, às formas inter-regionais diversas do capital social. O desenho do estudo baseado em dados permite explorar orçamentos participativos como produtos de redes sociais e não apenas estratégias individuais, como evidenciado por numerosos estudos de caso no terreno.

Contribuições metodológicas: O estudo demonstra a relevância da recolha de dados longitudinais para o desenvolvimento da investigação sobre orçamentos participativos.

Contribuições sociais/de gestão: As contribuições do estudo são de valor prático para os adotantes recentes e futuros, que desejam compreender a relevância mais ampla das suas políticas, bem como para os decisores políticos de nível superior que tentam adaptar melhor os seus quadros jurídicos às vagas atuais e futuras de inovadores.

Palavras-chave: Orçamento participativo. Difusão. Efeitos de pares. Proximidade espacial. Polónia.

Resumen

Objetivo del estudio: El objeto del estudio son los presupuestos participativos, innovaciones sociales utilizadas por los municipios para involucrar a los ciudadanos en las decisiones presupuestarias locales con raíces en Brasil. El objetivo principal era determinar cómo afecta el hecho de formar parte de una red social a la decisión de introducir los presupuestos participativos tomada por los municipios de Polonia, donde se ha observado una notable difusión de la innovación desde principios de la década de 2010.

Metodología: Se utilizaron pruebas de autocorrelación espacial y visualizaciones para descubrir grupos de municipios con características más similares o disímiles.

Originalidad/Relevancia: La novedad del enfoque del estudio radica en la utilización de una base de datos propia – con la intención de superar el problema de insuficiencia de datos, típico de las investigaciones relacionadas.

Principales resultados: En el estudio se confirma la presencia de efectos de proximidad espacial entre pares. La concentración de innovadores ha seguido siendo espacialmente desigual, lo que debe relacionarse, por ejemplo, con las diversas formas de capital social entre regiones. El diseño del estudio, basado en datos, permite explorar los presupuestos participativos como productos de las redes sociales y no solo de las estrategias individuales, como demuestran numerosos estudios de casos en este campo.

Aportaciones metodológicas: El estudio demuestra la relevancia de recoger datos longitudinales para el desarrollo de la investigación sobre los presupuestos participativos.

Contribuciones sociales/de gestión: Las conclusiones del estudio son de valor práctico para los adoptantes recientes y futuros, que desean comprender la relevancia más amplia de sus políticas, así como para los responsables políticos de alto nivel que intentan adaptar mejor sus marcos legales a las olas actuales y futuras de innovadores.

Palabras clave: Presupuesto participativo. Difusión. Efectos de pares. Proximidad espacial. Polonia.

Introduction

Participatory budgets (PBs) are policy tools used to involve citizens in local budget creation through discussion, project submission and voting (Sintomer et al., 2012). The worldwide first experiment was performed in the Brazilian city of Porto Alegre in 1989. There, it has proven itself to be a successful social innovation (Novy & Leubolt, 2005) – social in its outcomes and the way citizens can impact the rules of the game.

Within 30 years, PB diffused to almost every part of the globe, reaching a total of 11-12 thousand cases (Dias et al., 2019). As the new policy was crossing international borders,

it was within countries, too. In Brazil, PBs travelled from well-off southern to northern, less developed regions (Avritzer & Vaz, 2014). In Germany, after the innovation had initially been less recognizable in the East, a remarkable uprise in PB-popularity has been taking place there (Berlin Institut für Partizipation, 2020). An increasing number of experiments is being introduced by small towns and villages (Herzberg, 2018), also in other countries, including China (Cabannes & Ming, 2013), Poland (Leśniewska-Napierała & Napierała, 2020) and Russia (Beuermann & Amelina, 2018).

What contributes to such a considerable resonance of the innovative participatory mechanism? An interplay of various factors should be assumed: features of adopters and potential adopters, attributes of innovations (including complexity and comparative advantage), and – importantly – social networks (Rogers, 2003). These networks create room for the exchange of information, own and third-party experiences, as well as for the demonstration of behaviour patterns and attitudes towards innovation. Network interactions can lead diffusion actors to influence each other's decision – a phenomenon referred to as peer effects (Xiong, Payne & Kinsella, 2016).

Peer effects can manifest themselves in several ways, ranging from innovation-copying (akin to herd behaviour) that results from mere exposure to innovation, to more sophisticated and deliberate forms of social learning (Young, 2009). Such interactions are most likely to take place among members of networks that feel a sense of similarity between them – be it the population size, political agenda related to the character of urban (or rural) problems to tackle, or the close geographic distance expressed by the notion of spatial proximity (Rogers, 2003).

The objective of the underlying study was to assess the importance of social networks as a determinant of PB-diffusion via the inspection of spatial proximity-based peer effects. The research questions asked were: Do PB-adopters tend to cluster geographically? What could have been the exact trajectories for the innovation to be most and least successfully passed on to subsequent adopters (in the context of regional disparities)? Do neighbouring communes share similar features, e.g. size, functional character (urban/rural), time of adoption and attitude towards risk when operating under uncertainty and fiscal burdens (COVID-restrictions). And, finally, what are other important factors that help explain observed diffusion patterns? Thereby, the emphasis was put on social capital and selected attributes of the innovation in question, including its complexity and relative advantage over other similar participatory mechanisms.

These questions could be best answered by referring to a late diffusion adopter who stands for the many countries where PBs has been growing in importance, most notably in

Central-Eastern European countries, such as Estonia (Krenjova & Raudla, 2018) or Romania (Boc, 2019). At the same time, a sound basis of experiences was needed for the collected data to be reliable. Considering this, the choice of Poland was made. It is a country that within roughly a decade since the first experiment in 2011 witnessed a dynamic expansion of PBs and reports one of the worldwide highest numbers of cases (Dias et al., 2019). At the same time, Polish PBs remain a spatially fragmented phenomenon, with a clear division in the adoption rates of PBs in favour of western regions (Bernaciak & Kopczyński, 2019). All this delivers a sound ground for the inspection of geographical patterns and the presence of peer effects, as well as for the identification of the most and the least successful trajectories of innovation spread.

While peer effects have been subject to in-depth studies for commercial (Bollinger & Gillingham, 2012) and public sector innovations (Akinyemi et al., 2019), similar research remains limited for social innovations or participatory mechanisms in particular. This can be put down to insufficient reliable longitudinal data for local participatory mechanisms, mostly non-regulated and non-mandatory. The aim of the study was to fill this research gap by creating an own PB-database for research purposes. The only freely accessible and reliable databank of this kind known to the author has been the Brazilian Participatory Budgeting Census (Spada, 2017) that enables researchers to track changes in composition of PB-adopters over a period of over 20 years. Considering the European context, the underlying work presents a novel approach that should enhance the overview over the spread of PBs in the country delivered by the existing, not fully up-to-date databases.

Description of the database content followed in the method section, along with explanation of innovation diffusion theory and the related concepts, as well as the applied methods of spatial analysis. In the discussion part, results of spatial proximity tests were first interpreted in light of selected cases of good and bad practices in PB-utilization to reflect on the presence of peer effects. In a further step, the spread of innovation in Poland was discussed against the background of cross-regional social disparities in the country and the changing attributes of PB as social innovation.

Theoretical reference framework

Theoretical foundations for the research are delivered by the theory of innovation diffusion (Rogers, 2003). E. Rogers' concept breaks the diffusion process into stages, in which the innovation emerges, enters the growth phase, reaches maturity, to be eventually (and potentially) surpassed by a better solution. The innovation changes along the way, as it is being

adopted by changing sets of innovators, called adopter groups. By considering both individual and network-related attributes of innovators, as well as those of the innovation itself, the theory by E. Rogers fits well with product life cycle theory (Cao & Folan, 2012) and the concept of peer effects (Xiong, Payne, & Kinsella, 2016) in the pursuit of explaining the dynamics behind innovations.

The cornerstone of the diffusion theory remain five adopter groups with their characteristics, seen within the context of innovation life cycle (Rogers, 2003). Innovation is brought to the market by pioneers, followed by the cohort of early adopters in the phase of innovation growth. These two cohorts make together about 16% of all innovators (*ibidem*). With the advent of the early majority, the innovation reaches its maturity, sustained by the late majority of adopters. These two middle groups constitute roughly 68% of all adopters and, as the innovation may already start to decline, are followed by the latest to adopt the innovation – the laggards (*ibidem*).

Adopters differ in their capabilities and attitudes towards innovation and risk. Pioneers are the most venturesome among them – big by population size, eager to experiment, and often well integrated in global partnership or communication networks (*ibidem*). They seldom take the role of opinion leaders in regional networks, but may use their international experience to guide others how to innovate – thus accounting for the creation of information effects (for future generations of adopters (Cao & Folan, 2012).

A key driving force in the diffusion process represents the cohort of early adopters. Compared with innovators, early adopters are usually small to middle, more local diffusion actors with similarly high institutional capacities. They are quick to learn from others and so can successfully spread innovation-related information, as well as share experience they themselves as well as others make. Effectively, they can push others to innovate by decreasing the perceived risk, as shown for e.g. healthcare innovations (Akinyemi et al., 2019). Or, on the contrary, they may discourage others from innovating if they themselves remain sceptical (Dedehayir et al., 2017).

The two middle adopter categories constitute more than 2/3 of all innovators and share weaker institutional and resource base compared with the early cohorts (Mallinson, 2020). The early majority is classified as one of the earlier adopters, consisting of mainly smaller actors, regularly interacting with peers. They often act as trendsetters, able to successfully “reinvent” the innovation (Glick & Hays, 1991). A PB-context example could be the launch of a thematic or group-oriented variations of a classic, urban PB (e.g. a green or youth-oriented schemes).

Considering their share among all adopters and their local embeddedness, the early majority representatives may also, like early adopters, effectively trigger experience effects (Cao & Folan, 2012).

Late adopters, the first cohort among the later adopters, are much more reserved in their undertakings. They often do not will, but are forced to innovate, be it to pursue cost reductions or to keep up with the others that already introduced the innovation (Rogers, 2003). The struggle not to lag behind makes them rather risk-averse, which is why the late majority prefer imitating well-established solutions to modifying the existing ones, let alone creating their own solutions (Hanse et al., 2019). “Following the trends” often reflects herd behaviour associated with innovation copying and external effects. Externalities can lead to a massive adoption of innovation, also at higher (e.g. regional) levels of social networks (Kiesling et al., 2012).

Laggards are the most isolated in their networks. Yet, they possess one key advantage over the others: at the start, they benefit from a greater evidence base of documented cases. This allows them to be quicker than some former cohorts while moving from innovation concept to practical application (Mallinson, 2020). Laggards may also introduce some minor modifications to their solutions to distinguish themselves from other adopters at the lowest possible cost. Such modifications may take the form of an extensive usage of online communication channels (social media). In that respect, the late mass of adopters, while still rather risk-averse, can be considered slightly more innovative than some among the middle cohorts. This can have practical implications for the innovation cycle: instead of vanishing from the market, the innovative solution may get a chance to be “reincarnated” (Cao & Folan, 2012, p. 648) – in a (slightly) different form than known before.

Method

The research design encompasses several analytical stages:

1. Databank construction and verification.
2. General analysis of quantitative trends in the diffusion of PBs (participatory budgets).
3. General spatial analysis aimed at uncovering trajectories of diffusion.
4. In-depth statistical analysis – spatial autocorrelation based on a set of adopters’ features, including the performance of their PBs in the context of COVID-19 pandemic.

In the following two sections of the paper, the key aspects of the study design were elaborated in more detail. As a follow-up to the mostly quantitative evaluation of network relations, a review of good and bad practices followed in the discussion section, along with a reflection upon the regional stocks of social capital and innovation attributes as factors explaining the dynamics and shape of the diffusion process.

Databank construction

The point of departure in the construction of the database was screening of all municipalities with at least 5000 inhabitants for the presence of a PB. In the popular definition of PB its five essential components are mentioned: it should be introduced at a city level, be a repeated process (cyclicality criterion), involve discussion of budgetary processes, techniques of public deliberation, and some accountability mechanisms (Sintomer et al., 2008, p. 168). Following the approach by Schneider & Busse (2015), these criteria were reduced for research purposes to account for a wider range of social innovations types. In effect, the database should include rebranded political agendas in form of instrumental innovations (PB as a “label”), as well as complementary solutions that trigger some, if limited, changes to local relations between citizens, city representatives and other stakeholders of participation (Marques et al., 2018). Upon these considerations, what was included in the database were only procedures that fulfilled the two following criteria:

1. They are labelled as PBs or carry corresponding names in municipal texts (e.g. on websites, in evaluation reports) and/or in press materials.
2. They involve citizens in the planning of local budget (even if only to a minimum degree).

In a second step, the existing databanks developed by BudzetAlert (budzetalert.pl), Stocznia Foundation (bp.partycypacjaobywatelska.pl) and the Institute for Innovative Thought Foundation (budzetyobywatelskie.pl) were screened to verify collected data. For smaller municipalities, research findings on PBs in rural areas (Leśniewska-Napierała & Napierała 2020, Leśniewska-Napierała, 2019) were also analysed. Lastly, local government officials responsible for the promotion of PB were selectively contacted to make sure the collected data are valid.

The database contains various data on the performance of PBs, including municipality size and type. Concerning the size, municipalities were split into big (100 thousand or more

inhabitants), medium (20-100 thousand inhabitants) and small (less than 20 thousand inhabitants). As for the functional criterion, urban, rural and mixed urban-rural communes were distinguished. Further variables used in the underlying project are the decision to adopt PB and to launch it in 2020 (binary variables *pb* and *pb2020*) and the category of adopter (variable *adopter* with five categories). Also, the continuous variable *first_law* was included, indicating the year of first legal PB-introduction by local act. In that case, difference was made between earlier and later adoptions, with 2015 as mean year. This ensues from technical aspects of the statistical method used in the study and explained in the next section.

Examination of spatial relations

Based on the obtained data, the distribution of PB-cases in time and space was visualized with the use of QGIS (QGIS Development Team, 2009) and GeoDa (Anselin et al., 2006) software. Source of geospatial information (e.g. municipal boundaries) are shapefiles provided by the Head Office of Land Surveying and Cartography. To inspect geographic patterns of diffusions, Moran's I statistics was used as one of the most widely applied measure of spatial autocorrelation (Valente, 2005). The statistics informs to what extent the (dis)similarity of a given feature across objects can be explained with spatial proximity between these objects.

Null-hypothesis assumes a random distribution of objects with similar values of a variable. The alternative hypothesis is that data are clustered, which depends on the *z-value* of the statistics, ranging from -1 to 1. Null value represents perfect randomness, values closer to 1 reflect the deviation of a given feature from the population mean in the same direction across objects (Pietrzykowski, 2011, pp. 102-103). For example, a positive *z-score* could stand for spatial clustering of municipalities that did or did not adopt a PB.

Further questions in a similar vein can be asked with a local bivariate adaptation of Moran's I. It measures the strength of correlation between values for one x-variable and a different, spatially lagged y-variable (Anselin et al., 2002). An exemplary related question could be: does being an urban municipality correlates with neighbour's decision to launch PB in year 2020? The local character of the statistics does not yield a single value of spatial autocorrelation. Instead, it makes possible to group objects into geographical clusters. These are hot and cold spots (clusters of, respectively, high-high and low-low combinations), potential outliers (high-low and low-high combinations), as well as objects with no statistically significant local spatial autocorrelation (Janc, 2006). Among the latter type of clusters, indications of potentially missed opportunities in the diffusion process (PB-adopters

surrounded by non-adopters) and potential future adopters (non-adopters surrounded by PB-adopters) are to be looked for.

The last but crucial thing to consider was the choice of distance measure. Several approaches in the literature can be found to tell what constitutes a neighbour. For study purposes, queen contiguity-based criterion of second order was favoured over the one of first-order¹. It makes it possible to capture the regional character of innovation spread in an environment with numerous small-sized municipalities in the country. At the same time, the choice remains in line with international research trends (Abreu et al., 2004,) and the good practice of keeping the study design as simple as possible (Griffith, 1996).

Results

General observations

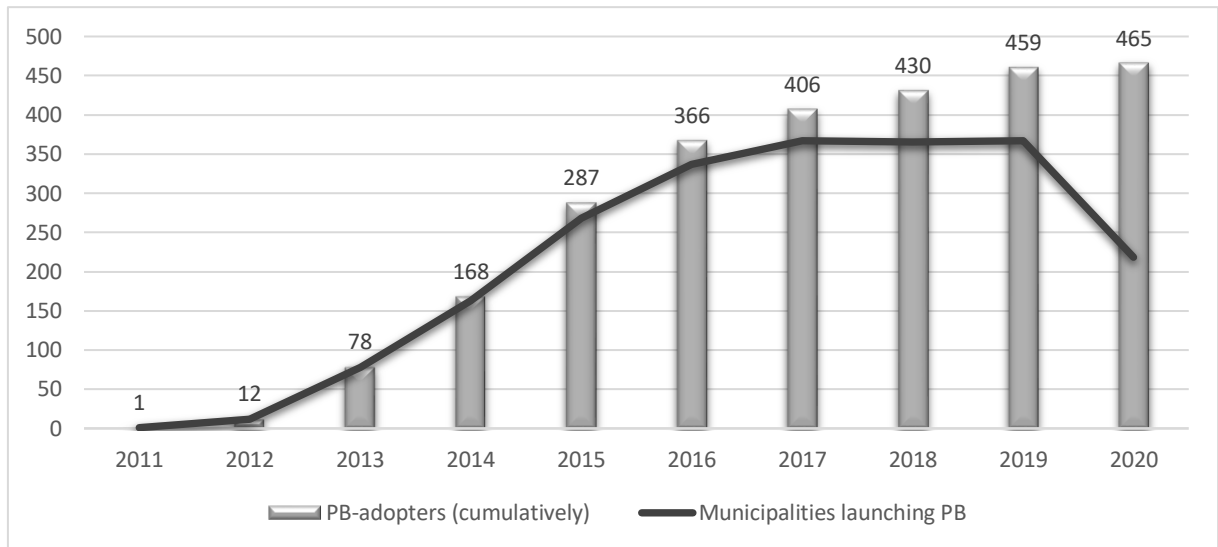
As can be seen in Figure 1, a total of 465 communes were identified that performed at least one cycle of PB (participatory budget) between 2011 and 2020. Out of nearly 2500 Polish municipalities, the share of those with PB rose from about 3% in 2013 to nearly 19% seven years later. In absolute terms, numbers of Polish municipalities with a PB by far extends the outreach of PB in some other European countries, including Croatia and Slovakia (6-12 cases) or Ukraine and Germany (100-200 cases); PB's popularity in Poland comes closer to the one in Spain, one of the first European countries to introduce the innovation (Dias et al., 2019). If compared with prior research on PBs in Poland (Bednarska-Olejniczak & Olejniczak, 2018), numbers estimated by the author are higher. This is, possibly, due to a broader PB-definition adopted in the study, but perhaps also because some instances of PB in smaller, peripheral entities were unintentionally not included in past research.

As far as yearly launches of PB are concerned, a steep rise in case numbers in years 2012-2015 was followed by a gentler upward trend until 2017, as the yearly number of performed experiments stabilized at 365-367 cases.

¹ Contiguity types differ in terms of how joint spots indicating neighbourship are determined, based on what kind of moves the corresponding chess figures (rook and queen) are allowed to perform. Orders of contiguity are used to determine the desired breadth of a remarkable spread of the innovation has been observed since the early 2010s. For example, in a second-order contiguity, neighbours of object B, having a direct border with object A, are also treated as (indirect) neighbours of A.

Figure 1

PB-adopters and PBs in Poland launched in years 2011-2020



Source: Own elaboration.

The overlying of yearly implementations and the cumulative values suggest a persistent character of Polish innovations – a central feature of PBs, indicative of their general successfulness (Bräutigam, 2004). Once introduced, a Polish PB was likely to be maintained over the years. Until 2015 no cases of municipalities withdrawing (for a year or longer) from their PB were reported. Only few cases of PBs violating the basic cyclicity criterion of less than two editions were reported.

Out of all 429 communes that launched their first PB no later than in 2018, only in roughly 4% of cases a single cycle was performed.; an abandonment after two editions happened in roughly 14% of cases in years 2011-2018. All this sums up to a positive image of PBs’ stability: in every year, except for 2020, the outflow of municipalities with PB could be counterbalanced by an inflow of new communes willing to experiment (Table 1).

Table 1

Dynamics of PB diffusion in Poland in years 2011-2020

Year-to-year inflow and outflow of PB-municipalities (in absolute values: number of municipalities)										
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
New PB-municipalities	1	13	74	82	128	70	43	22	40	5
Municipalities abandoning PB	0	0	0	0	2	17	5	12	17	50
Net effect	1	13	74	82	126	53	38	10	23	-45

Source: Own elaboration based on P. Spada (2014).

The typology of adopters, devised for study purposes, helps uncover patterns of change in the structure of PB-adopters (Table 2). It becomes apparent that PB has been losing its urban character, with a major share of later adopters (late majority and laggards) being mixed or rural municipalities. A similar picture emerges if the communal size is considered: at least two thirds of later adopters are small entities inhabited by less than 20 thousand residents.

As far as concentration in space is considered, about 1/3 of all innovation adopters can be found in three western voivodeships Lower Silesia, Silesia, and Greater Poland (Figure 3). In each of them, close to or over 50 cases were identified. In 2013, two years after the diffusion had begun, there was at least one PB-adopter in each of the 16 voivodeships. Still, the dispersion of innovators remains geographically uneven, with only 20% of them located in regions of Eastern Poland: Lublin, Podlasie Subcarpatia, Świętokrzyskie and Warmia-Masuria. Lowest numbers of adopters were reported for Podlasie (15) and Świętokrzyskie (10).

Table 2

Characteristics of PB-adopters

Type of adopters	Share of all adopters (in %)	Year(s) of legal PB-introduction	Population size (in %)			Functional type (in %)		
			big	medium	small	urban	mixed	rural
Pioneers	2,6	2011-2012	67	16	17	92	8	0
Early adopters	14	2013	27	54	18	67	30	3
Early majority	44,5	2014-2015	6	52	42	52	44	4
Late majority	25,3	2016-2017	0	30	70	37	54	9
Laggards	13,6	2018-	0	33	67	39	55	6

Source: Own elaboration.

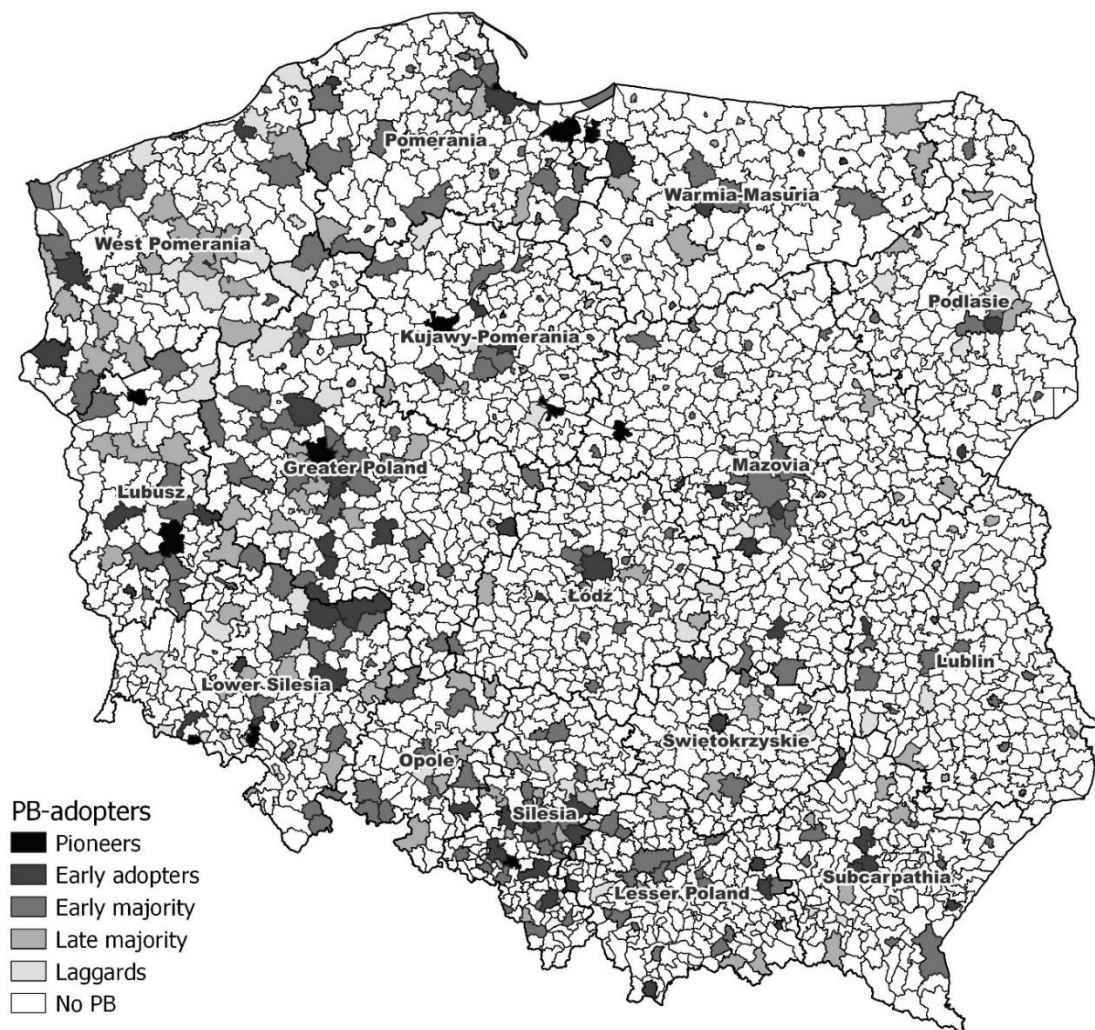
In general terms, the innovation has travelled from western to eastern regions of the country, but this process has not been straightforward (Figure 2). At this point, examples of trajectories can be provided. Starting in municipalities near regional borders, PBs have quickly crossed them, moving at the same times towards regional centres. This has been the case with

pioneers in the North (Sopot, Doughy Dwór Gdański in Pomerania) and South (Dąbrowa Górnicza in Silesia). A successful path of innovation spread occurred within a “triangle” between the pioneers and early adopters in Lubusz (e.g. Gorzów Wielkopolski, Zielona Góra, Żary), Greater Poland (e.g. Poznań, Gostyń) and Lower Silesia (e.g. Karpacz, Wałbrzych). There, the innovation was moving towards regional centres, resulting in the emergence of quite hermetic concentric circles.

It appears that PB was brought to Eastern Poland mainly via southern diffusion paths, leading through Lesser Poland (e.g. Gorlice, Kęty), Subcarpathia (e.g. Kielce) and Lublin (e.g. Puławy). At the same time, PBs remain scarce within the “triangle” between regional centres in Mazovia, Podlasie and Lublin, not least due to the mostly rural character of these areas.

Figure 2

Spatial distribution of adopters and non-adopters of PB in Poland



Source: Own elaboration in QGIS.

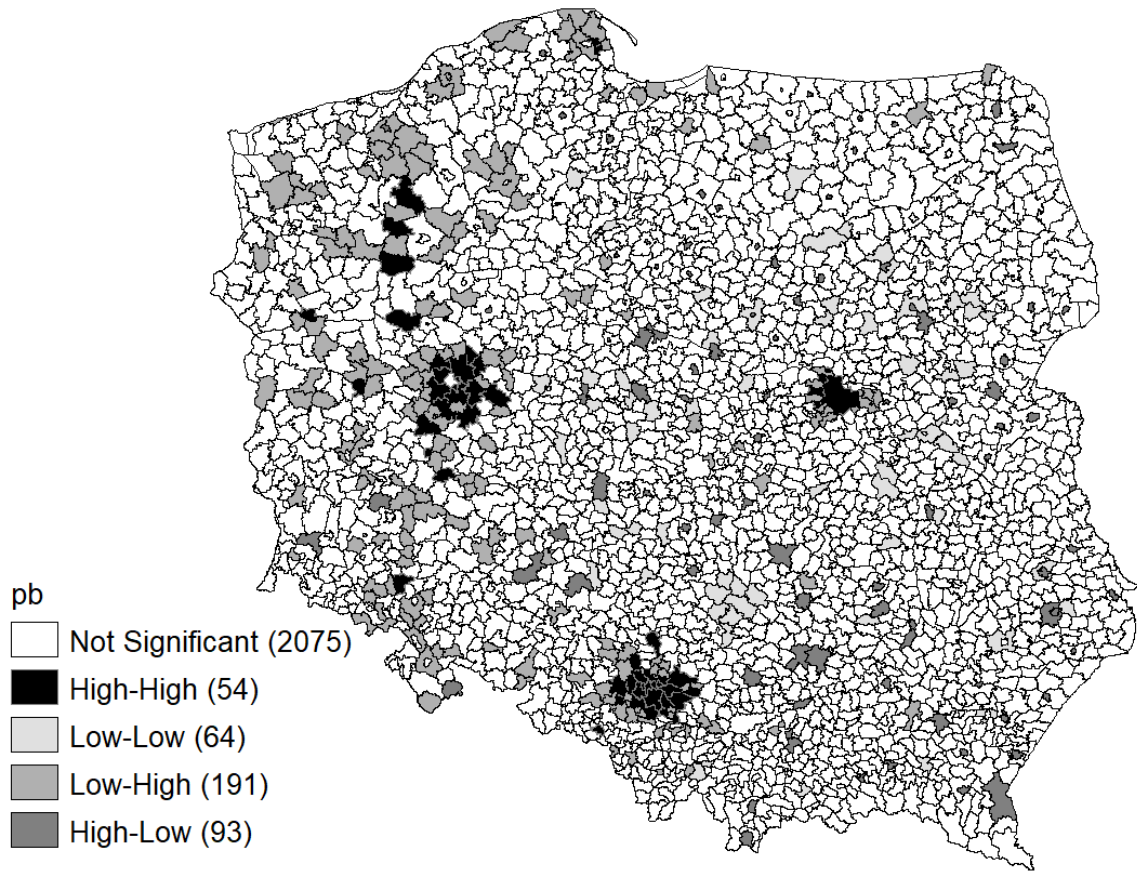
Spatial proximity: adopters and non-adopters of PB

A series of spatial autocorrelation tests was performed to identify geographical clusters of municipalities that adopted a PB (participatory budget). The results were presented in Figure 3. Upon the inspection of *pb* variable, hot spots could be identified in the areas of high density, including Silesia, central parts of Greater Poland and the neighbouring south-eastern parts of West Pomerania, as well as in the central region of Mazovia. Further insights are possible with tests on the variable *first_year*. In south-western (Lower Silesia, Opole, Silesia) and north-western (Pomerania, West-Pomerania) voivodeships, both an earlier and later PB-transfer by one municipality can be linked to a later PB-introduction by a neighbouring commune. As far as cold spots are concerned, their presence can be observed mostly in less densely populated areas around the borders dividing Western and Eastern Poland. This pertains especially to areas between Mazovia and Podlasie and at the crossroads of Świętokrzyskie, Silesia and Łódź.

The majority of identified outliers are low-high combinations, that is, potential future adopters surrounded by municipalities with PB-experience. They can be found in Western voivodeships, especially at the borders of metropolitan areas of Silesia, Greater Poland or Warsaw. High-low values, indicating potentially missed opportunities in the process of diffusion, are more scattered throughout the country. Some of them are present in peripheral areas of Mazovia and in Eastern regions.

Figure 3

Spatial autocorrelation effects for variable pb



Source: own elaboration in GeoDa.

Spatial proximity: features of adopters

Another sequence of bivariate tests was launched to shed more light on what kind of neighbour’s characteristics may impact earlier or later innovation transfers. Most importantly, having a city as neighbour contributes to a later PB-introduction in the West (e.g. in Lower Silesia, Silesia and Western Pomerania), and an earlier one in the East (e.g. in Lublin, Subcarpathia). Similar conclusions, but with less evidence in spatial clusters, can be drawn for big neighbouring communes. Furthermore, higher likelihood of an early or a late PB-introduction can be linked to having a mixed, as well as medium or small municipality as a neighbour. Such type of correlation can be seen mostly in Western voivodeships.

Some effects could be determined for adopter categories in bivariate relations with *first_law* as the spatially lagged variable. Early adopters appear to spatially coincide with communes that accomplished an early or a late PB-transfer. Earlier adoptions by neighbours were observed mostly in Western regions of Lower Silesia and Greater Poland, as well in the eastern voivodeship Subcarpathia, where the lowest total number of PB-cases was identified.

Relatively clear spatial patterns were identified for the early and late majority. High-high spots tend to concentrate in northern and south-western voivodeships. This can be interpreted as a potential of the middle cohorts to impact decisions made especially by those municipalities that decided to adopt PB relatively late (i.e. 2015 or later). In eastern regions (e.g. Lublin, Subcarpathia, Warmia-Masuria) representatives of the middle majority cohorts are often neighbours with municipalities that adopted PB relatively soon if compared with population mean – possibly at similar times. This reflects a shorter time needed to “pass on” the innovation among the later adopters.

As to the late mass of adopters, their close presence coincides with a late PB-introduction in Lower Silesia and Silesia, which can be attributed to a dense network of urban areas typical for conurbations that facilitates externalities. Having a laggard as neighbour was also found to be linked to an earlier innovation adoption in Western Pomerania and Podlasie. One interpretation possibility is through the hesitancy in PB-adoption typical of marauder. This can be at times reinforced by the lack of other PB-examples in the vicinity in less densely populated areas, with the region Podlasie as a point in case.

PBs in 2020: the impact of COVID-19

The COVID-19 pandemic impacted the continuity of how PBs (participatory budgets) performed in many communes. Out of all municipalities that performed it in 2019, circa 46% abandoned it in the following year. This number is comparable with the value 43% assessed by Stocznia Foundation (2021), a representative survey for municipalities excluding cities with district rights, obliged to run PB by law. Another point of reference can be the study by Urban Policy Observatory that for year 2020 signals a drop in the number of PB-cases of 40% compared with year 2016 (Martela et al., 2020, p. 7). If author’s data are considered, the corresponding value for the drop would be only 27%. This might, again, the effect of not including some PB-cases that do not fit into the broader criteria of social innovation chosen by the author.

In the final step of analysis, the question of who did and who did not perform another PB-cycle in the first COVID-year was delved into. It appears the two groups of municipalities do not differ that much from each other, if broken down by the cohort they represent (Table 3). The middle cohorts were generally more reserved in their actions, but their general higher quantity and diversity must be taken into consideration. Worth noting are higher shares of early adopters and laggards among those who performed PB in 2020. As mentioned before, these

cohorts can positively, if differently, stand out with their approach to risk-taking. In fact, for several marauders, the edition launched in 2020 was their first one (Table 1).

Table 3

Municipalities that did and did not perform PB in 2020 broken down by adopter category and region of origin

PB launched in 2020	Adopter category (share in %)					Region of origin (share in %)	
	pioneers	early adopters	early majority	late majority	laggards	West	East
Yes	4	17	40	22	17	45	56
No*	1	12	49	29	11	55	44

Note: *Does not sum up to 100 due to rounded values.

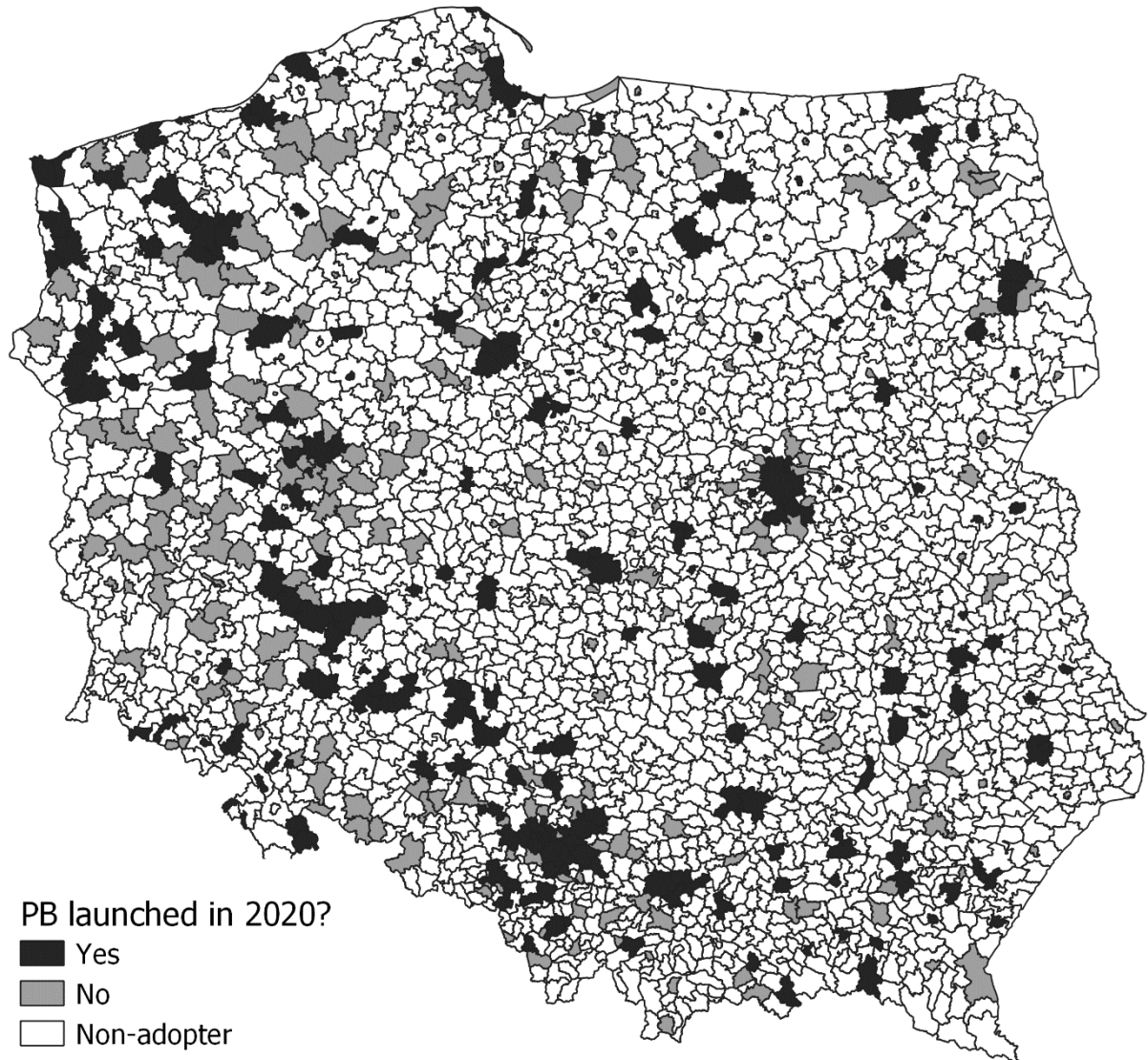
Source: Own elaboration. N=465.

As for patterns in the spatial distribution of cases, a clear and known picture emerges (Figure 4). Launch of another edition took place in municipalities with high PB-experience, mostly in highly urbanized regions of the West. Among the performers, a number of peripheral municipalities in Eastern regions could be identified as well. In fact, only in eastern voivodeships, the majority of municipalities did perform a PB in 2020.

Upon the inspection of spatial autocorrelation effects on variable *pb2020*, no clear patterns could be seen. The detected clusters were spread across the country and represented almost exclusively spatial outliers, indicating spatial proximity of performers and non-performers. Having considered that, the pertaining underutilization of PB in the East, and the resulting diversity of motives and development paths among Western municipalities experimenting with PB must be kept in mind.

Figure 4

Municipalities that did and did not perform PB in 2020



Source: Own elaboration in QGIS.

Discussion

Good and bad practices

Research findings deliver good ground for a discussion on the interpretability of the detected correlative spatial proximity relations within the cause-effect framework of peer effects. To understand the nature of relations in peer networks, examples of best practices, as well as cases of much less successful implementations of PB (participatory budget) should be recalled.

Two municipalities among earlier adopters, potential drivers of the diffusion process, stand out with the novelty of their approaches: Gorzów Wielkopolski (Lubusz) and Dąbrowa Górnicza (Silesia). They are located in areas of high PB-concentration: Gorzów lies within the “triangle” spanning three voivodeships in the West (Lubusz, Greater Poland and Lower Silesia) and Dąbrowa Górnicza constitutes part of the Katowice urban area.

Both municipalities to various extents incorporated elements of deliberation into their procedures. In Gorzów Wielkopolski, open neighbourhood meetings were introduced as a tool of priority setting for the development of local areas, akin to look meetings once organized in Porto Alegre (Miejski kodeks dialogu, 2016). This institution accompanies digital mechanisms in the process of submitting projects and proves vital at the stage of projects selection: only during these meetings educational projects can be chosen (via compromise) for realization. The introduction of such a subpool of funds was not free of controversies – they present, in fact, an additional possibility for schools and kindergartens to conduct often small-scale infrastructural projects of limited use for wider communities. Still, with this innovative approach, Gorzów Wielkopolski has become the countrywide first commune to introduce a thematic variant of PB.

Similarly to Gorzów Wielkopolski, the procedure in Dąbrowa Górnicza is mostly neighbourhoods-oriented. There, deliberation techniques have been used even more extensively. The selection of projects unfolds in District Fora within collegian bodies composed of e.g. ordinary citizens, under the guide of district leaders, enhancing the conditions for compromise-reaching. Such an approach has oftentimes proven successful (Podgórska-Rykała, 2019; Polko, 2015), which turned the popular voting component into an “emergency solution”. The successfulness of the procedure in Dąbrowa Górnicza is best evidenced by the fact that it remained unchanged, even after new legal framework (that e.g. constituted voting as an obligatory party of PB) had come into force. Instead, another procedure was launched in accordance with the new regulations (Podgórska-Rykała, 2019).

In light of prior research and underlying study results, the presented cases represent unique PB-models. As solutions geared towards problems of local communities, they are exceptions to popular “quasi-referenda” (Sześciło, 2015), in which the direct democracy institution of popular vote accounts for structural imbalances in funds allocation, often to the disadvantage of weaker, deprived districts (Kociuba & Rabczewska, 2019). Still, the value of the impact both procedures had on the diffusion process is, according to the author, undisputable. Models from Gorzów Wielkopolski and Dąbrowa Górnicza have served as a valuable source of information on how a PB can be tweaked in Polish conditions. The

observability of results and high transparency of the procedures helped promote PB not only as a citizen-friendly solution, but also one that could be used to generally enhance the quality of social dialogue. In a close-distance environment characteristic of a conurbation (such as in Silesia), these initial effects could be reinforced by externalities at later stages of the diffusion process.

A different kind of logic lies behind the introduction of the very first PB in the country. PB-transfer in Sopot was since the beginning a matter of controversies and misunderstandings among the representatives of local administration as to what elements of the Porto Alegre model are adaptable to Polish standards. To push the project, compromises were needed, in effect of which Poland's first PB was devoid of some deliberative qualities that would make it stand out among many other PBs that followed (Stokłuska, 2015). Still, Sopot's procedure can be deemed innovative on its own terms. The project was successfully pushed by an NGO, Sopot Developmental Initiative, which was still not a common way of how political decisions were made in Poland back in 2011 (Kębłowski & von Criegingenb, 2014). Sopot spread with his PB information on the possibilities to successfully (even if not fully) implement quite an oriental, Brazilian innovation.

It should also be argued that Sopot, one of the smallest among pioneers, could have acted as a precedence for other middle-sized communes in the country to experiment on their own. In several voivodeships, medium municipalities were the first to implement a PB. This was the case in Łódź and Lublin voivodeships, where the first innovators were, respectively, Zduńska-Wola and Puławy (both PB-adoptions in 2013). The innovation-driving potential of smaller entities lies not predominantly in the resonance of their actions, but more in their speed that can induce or at least contribute to a rapid neighbour's response. For example, Łódź was hesitant in developing participatory mechanisms in general and might have found itself under some pressure from Zduńska-Wola (ca. 40 thousand inhabitants) to change that (Wiśniewska, 2018). Similarly, as Lublin was launching its pilot project for one district in 2013, a full-scale procedure was already in place in Puławy (ca. 50 thousand inhabitants).

A different picture emerges for medium and small municipalities within and beyond the Warsaw metropolitan area – found in the course of study to be a place of potentially missed opportunities in the diffusion process. The capitol city introduced its PB-scheme in 2015, along with other representatives of the early majority. For a large urban area with close to 2 million inhabitants, the procedure was split into several pools of funds for each of the districts, acting like district PBs on their own. While some rules were unified (e.g. with respect to participation

eligibility), certain key decisions (including the share of district budget dedicated to PB) were left over to district offices (Laskowska, 2017). Considering the uniqueness and a relatively high complexity and within-diversity of the Warsaw model, it could hardly constitute a direct basis to learn from for smaller entities in the region.

Some other examples of big urban areas that have failed to fulfil potentially a bigger role in PB-diffusion can be provided. The procedure developed in the capitol of Łódź voivodeship cannot be considered an inspiration source for others as a top-down solution pushed by local authorities (Brzeziński, 2016). Similarly, the PB introduced in 2013 in Kielce turned into a support platform for mainly small-scale, infrastructural projects with a dominating role of public administration and limited room for grassroots democracy (Piłat-Borcuch & Borcuch, 2018) – a picture reflecting main points criticisms towards Polish PBs in general.

Generally, Polish municipalities have over the years demonstrated a variety of ways of how PBs can be performed that appears to be in stark contrast to each other. Table 4 summarizes these good and bad practices from the perspective of pushing the diffusion process, i.e. creating (dis)incentives for others in social networks to follow.

Table 4

Examples of good and bad practices in the arrangement of participatory budgets in Poland

Good practices	Bad practices
Problem-solving at neighbourhood-level, but not at the cost of a coherent general urban policy.	Arranging a referendum – projects with most social support win, but no incentives to think broader (beyond local communities) and long-term.
Incorporating deliberation into decision-making without overcomplicating the procedure for citizens.	Arranging complex rules, difficult to emulate, without providing an alternative framework for less experienced municipalities
Allowing procedures to develop in a bottom-up manner (NGOs) without losing control over the process	Controlling procedures top-down, without enabling civic society to co-engage in rules-setting etc.

Source: Own elaboration.

Social ties and innovation attributes

Low potential for bottom-up initiatives is rooted in the quality of available social capital. According to the structural component of social capital theory, developed e.g. by R. Putnam (1995), relations within and across communities can be of bonding, bridging or linking nature. Bonding ties are inward looking and help maintain the closed structure of small and homogenous groups (“getting by” rather than “getting ahead”), typical of relations within immediate family, among close friends or neighbours (Claridge, 2018). Social ties of bridging type are, on the other hand, inclusive and outward looking (ibidem). They reflect the capability to leave the

comfort of small communities and join in larger, more diverse groups to achieve common good. This can take the form of, for example, participation in NGOs or in elected collegial bodies where cooperation with representatives from other districts is needed. Linking social capital involves norms of trust and respect across “(...) explicit, formal or institutionalized power or authority gradients in society” (Szreter & Woolcock, 2004, p. 655) – that is, between citizens and representatives of local administration in PB-context.

What matters from the perspective of participatory democracy, is the balance between the inward- and outward-looking types of social bonds. Following the research by Swianiewicz et al. (2008), a good balance of social capital stocks can be found in Western voivodeships, including those with the highest numbers of PB-adopters. Especially in West Pomerania and Pomerania, high capacity of linking and bridging social capital is accompanied by modest stocks of bridging ties. A different picture emerges for the East, where the imbalance of social capital stocks is in disfavour of bridging and linking ties, especially in Lublin and Świętokrzyskie voivodeships.

Poor environment for civic society activism creates the need for local authorities to seek alternatives, if the scenario of lagging-behind in innovation adoption is to be avoided. Given that, implementation of top-down, often simplified solutions of façade democracy can be tempting, also for smaller communes, isolated in their peer networks. In fact, the need to seek PB-related information may have been reduced already at an early stage of diffusion with the rising popularity of alternatives. The availability of “PB-substitutes” was already considered a barrier to PB-implementation by some municipalities (Supreme Audit Office, 2019).

Among these alternatives, regional counterparts to local PBs need to be mentioned. The very first one of this kind was introduced in Podlasie and has been known for a very informal set of rules that may have encouraged smaller municipalities to direct their attempts to apply for funds in this procedure, rather than develop their own ones (Gawłowski & Popławski, 2019). Another distinct “forms of budgetary participation” (Bednarska-Olejniczak & Olejniczak, 2018, p. 342) are village council funds, introduced already in 2009, two years before the first PB in Poland. They are geared towards villages (*sołectwa*), created mostly by rural and mixed municipalities. The availability of alternatives may have lowered the relative advantage of PB, especially since no legal regulations for PB existed until 2018. Again, these two aspects were also considered by municipalities as barriers to PB-introduction (Supreme Audit Office, 2019).

Yet, the underlying study delivers a picture of smaller municipalities which can be, at least in some regions, quite successful in supporting the process of innovation spread. This is

because changes in conditions for innovation adoption go along with transformations of the innovative concept itself. Following the reasoning of Ganuza & Baiocchi (2012), the continuous simplification of the idea behind PB should be, on the one hand, a source of concern, but on the other hand it constitutes the very force that makes the wide resonance of innovation possible.

Modern PBs are often performed in fully digital environments – be it an online forum or a social media webpage with commenting facility. PB's evolution has led it to distinguish itself in users' perception from other, more traditional or interaction-oriented participatory mechanisms. As for the Polish context, this could have counterbalanced the presence of other entry barriers for hesitant municipalities, especially in rural and mixed urban-rural areas that have improved their ICT-infrastructure over the period of innovation expansion in the country. There, PB can be increasingly perceived as an e-participation companion (instead of alternative) to a village council fund, acting as a tool in hands of village leaders to apply for costs reimbursement from central budget (Ptak, 2015). This is what allowed PBs to lose their original exclusive link to urban areas, where they were introduced by early innovator cohorts (Avritzer & Vaz, 2014; Bernaciak & Kopczyński, 2019).

In that context, interesting insights are delivered by studies on PB-performance under the restrictions imposed by the COVID-19 public health crisis. Countries that gained experience in e-participation already before the pandemic had broken out, could successfully sustain their participatory traditions. Not surprisingly, most evidence in that respect is delivered by later adopters in Central-Eastern Europe, including Slovakia (Bardovič & Gašparík, 2021) and Czech Republic (Sedmíhradská et al., 2022), where many PBs have either been launched as fully digital solutions for a longer time or conceived as such from the beginning.

Author's findings regarding PB-performance in 2020 in Poland fit into this picture. In the Polish scenario of rapid innovation expansion, municipalities have been quick to establish an own experience base to lean on in times of crisis. While COVID-pandemic has abruptly affected the realization of many civic projects, it has also affirmed the necessity to follow the long-term path of PB's digitalization.

Against this background, the existing social ties may have turned, in fact, to be supportive of this PB-development trajectory. Strong binding social ties typical of rural areas may enhance the process of PB-spread, as shown in research on motives behind individual engagement in e-participation (Lee & Kim, 2018). Information shared among and the support provided by family members and closest friends can induce a change in the attitude of some

more sceptical individuals towards e-participation (Aksiuto, 2019; Zolotov-Naranjo, et al., 2019, p. 303). This way, weak social types of e.g. bridging type can be occasionally compensated for (Tobiasz-Adameczyk & Zawisza, 2017).

Conclusions

Research findings allow the confirmation of spatial patterns in the process of PB-diffusion in Poland, interpretable within the framework of different types of peer effects. These are strongest within and at the crossroads of high density metropolitan areas (the “triangle” Lubusz-Greater Poland-Lower Silesia) and within conurbations (Katowice urban area). In these voivodeships, the key role-models among Polish PB-adopters played a vital role in bringing the foreign innovation closer to the Polish ground, sharing valuable experience and triggering external effects as the diffusion process unfolded. Importantly, some pressure to innovate could have been exercised by medium municipalities – very often the first to introduce a full-scale PB-procedure in a region.

As suggested in prior research, PBs have not extensively diffused in Eastern Poland, where the main path for innovation transmission has led via southern regions. The possibilities to “pass on” PB have been weak in the North and in the less densely populated and poorly urbanized area across the central and northern voivodeships, including Mazovia and Podlasie. Several factors were found to have contributed to this situation. These include the availability of alternatives to PB, such as their regional-level counterparts and village council funds. A non-negligible co-determinant of innovation spread has also been the prevailing type of social capital stocks. They shape the possibilities for bottom-up initiatives to introduce PB emerge before a top-down path is taken, thus limiting the potential of some PB-schemes to deliver experience.

However, innovations and conditions for their diffusion change, and have changed in Poland since the first experiment in 2011. Digitalization of PBs contributes to changes in the perceived attributes of the innovation as one of relatively low complexity, with a comparative advantage in terms of sustaining social dialogue with citizens over the other, mostly non-digital local participatory mechanisms. All that, along with the growing experience of adopters of all types, makes the decision to maintain the innovation increasingly autonomous and less sensitive to decisions made by peers and harsh fiscal conditions, such as the ones in the COVID-19 pandemic.

In light of the above, the PB-diffusion process in Poland cannot be considered finished. Arguably, there is room for a further spread of PBs, also in Eastern Poland where the prevailing social ties my turn supportive of promoting e-participation solutions. However, it remains unclear, what kind of PB will be subject to diffusion. It cannot be ruled out that participatory instruments of the future will come both in the form of legally standardized PBs and mechanisms only drawing on the PB-framework or making it part of social media accounts or internet platforms for social dialogue. It should be argued that such innovation transformation should be cautiously welcomed as a natural course of events – a

potential “reincarnation” of innovation. While new participatory formulas may be heavily reduced, they may successfully fulfil other than predominantly the allocative function, for example in the field of territorial marketing, not necessarily at the cost of reputation build by more comprehensive schemes. Such diversity in development paths has already been observed in Germany, where *nota bene* much inspiration appears to be drawn from classical Polish PBs with a pool of funds to decide one in a voting procedure.

The study has certain limitations. The social networks explored in the study are solely based on within-country proximities. Cross-country influences are therefore not accounted for, although they could vastly contribute to the explanation of e.g. similar adoption times observed between cross-border neighbours, e.g. between Poland and Germany. Furthermore, other possible criteria for establishing (dis)similarities between innovators were not covered in the study. One of them could be the status of partner cities that does not depend much on the physical distance, but does imply the presence of collaboration in certain fields of policy-making.

These caveats point to what can and should be found on research agendas in the field of social innovation studies. The analysis demonstrates the value of collecting panel data to deliver a comprehensive picture of how a relatively new policy programme works, by including a variety of policy variants across innovators of different sizes and functions. It becomes important to collect longitudinal data on PB-performance to make cross-country comparisons possible, but also lay ground for in-depth qualitative studies to be performed. These are needed to better understand chains of events, e.g. leading up to adoption or non-adoption of PBs across different types of municipalities.

Such research findings can be of high practical value as they may and should be used by policy-makers in their decisions as to the desired control over the process of innovation spread. Thereby, the consideration of who has recently introduced PB, who is going to do and who can be a potential adopter gains in importance. As far as Poland is concerned, answering such questions seems relevant not only in the debate over the desired higher flexibility of PB-regulations introduced in 2018, but also in the context of rising international resonance of Polish PBs in Central-Eastern and Western Europe.

Authors' contributions

Contribution	Author
Contextualization	Piotr Wetoszka
Methodology	Piotr Wetoszka
Software	Not applicable
Validation	Piotr Wetoszka
Formal analysis	Piotr Wetoszka
Investigation	Piotr Wetoszka
Resources	Piotr Wetoszka
Data curation	Piotr Wetoszka
Original	Piotr Wetoszka
Revision and editing	Piotr Wetoszka
Viewing	Piotr Wetoszka
Supervision	Not applicable
Project management	Piotr Wetoszka
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