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Participatory budgeting: creator or creation of a better place? Evidence from rural Poland

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Abstract. The main purpose of the research is to address the real, operational context of participatory budgeting. It is argued that this method of budgeting might be a useful tool for developing various ideas at a local level, including social/spatial justice, civil society, human capital, information society, or sustainable development. However, the implementation of participatory budgeting might, conversely, result from development processes. A combination of quantitative methods (principal component analysis and regression analysis) was applied to define the real motives for local authorities to employ participatory budgeting. To address the research questions mentioned in the paper, all rural communes employing participatory budgeting in Poland in 2017 were investigated. It was confirmed that participatory budgeting is an effect of development processes rather than a tool for achieving development goals. Interestingly, social/spatial injustice might significantly stimulate inhabitants' engagement in participatory budgeting. On the other hand, the development of information society supports processes related to social involvement, including participatory budgeting.

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1. Introduction

The active participation of inhabitants in managing certain issues directly related to their community is widely recognised as the foundation of a civil society. Owing to this, it becomes possible to create an effective system able to satisfy the needs of the local population, strengthen bottom-up initiatives, and build trust in local authorities (Kotus, 2013; Shah, 2007). Public participation is defined as any kind of partnership between local government and inhabitants based on involving the inhabitants in managing their municipality. Such partnership should be initiated on the basis of equal treatment of each side and a shared vision of the development of the local community (Hickey and Mohan, 2004).

Resident participation in spatial planning or budgeting processes increases the chance of their problems, needs and expectations being more fully identified, thus allowing for more accurate programming (Kwiatkowski, 2017; Sobol and Rzeńca, 2018). The participation of inhabitants in the decision-making process can take various forms, including opinion research, open discussions and consultations, or workshops. Public participation can manifest as community participation in decision making. When it is stimulated by local government, it is a "top-down" process. When the initiative comes from the local community, it is "bottom-up" participation (Kotus and Sowada, 2015). The simplest form of participation involves informing residents of actions taken by the authorities. In some situations, local authorities initiate consultations with residents before making a final decision. Modern technologies such as online voting are increasingly being used in these projects as well (Bernaciak, Springer and Walkowiak, 2018).

The main purposes of participation are: 1) getting to know inhabitants' preferences, 2) improving decisions, 3) advancing fairness and justice, 4) gaining legitimacy for public decisions, and 5) legal requirements (Innes and Booher, 2004). Some very important dimensions of public participation are: 1) who participates, 2) what form such participation takes, and 3) how participation is linked to public policy (Bednarska-Olejniczak and Olejniczak, 2016). As Dean (2017) noted, as with justice or honesty, public participation is a concept that can be considered in different contexts. Public participation is an inseparable component of sustainable development. Nowadays, public participation involves more than voting in elections or being a member of a political party: it implies more direct forms, e.g. co-decision or co-implementation of public tasks (Primmer and Kyllönen, 2006).

Participatory budgeting (PB) became an innovative policymaking mechanism for its involvement of inhabitants directly in the decision-making process. A participatory budget is a decision-making process in which residents decide to allocate a specific portion of the funds from their unit's general budget. Citizens can help and propose creative solutions to the local government (Kębłowski, 2013; Wampler, 2000). Contemporary politics is based on transparency, accessibility and consultation approaches, so PB became a tool for enhancing the quality of democracy (Bernaciak, Rzeńca, and Sobol, 2017). It was developed in political systems where the relations between mayors and inhabitants are direct. PB allows for societal control of municipal investments (Cabannes, 2004; 2014). At the very beginning, PB programmes were implemented mainly by progressive municipal governments (Džinic, Svidronová and Markowska-Bzducha, 2016; Wampler, 2000). PB allows non-elected citizens in to the allocation of public finances through social involvement within the framework of a specific form of voting (Sintomer, Herzberg and Röcke, 2008).

2. Theoretical framework and hypotheses

The history of PB dates back to the late 1980s when it was launched in Porto Alegre in Brazil (Aragonès and Sánchez-Pagés, 2009). In Poland, PB has been in use since 2011, when Sopot introduced it for the first time. PB allowed the residents of the city to indicate the most socially needed investments in the municipality (Bernaciak et al., 2017; Kozak, 2016). As part of this initiative in Poland, projects that fall within the range of a commune's own tasks can be financed, i.e. public education, healthcare, social assistance, public roads, culture, sports and environmental protection. Due to the lack of legal regulations in rural areas of Poland, (With the adoption of the Law amending certain law to in-

crease the participation of citizens in the process of selecting, functioning and controlling certain public bodies (Dz.U. 2018 poz. 130), since 2019, participatory budgeting is mandatory in municipalities that are cities with county rights.) PB is more of an agreement between the authorities and inhabitants, under which the authority guarantees that the will of the local community is respected and the winning tasks are implemented (Leśniewska-Napierała, 2019). The problem of PB in Polish cities has been widely discussed in sociological, economic and geographical research, mainly as case studies (Bednarska-Olejniczak and Olejniczak, 2016; Bernaciak et al., 2017; Chruściński, Palińska, and Kazak, 2014; Džinic et al., 2016; Kębłowski and Van Criekingen, 2014; Kurdyś-Kujawska, Zawadzka, Kwiatkowski and Rosiński, 2017; Majorek, 2018; Pietrusińska, 2017; Piotrowski, Dzieżyc, Adamczyk-Mucha, Walter and Ziemiańska, 2013; Polko, 2015; Strzelecki, 2018). However, there is a research niche related to participatory budgeting in rural areas that has been described in detail by Leśniewska-Napierała (2019).

The goal of the paper is to determine whether PB is an effect of development processes, rather than a tool for achieving development goals. The following categories of development are considered: social/spatial justice, civil society, human capital, information society, and sustainable development. Whereas social justice indicates equity among the people, spatial justice is focused on equal distribution and access to resources. The following dimensions of spatial justice need to be emphasised: the social, the procedural, the distributive, the spatial, and the temporal (Madanipour, Shucksmith, Talbot and Crawford, 2017). The development of a civil society might be defined in two ways: as the power of organisations articulating and representing the interests of social groups, and as the strength of social interactions (Kohler-Koch and Quittkat, 2009). Human capital is defined as the knowledge, skills, competences and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being (Passetti and Cinquini, 2014). Human capital plays a huge role in economic growth and brings technological improvements and innovations to the economy (Li, Wang, Westlund and Liu, 2015). Information society is based on the development of self-programming abilities that make the society able to use and develop information and communication technologies, and to apply such technologies to consciously create their own development (Castells and Himanen, 2003). Finally, sustainable development is the concept focused on the interests, hopes, and aspirations of present and future generations, as well as on the present and future resources (e.g. environmental, economic, social, and cultural) used to meet such needs (Kates, Parris and Leiserowitz, 2005).

Participatory budgeting has been discussed as *a tool for achieving* development goals. At the very beginning, PB was implemented as a redistribution mechanism that could support the poorest groups in society (Souza, 2001). In China, it was implemented as a tool for reducing corruption or improving administrative efficiency (Collins and Chan, 2009; He, 2011). It could also be a tool for the development of new political and democratic competences in local communities (Schugurensky, 2017). Cabannes (2014) reported that PB can change power relations between local governments and citizens. Gregorcic and Krasovec (2016), who investigated Maribor and Reykjavik, discovered that PB could increase knowledge about politics and citizenship, create local leaders, or develop analytical skills among inhabitants. Schugurensky (2017) emphasised that PB attracts mainly low-income residents and transfers resources to poorer parts of administrative units. Thanks to this initiative, the quality of life in those communities could be increased. Weber, Crum and Salinas (2015) claim that PB could be a result of historical or cultural traditions and incentives. Džinic et al. (2016) emphasised that PB is the most effective instrument to increase citizen participation in local communities.

Participatory budgeting might also be recognised as *an effect* of development processes. Public participation should be the core of the concept of sustainable development, and recognising the interests of all the different stakeholder groups could be beneficial to the decision-making process (Primmer and Kyllönen, 2006). At the early stage of civil society development, there are no strong and independent social movements or associations, or civic initiatives (Kotus, 2013). Citizen participation in public authorities' decision-making processes is a relatively new issue in post-communist countries, and it is a result of the level of civil society development (Siemiński, 2007). The systematic implementation

of different forms of co-operation between public authorities and local communities is the effect of the development of civil society. PB could be the result of the establishment of decentralised structures that create conditions for co-operation between different participants in public life (Kalisiak-Mędelska, 2016). However, Gordon (2014) argued that the local community understands that some problems may require the involvement of state government and may not be resolved through PB procedures.

Considering all these arguments, the following hypothesis should be stated. **H1: Participatory budgeting is an effect of development processes, rather than a tool for achieving development goals**. An additional research question related to the above hypothesis should be addressed: what development context relates to PB more than others?

3. Data sources and methods

The research included both rural and urban–rural Polish municipalities. Information about the launching of PB was obtained from municipal websites and online Public Information Bulletins. This procedure identified 96 municipalities enabling PB in rural areas of Poland in 2017. The data describing participatory budgeting in rural areas relate to 2017, when the funds were spent in the investigated communes. Four variables describing the implementation of PB in rural Poland were considered. The first two refer to the "top-down" context of PB implementation: 1) the percentage of funds allocated to the participatory budget in total budgetary expenditures (PBINB), and 2) the amount of funds allocated in the participatory budget per 1 inhabitant of the rural area (PBRUR). These "top-down" variables describe the effort that local authorities put in to implementing PB. By contrast, the latter two variables are related to "bottom-up" effects of PB: 1) the number of submitted rural projects per 1,000 inhabitants of a rural area (RURPR), and 2) the percentage of inhabitants who voted for the projects in the participatory budget (VTRTP). These "bottom-up" variables refer to the attitude that inhabitants of rural areas have towards PB. The spatial distribution of all variables depicting the implementation of PB in rural areas of Poland is presented in the results section.

The goal of the paper is to determine whether PB is an effect of development processes, rather than a tool for achieving development goals. Thus, various development contexts were considered: civil society (C), human capital (H), information society (I), social/spatial justice (S), and sustainable development (D). A set of independent variables representing each of these contexts of development was established based on a literature review (Table 1). Considering each variable, data related to the corresponding measure was obtained depending on the availability of information in Polish official resources of statistics at NUTS5 level (communes). The limitations of selected measures constitute the limitations of this research: e.g. computer access is measured by number of computers in libraries per 1,000 inhabitants, though this measure does not describe the general access of inhabitants to such devices.

All of these possibly correlated measures of local development were converted into a set of a few uncorrelated principal components. This was achieved by applying Principal Component Analysis (Chojnicki, Czyż, Parysek and Ratajczak, 1978; Dunteman, 1989; Jolliffe, 2002). The number of principal components to be retained for further analysis was determined by plotting the eigenvalues of principal components (Fig. 1). The so called "scree" test (Zwick and Velicer, 1982) justified keeping five principal components.

Subsequently, semi-logarithmic models were estimated for each dependent variable describing the implementation of PB in rural Poland. Meanwhile, estimated principal components describing various contexts of local development were applied as independent variables. The equation describing estimated models is as follows:

$$ln\ \mathrm{PBINB} = b_0 + b_1\ PC1 + b_2\ PC2 + b_3\ PC3 + b_4\ PC4 + b_5\ PC5 \quad (1)$$

The coefficients of determination between models explaining "top-down" and "bottom-up" variables describing implementation of PB in rural Poland need to be compared. If the development explains efforts by local authorities put into PB implementation rather than the attitude of inhabitants to PB, this leads us to conclude that PB should be considered a tool for development. In consequence,

Table 1. Independent variables and measures related to various contexts of development

Notation	Development contexts	Variable	Measure	Authors(s)
TRANS	S, D	Access to public transportation	Municipal expenditures on transportation *per capita*	Kono, Ostermeyer, and Wallbaum (2018); Pasha (2018)
ENROL	I, H	Access to education	Primary education enrolment rate	Castells and Himanen (2003); Kalaitzidakis, Mamuneas, Savvides, and Stengos (2001); Oketch (2006); Stijns (2006)
PROTA	D	Biodiversity	Share of total protected area in total area	Kates et al. (2005)
COMPL	I	Computer access	Computers used in library, total per 1,000 inhabitants	Grabara (2015)
PSAFE	D, H	Crime	Municipal expenditures on public safety and fire care	Putnam (2001); Tasaki and Kameyama (2015)
BIRTH	D	Demographic changes	Birth rate	Szopik-Depczyńska et al. (2018)
MUEXP	C, I, S, D, H	Economic inequality / Socio-economic development / Welfare distribution	Municipal expenditures *per capita*	Balaceanu, Apostol, and Penu (2012); Ishiyama, Mezvrishvili, and Zhgenti (2018); Kaitatzi-Whitlock (2000); Kalaitzidakis et al. (2001); Oketch (2006); Szopik-Depczyńska et al. (2018); Tasaki and Kameyama (2015)
VOTTR	C, S, D	Election attendance / Social participation	Voter turnout in 2015 parliamentary election	Anheier (2013); Balaceanu et al. (2012); Fukuyama (2001); Putnam (2001); Satyal (2018); Tasaki and Kameyama,(2015)
ONLIL	I	e-Services	Libraries offering access to on-line catalogue per 1,000 inhabitants	Gulbe (2015); Misuraca, Codagnone, and Rossel (2013); Zvárová and Přibík (2002)
EDEXP	S	Expenditures devoted to education	Municipal expenditures on education *per capita*	BenDavid-Hadar (2016)
HLTEX	S, H	Healthcare	Municipal expenditures on healthcare *per capita*	Balaceanu et al. (2012); Putnam (2001)
DCONS	S, H	Healthcare	Doctors consultations per 1 inhabitant	Balaceanu et al. (2012); Putnam (2001)
ENCOM	I	ICT companies, and services	Entities producing computers per 1,000 inhabitants	Castells and Himanen (2003); Falch and Henten (2000); Henten and Kristensen (2000)
ITCEX	I	ICT expenditure	Municipal expenditures on informatisation *per capita*	Hersh (2003)
WIFIL	I	Internet access	Libraries' publicly available Wi-Fi networks	Castells and Himanen (2003); Falch and Henten (2000); Henten and Kristensen (2000)
LDEVP	D	Land use	Area covered by valid local spatial development plans, as a share of total area	Evans, Strezov, and Evans (2009)

Table 1. Continuation

MTREX	S, H	Level of education	Passing the maturity exam	Carnicelli and Boluk (2017); Cohen and Soto (2007); Kalaitzidakis et al. (2001); Kooiman, Latten, and Bontje (2018); Mokline (2018); Polat (2011); Sidorkin (2017); Stijns (2006)
DBATH	D	Living conditions	Share of dwellings fitted with bathrooms in total number of dwellings	Tasaki and Kameyama (2015)
ARTME	C, H	Membership of different groups	Members of artistic groups per 1,000 inhabitants	Anheier (2013); Fukuyama (2001); Huang (2016); Letki (2004); Putnam (2001); Satyal (2018); Stewart and Dollbaum (2017)
DEATH	D	Mortality	Deaths per 1,000 inhabitants	Tasaki and Kameyama (2015)
NGORG	C, S, D	Civil society organisations / Social participation / Volunteering	Foundations, associations and social organisations per 10,000 inhabitants	Axyonova and Bossuyt (2016); Bădescu and Sum (2005); Fukuyama (2001); Heinrich (2005); Huang (2016); Kohler-Koch and Quittkat (2009); Kopecký and Mudde (2003); Satyal (2018); Stewart and Dollbaum (2017); Tasaki and Kameyama (2015)
MUREV	D	Poverty	Municipal revenues *per capita*	Tasaki and Kameyama (2015)
PRIVS	S	Property relations	Private sector entities as a share of total entities	Brown, Flemsæter, and Rønningen (2019); Lai, Chau, and Cheung (2018)
PBEXP	I, S, D	Social exclusion, inclusion	Municipal expenditures on parental benefits *per capita*	Farrington and Farrington (2005); Isăilă (2012); Szopik-Depczyńska et al. (2018); Tasaki and Kameyama (2015)
BICLN	D	Sustainable transport	Bicycle lanes per 100 km^2	Sdoukopoulos, Pitsiava-Latinopoulou, Basbas, and Papaioannou (2019); Szopik-Depczyńska et al. (2018); Tasaki and Kameyama (2015)
CRTIV	H	Ability to innovate	Newly-registered creative sector entities, as a share of total newly-registered entities	Sidorkin (2017); Stijns (2006)
UNEMP	C	Unemployment	Unemployed per 100 inhabitants	Bernhard (1996)
WASTE	D	Waste	Waste generated per year in 1,000 tonnes *per capita*, excluding municipal waste	Kono et al. (2018); Sdoukopoulos et al. (2019)
WATER	D	Water consumption	Consumption of water *per capita*	Evans et al. (2009)

Source: Own elaboration

Abbreviations: C – civil society, H – human capital, I – information society, S – social/spatial justice, D – sustainable development

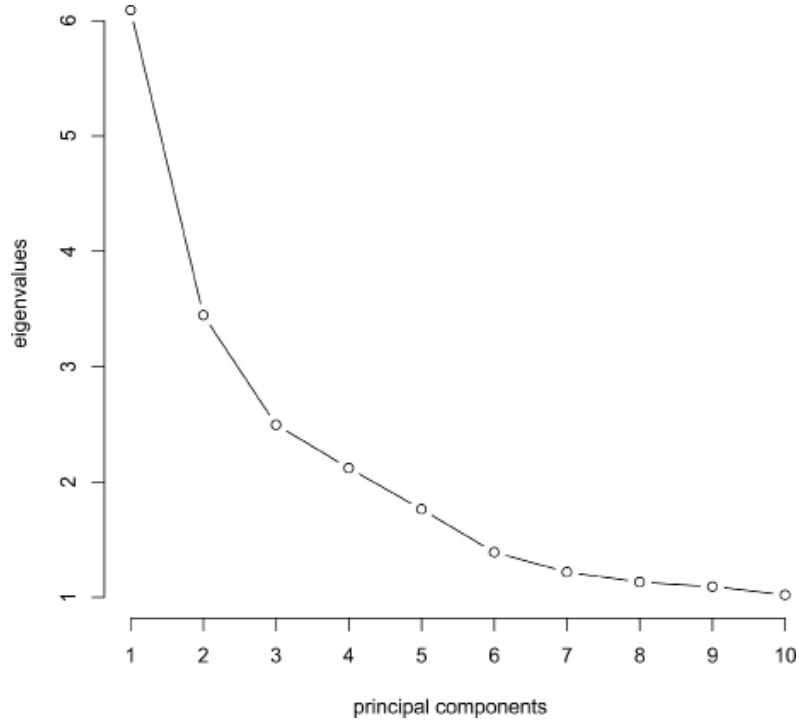

Fig. 1. Eigenvalues of principal components describing measures of local development
Source: own elaboration

H1 is rejected. Otherwise, PB needs to be understood as an effect of development, and H1 is confirmed.

4. Results

In total, 96 municipalities implementing PB procedures in rural areas were identified in Poland. The largest number of such communes was found in Wielkopolskie voivodeship (20), with slightly fewer in Zachodniopomorskie (13), Małopolskie (11) and Dolnośląskie (10), with only single communes in Łódzkie and Podlaskie voivodeships. No communes implementing PB procedures were identified in Lubelskie voivodeship. Only 16 municipalities among all 96 included in this research are rural (most located in Śląskie voivodeship), while the other municipalities are urban–rural. In the spatial distribution of communes implementing participatory budgets in rural areas, there are clearly more communes located in western Poland. As indicated by Stypułkowski (2012) this part of Poland is characterised by a high level of civic activity.

The average percentage of funds allocated to the participatory budget in total budgetary expenditures is 0.5% (Fig. 2). The municipality that allocated the biggest part of its municipal budget to participatory budget is Supraśl (6% in 2017). Generally, the richer a municipality is (according to municipal expenditure per inhabitant), the bigger the part of the municipal budget allocated to participatory budget.

The average value of participatory budget *per capita* is approximately PLN 25 (Fig. 3). In rural units, this value ranges between PLN 6 and 44. The highest value was noted in the municipality of Supraśl (approximately PLN 293 of participatory budget value *per capita*). This might be compared with the biggest cities, like Warsaw (PLN 39 *per capita*), or Łódź (PLN 57 *per capita*). In six urban–rural municipalities no rural project was approved to be granted by participatory budget.

The number of rural projects reported per 1,000 population indicates primarily the level of community activity and involvement in local affairs. The analysis shows that the smaller the commune, the higher the activity of residents and their likeliness to submit projects for voting (Fig. 4).

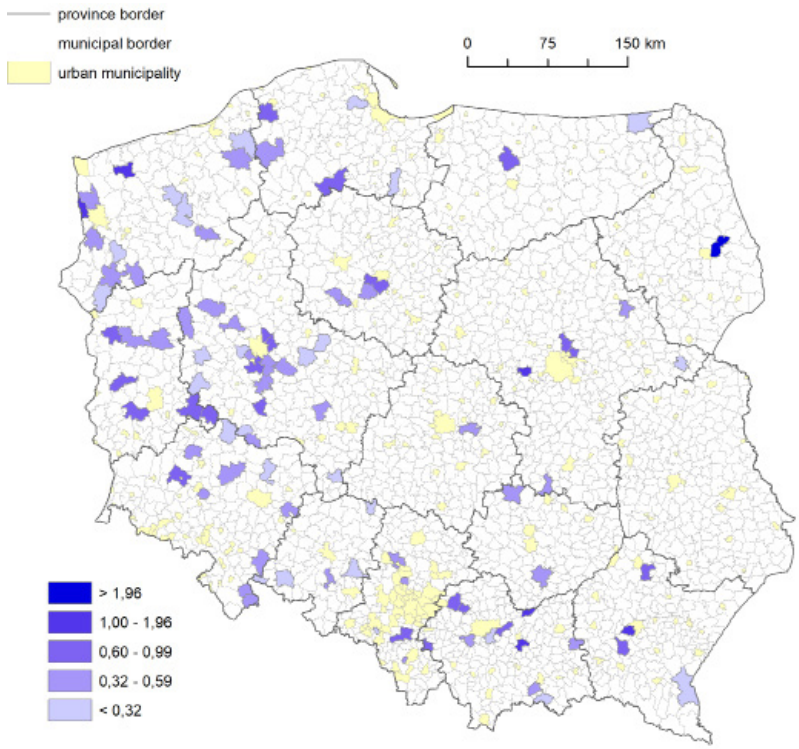

Fig. 2. Percentage of funds allocated to participatory budget in total budgetary expenditures in municipalities implementing a participatory budget in rural areas in 2017
Source: own studies based on data from Head Office of Geodesy and Cartography, Local Data Bank and municipal Public Information Bulletins

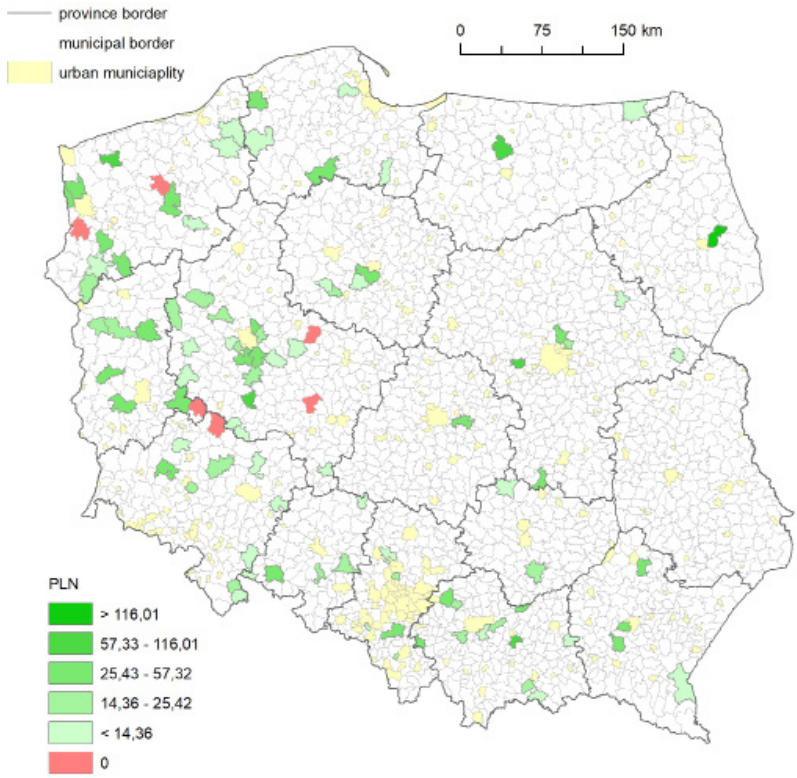

Fig. 3. Amount of funds allocated to participatory budget for the rural part, per 1 inhabitant of the rural area in municipalities implementing participatory budgets in 2017
Source: own studies based on data from Head Office of Geodesy and Cartography, Local Data Bank and municipal Public Information Bulletins

As procedures of participatory budgeting are significantly differentiated, and the lack of information about voter turnout is substantial, the number of people voting for projects in participatory budgets compared to the total number of inhabitants was considered (Fig. 5). The highest rate of voter participations (above 30%) was found in the smallest municipalities (below 15,000 inhabitants).

Predictors of all of the discussed variables describing implementation of PB in rural Poland were converted into a set of five uncorrelated principal components. The highest contribution to the first principal component was evidenced for the variables related to the following contexts of development: social/spatial justice, and sustainable development. The demographic aspect of both of these contexts should be emphasised. The second principal component is mainly contributed to by sustainable development, especially its economic aspects. However, the contribution of both human capital and social/spatial justice needs to be noted as well. Variables related to human capital contribute significantly but negatively to the third principal component. The fourth principal component relates to the information society as the most substantial context of development. Finally, sustainable development contributes significantly to the fifth principle component. However, this contribution is negative and influenced mainly by the variables describing infrastructure and living. Thus, the notation for these principal components needs to be as follows: PC1 – social/spatial justice and sustainable development (demographic aspect), PC2 – sustainable development (economic aspect), PC3 – loss of human capital, PC4 – development of information society, and PC5 – erosion of sustainability (infrastructural aspect). The principal components under consideration explained 56.0% of variance of all investigated variables describing all categories of development: social/spatial justice, civil society, human capital, information society and sustainable development. Thus, particular contexts of the mentioned categories might have been missed, which constitutes the main limitation of the study.

Semi-logarithmic models were estimated for both of the considered categories of dependent variables describing implementation of PB in rural Poland: "top-down" – related to the effort that local

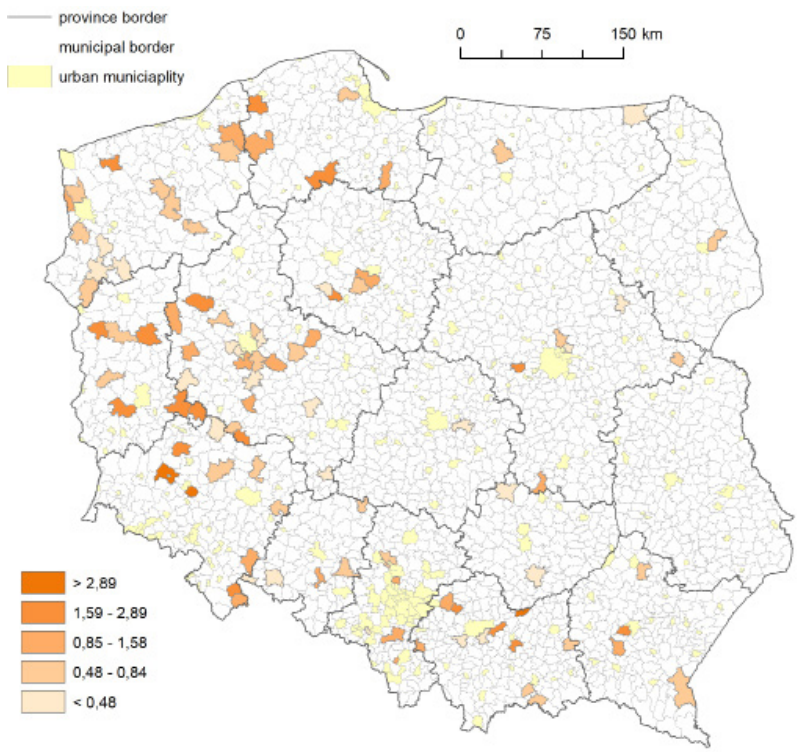

Fig. 4. Number of submitted rural projects per 1,000 inhabitants of a rural area in municipalities implementing participatory budgets in 2017

Source: own studies based on data from Head Office of Geodesy and Cartography, Local Data Bank and municipal Public Information Bulletins

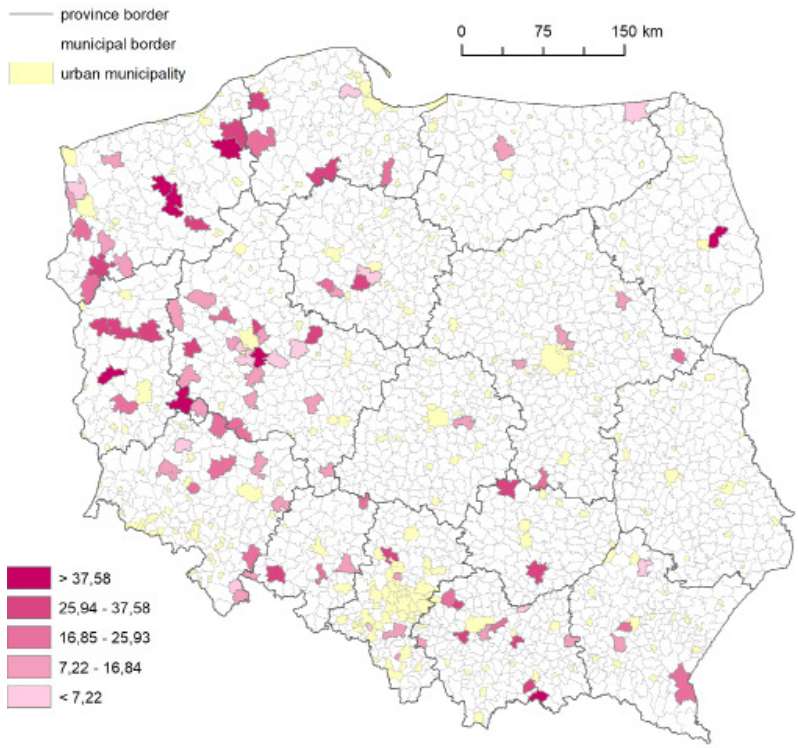

Fig. 5. Voters for projects in participatory budgets as a percentage of total inhabitants in municipalities implementing participatory budgets in rural areas in 2017
Source: own studies based on data from Head Office of Geodesy and Cartography, Local Data Bank and municipal Public Information Bulletins

authorities put in to implementing PB, and "bottom-up" – referring to the attitude of inhabitants of rural areas towards PB. The estimated coefficients of independent variables and the coefficients of determination are presented in Table 3. All of the considered contexts of development barely explained the implementation of PB. The coefficients of determination range from 6.6% to 18.0%. However, the coefficients of determination for models estimated for "bottom-up" variables depicting PB are significantly higher. This confirms hypothesis H1, that PB is an effect of the development processes rather than a tool for achieving development goals.

Interestingly, in communes characterised by lower levels of human capital, local authorities shift more resources to PB. In parallel, these communes have more rural projects submitted. This confirms that local actors are aware of the low level of human capital and believe that PB actions might stimulate expected changes. Thus, low level of human capital is confirmed as a catalyst for both local authorities and actors to implement PB. By contrast, the level of local human capital does not influence voter turnout related to PB implementation.

The demographic aspects related to social/spatial justice and sustainable development are significant negative determinants of the percentage of inhabitants who vote in PB. This confirms that the worse the demographic situation, the more inhabitants are interested in PB. Interestingly, social/spatial injustice might significantly stimulate social involvement. On the other hand, the economic aspect of sustainable development has an influence on local actors: the better the economic situation, the more PB project proposals are submitted. Local actors utilise the economic advantages of rural areas to increase the number of "bottom-up" initiatives and actions.

Finally, the level of information society development significantly stimulates social participation. This confirms that technology, once enabled and accepted, supports processes related to social involvement, including PB. The higher the level of information society, the higher the voter turnout re-

Table 2. Contribution of original independent variables describing various contexts of local development to principal components

Variable	Contexts of development	PC1	PC2	PC3	PC4	PC5
TRANS	S, D	0.240	-0.028	0.068	-0.155	0.070
ENROL	I, H	-0.076	0.090	-0.395	0.248	0.121
PROTA	D	-0.100	-0.041	0.270	0.032	0.377
COMPL	I	-0.053	0.170	0.070	0.437	-0.254
PSAFE	D, H	0.124	0.331	0.080	0.096	-0.098
BIRTH	D	0.319	-0.133	0.038	0.200	0.126
MUEXP	C, I, S, D, H	0.284	0.310	0.143	-0.054	0.033
VOTTR	C, S, D	0.287	-0.185	-0.122	0.078	0.168
ONLIL	I	-0.016	0.076	0.099	0.453	-0.143
EDEXP	S	0.275	0.132	0.008	0.166	0.040
HLTEX	S, H	0.139	0.423	-0.125	-0.145	0.050
DCONS	S, H	-0.091	0.088	-0.471	0.093	0.109
ENCOM	I	0.208	-0.179	-0.168	-0.017	-0.016
ITCEX	I	0.001	-0.036	-0.125	0.168	0.089
WIFIL	I	-0.067	0.094	0.089	0.339	-0.360
LDEVP	D	0.108	0.077	-0.109	0.093	0.283
MTREX	S, H	-0.068	0.124	-0.412	0.199	0.155
DBATH	D	0.243	-0.041	-0.068	0.001	-0.300
ARTME	C, H	-0.073	0.060	0.142	0.235	0.141
DEATH	D	-0.305	0.133	-0.037	-0.148	-0.106
NGORG	C, S, D	-0.126	0.218	-0.010	-0.055	0.109
MUREV	D	0.270	0.324	0.120	-0.087	0.004
PRIVS	S	0.215	-0.150	0.091	0.067	0.098
PBEXP	I, S, D	0.114	-0.070	0.279	0.264	0.299
BICLN	D	0.120	-0.096	-0.248	-0.039	0.054
CRTIV	H	0.172	-0.195	-0.150	0.039	-0.126
UNEMP	C	-0.259	0.070	0.122	-0.037	0.090
WASTE	D	0.139	0.410	-0.069	-0.164	0.078
WATER	D	0.201	-0.080	-0.089	-0.126	-0.420

Abbreviations: C – civil society, H – human capital, I – information society, S – social/spatial justice, D – sustainable development

Source: own elaboration

Table 3. Impact of various contexts of local development on implementation of participatory budgeting in rural Poland, in 2017

Predictors	"Top-down" characteristics of PB		"Bottom-up" characteristics of PB	
	ln PBINB	ln PBRUR	ln RURPR	ln VTRTP
Intercept	**** -0.798	**** 2.838	*** -0.192	**** 2.802
PC1 – social/spatial justice and sustainable development (demographic aspect)	0.025	0.042	0.015	*** -0.091
PC2 – sustainable development (economic aspect)	-0.041	-0.056	* 0.078	0.013
PC3 – loss of human capital	** 0.090	* 0.120	*** 0.157	0.019
PC4 – development of information society	-0.056	-0.066	* -0.085	** 0.101
PC5 – erosion of sustainability (infrastructural aspect)	0.008	0.016	-0.063	0.015
R2	0.078	0.066	0.180	0.143

*Significance codes: 0 '****' 0.001 '***' 0.01 '**' 0.05 '*' 0.1 ' ' 1*

Source: own elaboration

lated to PB implementation. Meanwhile, local actors are aware of the low level of information society and utilise PB procedures to increase it. The highest number of submitted rural projects per 1,000 inhabitants of a rural area was evidenced in the most disadvantaged communes in terms of information society development.

5. Discussion and conclusions

It was confirmed in this research that PB is an effect of the development processes rather than a tool for achieving development goals. This was also evidenced by Weber et al. (2015), who found that pre-existing civic infrastructure and participation determines the implementation and perception of PB. The presence and interest of civil society organisations were indicated by Tibaijuka (2008) as a necessary condition for efficient implementation of PB. Efficient communication and mutual trust between local authorities, local actors and inhabitants, as well as joint willingness to use PB are required for successful implementation of PB (Tănase, 2013). Moreover, PB might be the result of decentralisation processes (Kalisiak-Mędelska, 2016). Exceptionally, a low level of human capital was confirmed as a factor stimulating local authorities and actors to implement PB in rural communes in Poland.

It was confirmed that social/spatial injustice might significantly stimulate social involvement. This should be confronted with findings from Zamboni (2007), who argued that PB is not a sufficient condition for improvement in governance. However, it might enable residents to redistribute resources more equitably, more in accordance with social/spatial justice values. Interestingly, social/spatial justice and demographic aspects of sustainable development contributed concurrently to the same principal component. This is in line with results from Madanipour et al. (2017), who confirmed that social/spatial justice is strongly related to the concept of sustainable development.

The economic aspect of sustainable development was evidenced as a significant stimulant influencing local actors. Achieving economic goals of sustainable development affects the number of submitted PB project proposals. This confirms that local actors utilise the economic advantages of rural areas to increase the number of "bottom-up" initiatives and actions. This is in line with findings from Primmer and Kyllönen (2006), who evidenced that the contribution of new forms of participation to development might be effective when sustainable development goals are widely accepted and implemented.

If not, frustration and scepticism over the conflicts between participants, their ethics and values, might arise. Conversely, Friant (2017) emphasised that the participatory model of decision-making can bring an environmentally sustainable form of development. Moreover, PB procedures can affect sustainable development by unifying social engagement and environmental improvements (Bernaciak et al., 2017).

Finally, the development of information society in rural Poland supports processes related to social involvement, including PB. It was also confirmed by Allegretti (2011) that the development of information society was evidenced as a factor simplifying the organisation of participatory processes and bringing larger numbers of "bottom-up" initiatives to the process. Meanwhile, local actors are aware of the low level of information society and utilise PB procedures to increase the level. PB might be considered an innovative tool for managing the provision of public services (Džinic et al., 2016).

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