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Does intense tax competition boost public acceptance for inter-municipal cooperation? Evidence from a survey among German citizens and local politicians

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ABSTRACT

Intense tax competition among local governments limits their potential for tax revenues. Inter-municipal cooperation (IMC) in general and joint business parks in particular constitute a platform to coordinate local tax rates with neighboring municipalities to reduce tax competition. We ask whether local politicians and citizens are aware of this logic and whether they account for it. Using survey data from German municipalities, we find citizens' support for joint business parks to increase in the intensity of tax competition but not for other forms of IMC. For local politicians, we do not find any effect of tax competition on IMC support.

1. Introduction

The vast majority of studies on inter-municipal cooperation (IMC) has focused on its potential to save costs by generating economies of scale and scope or to coordinate infrastructure with inter-regional spillovers (e.g. Bergholz and Bischoff 2018; Hulst and van Montfort 2007; Swianiewicz and Teles 2018). In these studies, the major benefit pertains solely to the service that is produced jointly. A small yet important branch of the literature on IMC takes a different perspective and argues that – beyond joint service provision – IMC-arrangements serve as a platform to coordinate inter-local policies (e.g. Di Liddo and Giuranno 2016). In other words, IMC is seen as a form of collusive behavior (e.g. Bischoff, Melch, and Wolfschütz 2021).

Tax policies play a particular role in this respect. By coordinating local tax policies, municipalities can mitigate the consequences of over-intensive competition and thereby increase efficiency (e.g. Wilson 1999). On the other hand, tax coordination may mitigate yardstick competition and allow opportunistic governments to extract rents (e.g. Besley and Case 1995). In the latter case, IMC is no longer welfare-enhancing but may be detrimental to public sector efficiency and the accountability of local governments. It is immediately obvious that – other things equal – the incentives to engage in IMC for

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collusive reasons are higher in regions with intense intra-regional tax competition (Bischoff, Melch, and Wolfschütz 2021).

In this paper, we ask whether citizens and local politicians are aware of this logic and whether they account for it. In other words: Are citizens and/or local politicians in municipalities that suffer from intense tax competition more likely to support IMC? We rely on two surveys on the base of a matching questionnaire to elicit the attitudes towards IMC among citizens and local politicians. The surveys cover 58 German municipalities and include responses of 999 citizens and 589 members of the municipal council ("local politicians").

We analyze the impact of tax competition on citizens' and politicians' preferences for IMC in four different services. A special focus rests on joint business parks because they inhabit the main payers of local business taxes and are thus more directly related to (business) tax competition. Moreover, joint business parks constitute a particularly suitable platform for tax coordination (e.g. Bischoff, Melch, and Wolfschütz 2021). Thus, we expect the impact of tax competition on preferences for IMC to be particularly strong here.

Our results support this conjecture partly: The intensity of intra-regional tax competition is found to drive citizens' preferences for joint business parks but not for other types of IMC. For local politicians, intra-regional tax competition does not prove significant for any type of IMC.

Our contribution to the literature is twofold. First, we add to the still very scarce literature on citizens' and local politicians' preferences for IMC. To our knowledge, we are the first to examine the connection between tax-competition and IMC preferences. In times when digitalization massively widens the scope of IMC in general and environmental restrictions limit the continuous expansion of land use for even more business parks, this knowledge is important – both scientifically and politically. Second, tax expansion is not just another factor of IMC-formation in an already large line of drivers of IMC. Instead, it links the literature on IMC to the broader literature on the role of fiscal decentralization – emphasizing that the effect of IMC may not be restricted to the jointly provided public service and that IMC may be detrimental to efficiency and accountability.

The paper proceeds as follows. Section 2 reviews the relevant literature before section 3 presents the hypotheses. The institutional background, the data including the used surveys and the variables are described in section 4. Section 5 presents the empirical strategy as well as the results and section 6 contains the discussion – followed by the conclusion in section 7.

2. Literature review

We are not aware of any study that addresses the influence of tax competition on citizens' or local politicians' preferences for IMC. However, there are a few studies that account for two of the three concepts (tax competition, preferences for IMC). This literature is reviewed here.

Agren et al. (2006) compare the preferences for public spending among local politicians and their electorate in Sweden. They find politicians to prefer higher spending than voters – even after controlling for differences in personal characteristics. The difference is

particularly high for expenditures with low salience. While the study does not analyse preferences for local tax rates explicitly, the results imply that politicians also prefer higher tax rates. Ashworth and Heyndels (1997) analyze local politicians' attitudes towards and beliefs about local taxes. In a survey among 683 Flemish local politicians, they find the evaluation of the local land tax to depend on the tax rate of neighboring municipalities. This suggests that local politicians understand the political costs of having higher taxes than their neighbors.

A few studies directly analyze the factors driving preferences for IMC at the local level.[1] Strebel and Kübler (2021) use survey data from eight metropolitan areas in Europe to learn more about citizens' attitudes towards IMC. They find roughly 70% of citizens agreeing with that IMC is "a good way to deal with problems in their metropolitan area". The respondents' factual or emotional attachment to their locality is found to play a minor role and socio-economic characteristics of the metropolitan regions are not found to have any significant impact. One restriction of this study however is that it only asks for citizens' very general view on IMC as distinguished from asking whether they support IMC by their own municipality.

This is precisely the question raised in the survey of Bergholz and Bischoff (2019). They ask citizens if their home municipality should cooperate with one or more of their neighboring municipalities in four specific local services (childcare, household-related infrastructure, construction yard, public administration). The respondents come from three rural German counties. Between 37 and 60% of the respondents support a strong cooperation of their municipalities with neighboring municipalities. Support for IMC primarily depends on the individual factors while municipal factors such as the fiscal situation or the average travel time to the neighboring municipalities are found to play a minor role.

In a parallel study, Bergholz and Bischoff (2018) use a largely identical survey to elicit the support for IMC among local politicians. Support for IMC is a little lower – ranging between 33 and 58%. Politicians belonging to the mayor's fraction are less supportive of IMC – suggesting that IMC is associated with a loss of power these politicians try to avoid. Unlike among citizens, municipal factors play an important role in shaping local politicians' support for IMC. In particular, politicians seem to account for the fiscal situation of their home municipality, for the relative size of their home municipality compared to its neighbors.

Finally, there are a few studies addressing the relationship between tax competition and IMC. Di Liddo and Giuranno (2016) analyze the relationship in a theoretical model. They show that opportunistic local politicians may use IMC as a platform to coordinate policies and thereby eliminate yardstick competition. Other things equal, governments of cooperating municipalities can extract more rents without jeopardizing their prospects of re-election. This form of collusion is clearly to the disadvantage of the citizens.

Bischoff, Melch and Wolfschütz (2021) point out that coordinating tax policies among the cooperating municipalities in an IMC-arrangement can help generate higher business-tax revenues. They argue that the incentives to join an IMC-arrangement for this purpose is especially high for municipalities that face intense tax competition. Joint business parks are particularly suitable platforms for this endeavor because agreeing on a joint business park automatically entails an agreement on a common quality of infrastructure and timing of land development. Using data on joint business parks in

West Germany between 2001 and 2018, they find the intensity of intra-regional business tax competition to drive the foundation of joint business parks.[2]

In this paper, we test whether the intensity of tax competition a municipality faces increases support for IMC among their citizens and local politicians. We analyze this question for citizens as well as for local politicians as well as for different fields of IMC, namely joint business parks and joint construction yards. The analysis builds on the surveys run by Bergholz and Bischoff (2018, 2019).

3. Hypotheses

IMC is an appropriate measure to generate economies of scale and scope and thus reduce the costs of local service provision – especially if they are capital-intensive (e.g. infrastructure provision: water, sewage disposal, municipal roads). On the other hand, IMC comes at the cost of less leeway in designing local services as services designed to serve citizens in numerous municipalities cannot be tailored to the specific needs of each particular municipality. Thus, citizens face a trade-off when deciding whether they should support IMC.

The literature on fiscal illusion (e.g. Grossman 1990) tells us that citizens are not fully aware of the true costs of local public service provision because they do not oversee the different types of revenues and how they contribute to these sources. Thus, they may be reluctant to support IMC because they clearly see the costs of making inter-local compromises while they do are not fully aware of the fact that reduced costs of service provision would benefit them individually. Other things equal, this awareness is lower the less local governments resort to local taxes salient to their citizens.

This is where tax competition comes in: Consider a country where local governments can tax local business next to a number of other local tax bases. Intense intra-regional tax competition limits the capacity of local governments to tax local firms. Thus, they must rely more heavily on the other tax bases to fund public services. The burden of these alternative taxes is generally born by the local citizens and thus much more salient for them than the local business tax. This is especially true for local real estate or land taxes that municipalities in many countries are entitled to levy (e.g. Bischoff and Wimberger forthcoming). Thus, other things equal, citizens in municipalities facing intense tax competition are more likely to support policy measures to reduce the costs of public service provision. IMC is one policy option in this respect.

This argument applies in a similar fashion to local politicians. Local politicians seeking for re-election are more likely to support policies that are also supported by the local electorate. Bergholz and Bischoff (2018) show that local politicians are concerned about giving up political power through IMC. The leeway and thus power of local politicians strongly depends on the financial funds they can resort to. It is substantially lower in municipalities facing intense tax competition. Thus, like their citizens, local politicians in municipalities facing intense tax competition are more likely to support cost saving policy measures – including IMC.

Bischoff, Melch and Wolfschütz (2021) point at a second channel through which tax competition is related to public support for IMC: Accordingly, IMC-arrangements create a platform where representatives of the cooperating municipalities meet on a regular basis. This platform can be used to coordinate policies –

among them local tax policies. This is especially useful for municipalities facing intense intra-regional tax competition. The benefits are present for citizens as well as for local politicians.

While the first argument applies to IMC in numerous different fields of government activities – e.g. sewage systems, construction yards or household-related infrastructure, Bischoff, Melch and Wolfschütz (2021) argue that the second argument is relevant for joint business parks. The reason builds on the literature on the stability of cartels (e.g. Feuerstein 2005). Applied to the context of IMC, the underlying logic implies that cartels are stable if municipalities can commit themselves not to circumvent a possible agreement on tax coordination by shifting the competition to the field of infrastructure quality or the time of finalizing it. By its very nature, joint business parks contain this form of commitment because municipalities agree on the quality and timing of land development. In most cases, they also agree on common marketing. Thereby, they neutralize races in land quality or timing of land development that competitors could otherwise reside to if tax rates are coordinated (e.g. Bischoff, Melch, and Wolfschütz 2021; Taylor 1992). This commitment does not come along with IMC-agreements in other fields of local government activities like sewage systems, construction yards or household-related infrastructure. Thus, an enforceable agreement on tax coordination is easier to reach if IMC takes the form of a joint business park. Therefore, joint business parks are a particularly attractive instrument to deal with the fiscal pressure from intensified tax competition.

The survey by Rubado (2022) shows that the strongest competitors of small and medium-sized municipalities are their close neighbors. Thus, the incentives for a politician or citizen to support a joint business park are driven by the competition within the cluster of his/her home municipality and its neighbors (hereafter intra-regional intensity of competition). Based on these arguments, we arrive at our first and main hypothesis:

H1: The more intense the intra-regional competition his/her home municipality faces, the more likely a local politician or citizen is to support joint business parks.

Next, we turn to the role of material self-interest of citizens. IMC is a way to save costs and thus, other things equal, reduce the future tax burden. The theory of tax incidence tells us that citizens who own a house in their resident municipality benefit more strongly from this reduction in tax burden than citizens without residential property. The lower the tax burden, the higher the value of their residential property – other things equal (e.g. Rosen, Gayer, and Civan 2014). Thus, citizens with residential property are among the primary beneficiaries of cost-saving IMC.

H2: Citizens who own residential property in their home municipality are more likely to support joint business parks.

4. Institutional background and data

4.1. Institutional background

German municipalities provide important public services and have considerable leeway when choosing the quality and quantity of many of those services (Zimmermann 2009: 93–99). Vertical grants are the primary source of municipal revenues in West-Germany (e.g. Bischoff and Krabel 2017). The local business tax is the most important endogenous source of municipal revenues accounting for more than 20% of revenues in West Germany in 2015. Municipalities set the effective rate on profits of local business establishments by choosing the so-called tax multiplier. The latter is applied to a unified tax base. Similarly, they determine the rates of the local land taxes (e.g. Bischoff and Krabel 2017). Land taxes are imposed on agricultural and forested land (tax A) as well as on developed real estate and buildable ground (tax B) – the latter raising between 80 and 90% of the total land tax revenues. These in turn account for roughly 6% of total municipal revenues in Hesse. Tax multipliers vary substantially across space and time.

Business parks are an essential economic development tool by which municipalities can attract mobile capital (e.g. Peddle 1988, 1993). Successful business parks provide employment opportunities for the local population and increase the tax base from local business taxes (e.g. Taylor 1992). At the same time, the installation of local business parks is extremely costly and time-consuming. Moreover, municipalities compete for mobile capital and thus any investment in local business parks is risky (e.g. Bischoff, Melch, and Wolfschütz 2021; Taylor 1992). Finally, local business parks create regional spillovers because employment opportunities within new firms cannot be restricted to the hosting municipality just as little as the additional demand from the income generated by the new firms.

Municipalities have both the right to regulate the use of land within their borders as well as the right to autonomously set the land tax and the business tax rate. The German land-use regulation follows a principle of functional zoning much like the system of land zoning in the US (e.g. Hirt 2012). Municipalities can assign land to residential, agricultural or commercial/industrial purposes or to natural reserves. The plans for land usage must pass the municipal council and need approval by an upper-tier administration. Firms are restricted to operate largely on land which is dedicated to business activities (Büttner 2021).[3] Providing commercial land traditionally is the most important instrument of local economic development policy (Lehmann-Grube and Pfähler 1998). German municipalities actively develop business land after acquiring it from its owners (if not already owned by the municipality).[4] They also manage marketing and sale activities and take over ongoing management and/or maintenance tasks. This makes the development of business land an expensive and risky endeavor (Bischoff, Melch, and Wolfschütz 2021).

Joint business parks may serve as instrument to share costs and risks and to prevent over-investments in land devoted to business settlements. The benefits from coordinating land development for business purposes are especially high in regions exposed to intense tax competition because the net expected benefit from attracting additional business is lower than in regions with less intense competition (Bischoff, Melch, and

Wolfschütz 2021). Thus, municipalities in regions with intense tax competition can expect higher benefits from joint business parks.

While our main focus rests on joint business parks, we analyze three other forms of IMC for means of comparison. The first form are joint construction yards (German term "Bauhof"). They are responsible for the following services: maintenance/trimming of public green, construction/maintenance of municipal roads, road cleaning, acting as an auxiliary unit for other municipal administration units by providing maintenance services for the municipal vehicle fleet, doing construction work and storing voluminous or heavy materials. The average share of those aforementioned municipal services in the total operating costs ("Ausgaben des Verwaltungshaushalts") ranges around 9% for Hessian municipalities (Statistische Ämter der Länder 1998–2006). Second, we look at the field of public administration. It encompasses all administrative services that are primarily intermediate inputs for other municipal services (especially personnel administration, fiscal administration, IT services, public procurement, organizing local elections and the registry office (Bischoff and Wolfschütz 2021). The average share of these services in the total operating costs ranges around 8% (Statistische Ämter der Länder 1998–2006). Third, we include jointly run so-called household-oriented infrastructure – including sports and recreational facilities or village community centers.

4.2. The survey

We build on the data generated and used by Bergholz and Bischoff (2018, 2019). It stems from two matching online surveys among citizens and local politicians from all 58 municipalities in three Hessian counties (Landkreis Kassel, Werra-Meissner-Kreis and Odenwaldkreis) in summer 2013. The municipalities' fiscal capacity and per capita income is below the state average (for details, see Bergholz and Bischoff 2019). At the same time, not all municipalities in our sample are fiscally weak. There is substantial heterogeneity in population size and other municipal characteristics (see Table 1).

For the survey among citizens, we chose 30,000 citizens of the same three counties at random while we addressed all members of the local councils ($n = 1670$). All of them received a personalized invitation to participate in the online survey. The questionnaire asks participants elicits their policy preferences for IMC and their beliefs regarding the political impact of IMC. Later sections elicit subjects' political beliefs and personal characteristics. Local politicians were asked a few extra questions on their political activity.

In total 1,205 citizens and 589 local politicians from 58 municipalities completed the questionnaire. This provides us with an average of 20 citizens and 10 politicians per municipality – though the response rates differ substantially. Local politicians from free voter associations are slightly overrepresented, but there is no indication for a selection

Table 1. Descriptive statistics for involved German municipalities.

Variable	Observations	Mean	Std. dev.	Min	Max
Population size	59	7234.22	5199.837	635	27353
Fiscal capacity	59	531.4431	250.9118	0.07283	1022.589
Debt per capita	59	1.180851	0.906282	0.112	5.1194
Tax base per capita	59	58.47644	58.23728	4.72441	411.3991

Table 2. Main survey question and responses by local politicians and citizens.

What do you think? How intensively should your municipality cooperate with other municipalities?		
In establishing and operating business parks, my municipality should …	Frequencies in percent	
	Local politicians	Citizens
cooperate with one or more of the surrounding municipalities	63	65
only cooperate in attracting new firms (no joint business parks)	25	17
not cooperate at all	6	7
do not know	6	11

bias in the data on local politicians. Among citizens, male and better educated subjects and citizen with residential property are over-represented.

While the response rate is high among politicians, it is quite low among citizens. However, this low response rate is in line with a secular trend of deteriorating response rates in probability samplings that even well-known and highly professional polling institutions are currently facing when they address the general public (see e.g. Lavrakas et al. 2017). For example, the response rate for the Gallup Poll Social Series in 2017 was about 7% (Marken 2018) while the Pew Research Center reported a rate of 6% in 2018 (Kennedy and Hartig 2019). In Germany, well-known survey studies like ALLBUS or SOEP using face-to-face interviews realized in 2010/2011 – despite of a considerably higher amount of resources or financial incentives for respondents – only response rates of about 30% (Pforr et al. 2015, Table 2). To correct for any sampling biases, we report results for weighted regressions using the multinomial raking procedure developed by Deming and Stephan (1940) – a standard tool in opinion research.

4.3. Dependent variable

The main purpose of this paper is to identify the driving factors behind respondents' support for a joint business park in their home municipality. The corresponding survey question is presented in Table 2.

We employ a multi-level logit model to simultaneously estimate how the characteristics of the individual respondents and their home municipality shape their answers to the question whether they support IMC (see Table 2 for the specific question on joint business parks). The dependent variable is a dummy variable (*IMC*) that takes on the value 1 for subjects who support the first-named close cooperation (i.e. the formation of a joint business park (0 else). The approval for IMC in the other fields is calculated analogously. Table 3 reports the support rates for IMC across fields for citizens and local politicians.

Table 3. Support for close IMC among local politicians and citizens (in percent).

Field	Local politicians	Citizens
business parks	63	65
public administration	55	49
construction yards	51	59
household-oriented infrastructure	33	42

4.4. Explanatory variables

The explanatory variables comprise the respondents' individual characteristics and characteristics of their home municipalities. The former are taken from the survey while the latter are taken from official sources.

4.4.1. Main variables

Hypothesis 1 refers to the impact of intra-regional tax competition on respondents' preferences for IMC. Following Bischoff, Melch and Wolfschütz (2021), we use two measures for the intensity of intra-regional tax competition that build on local tax rates. Their advantage is that they provide a clear quantitative measure. Following the basic logic of the tax competition literature (e.g. Wellisch 2000; Wilson 1999), we use the multiplier of the local business tax (*business tax rate*) as well as the multiplier of the local land tax (B) (*land tax rate*). Economic theory predicts that municipalities facing intense competition for mobile capital will impose low taxes on capital (e.g. Wilson 1999). Thus, our main hypothesis translates into the following prediction: Support for joint business parks is higher in municipalities with low business tax rates. We also include that land tax multiplier because low taxes on business profits do – other things equal – imply higher taxes on immobile land and real estate (e.g. Wilson 1999). In a second specification, we add the median tax multipliers among the home municipality's direct neigbhors (*neighborhood median*). This variable serves as an indirect measure of tax competition. The lower the median tax multiplier for the business tax among the neighboring municipalities, the more intense tax competition the municipality faces.

Hypothesis H2 refers to citizens only – arguing that their material self-interest drives their preference for IMC. In particular, we expect citizens with residential property in their home community to be more supportive of IMC. We introduce a dummy variable *residential property* that is 1 for all subjects living in an owner-occupied house or flat (0 else). Hypothesis H2 predicts a positive coefficient for this variable.

4.4.2. Municipal controls

We control for a number of municipal characteristics that may drive the emergence of joint business parks (e.g. Bischoff, Melch, and Wolfschütz 2021). First, we control for the availability of a good transport connection – a widely recognized location factor (e.g. Möller and Zierer 2018) determining the accessibility and hence attractiveness of business parks. A dummy variable *motorway access* marks municipalities with a motorway junction within the jurisdictional borders. Bischoff and Krabel (2017) show that the locally dominant firms have an impact on local tax policies. We account for this aspect by controlling for the share of overall business tax payments coming from the largest four firms. We control for *the share of farmland* because we expect NIMBY-concerns to be stronger in municipalities where this share is low and thus additional land devoted to business purposes is more likely to be in the vicinity of citizens' homes.

We account for *population size*. Recent studies on the public opinion on jurisdictional mergers – the more thorough "cousin" of IMC – point at the importance of political efficacy. Empirical studies find support for mergers to be high among citizens who believe that external political efficacy, i.e. perceived responsiveness of the political system to citizens' needs (e.g. Blesse and Heinemann 2020; Strandberg and Lindell 2020). The

relative weight that the politicians representing their home municipality have in the board that manages joint service provision under the IMC-arrangement is a good proxy for the perceived responsiveness of the board to the interest of this municipality. Cooperative game theory suggests that this weight is large if the municipality is relatively large compared to the neighboring municipalities and it is small in the opposite case (Brasington 1999; see also Bergholz and Bischoff 2018, 2019). To control for this aspect, we introduce the number of neighbors a municipality has that have at least four times the population size (*No. larger neighbors*).

We control for the debt per capita in the respondents' home municipality (*debt per capita*) and for its *fiscal capacity* (tax revenue from tax sharing [income- and value-added taxes] per capita). Thirdly, we include *tax base per capita* which depicts per capita tax revenue from local business tax.

We also control for expected political transaction costs of negotiating and running a joint local business park using the number of neighboring municipalities whose mayor is supported by the same political party as the mayor in the respondent's home municipality (*no. neighbors same mayors party*). We include *turnout* of the last municipal election. It captures the level of social capital within a municipality and the level of external political efficacy.

4.4.3. Individual-level covariates (citizens and local politicians)

The literature on economic policy reforms (e.g. Rodrik 1996) tells us that citizens' trust is an important driver of their support for political reforms. This is likely to be relevant in the case of citizens' support for joint business parks as well. However, the direction of the relationship between trust and support for cooperation is not clear ex ante. First, one may argue that citizens who trust their government may be more likely to support a joint business park because they do not expect politicians to operate opportunistically. On the other hand, citizens who trust local politicians may be reluctant to see their trusted government share political power with other agents (e.g. Bergholz and Bischoff 2019). To accommodate this aspect, we ask citizens and local politicians for their trust in (other) local politicians. The dummy variable *trust local politics* takes on the value 1 if respondents trust local politicians much or very much, 0 otherwise.

Social cohesion is intensified by the active role that local clubs ("Vereine") play in social life in rural Germany (e.g. Schneider 1994). The variable *active* marks citizens (and politicians) who are active members of local sports clubs, cultural initiatives, the local fire brigade etc. We expect citizens active in such initiatives to be more attached to their home municipality than non-active citizens (Bergholz and Bischoff 2019).[5]

We control for subjects' beliefs regarding the political impact of joint business parks using the dummy variable *IMC reduce influence*. It takes on the value 1 for respondents who strongly support the notion that citizens' control and influence decreases in the case of cooperation (0 else). Citizens and politicians sharing this belief are expected to be more skeptical about forming joint business parks. The opposite is true for citizens who believe that IMC lowers costs and/or increases service quality. The dummy *IMC positive effect* takes on the value 1 for respondents who strongly believe in the aforementioned effects (0 else).

Finally, we control for respondents' sex (dummy *female), age* and *household income*. The variable *high education* takes on the value 1 for subjects who have a high-school diploma and 0 for all others.

Bergholz and Bischoff (2018) argue that politicians are more reluctant to support IMC the more powerful they are and thus the more power they lose in the case of IMC. Three variables capture this aspect in the regressions on local politicians. The dummy variable *belongs to mayor's fraction* that takes on the value 1 for politicians who belong to the party that proposed the mayor (0 else) and thus more powerful. The same holds for local politicians who hold an important position in the local council, e.g. being party leader or chair of the municipal steering and finance committee ("Haupt- und Finanzausschuss"). The dummy variable *position in council* marks these individuals. Politicians who do not plan to run for office in the next term have less power to lose than those planning to run again. The dummy *go for office* again takes on the value 0 for the former and 1 for the latter. We expect a negative coefficient for all three dummy variables. We also include a dummy *IMC loss power* that directly measures local politicians agree to the statement that politicians prevent intensified IMC because this means a loss in power for them (0 else). The variable *years of office* serves as a proxy for political experience. Finally, we introduce party fixed effects to account for differences in political ideologies.

5. Empirical analysis

5.1. Empirical strategy

In our dataset, individuals (local politicians and citizens) are nested in 58 German municipalities. Thus, the data structure is clustered and hierarchical. For this kind of data, one adequate regression method is multi-level modeling. It assumes that individuals belonging to a certain group (in our case municipalities) are more similar regarding a certain outcome than individuals from other municipalities. Related to this paper, it can be for example due to various experiences with IMC or different levels of pressure to act to save costs across municipalities. To put it differently, in such a data structure, observations are not independent of each other; they rather depend on the municipality they belong to. Furthermore, multi-level models allow differentiating how much of the variation of the outcome variable can be explained by variations in the municipality characteristics and how much is due to individual variation, because it simultaneously takes municipality and individual level factors into account (Hox, Moerbeek, and van de Schoot 2017).

For our analyses, we apply the following multi-level logit model-

$$IMC_{ij} = \gamma_{00} + X_{ij} + Z_j + u_{0j} + \varepsilon_{ij} \tag{1}$$

where IMC_{ij} represents our dichotomous dependent variable that is 1 for individuals who support cooperation. At the right-hand side of the equation, γ_{00} denotes the mean of the intercepts across municipalities. The matrix X_{ij} comprises all individual-level variables that vary across individuals (i) from all municipalities (j) as the subscript $_{ij}$ suggests. The matrix Z_j represents all municipal-level variables. The error terms u_{0j} and ε_{ij} indicate the municipal-level as well as the individual-level residuals. Monetary variables, age and population size were expressed in logs.

To account for the low response rate among citizens we need to weight our data to account for non-response bias. We use a standard weighting tool in opinion research for the sample responses: multidimensional raking which Deming and Stephan (1940)

originally developed. In contrast to one-dimensional weights, raking combines several characteristics of the underlying total population into one weighting measure (Elliot 1991). Our weights account for differences between respondents and the overall population with respect to sex, nationality, level of education and residential property as well as for municipal-differences in response rates.[6]

To test our hypotheses, we apply the following three-step estimation strategy. First, to find out if our data structure is suitable for multi-level analysis, we test if our data has substantial clustering. To do so, we employ a so-called intercept-only model, which only consists of the dependent variable and no other explanatory variables but allows the intercept to randomly vary across municipalities. We then test it against a usual logit model that does not allow the intercept to vary across municipalities. A likelihood ratio test that compares the multi-level logit model to an ordinary logit model confirms that there is significant variation between municipalities regarding local politicians' as well as citizens' support for IMC, which gives rise to use multi-level logit regression models (Hox, Moerbeek, and van de Schoot 2017).

In the second step, we split the sample into local politicians and citizens to test our hypotheses which are presented in Table 4 (citizens) and Table 5 (local politicians). We conduct the regressions for the preference for joint business parks (column 1) and compare them with preferences for IMC in the other fields, public administration, construction yards and household-oriented infrastructure (columns 2–4).

In the final step, we replicate step 2 and conduct an alternative measure for local tax competition. To do so, we add the direct neighbors' median spatial lag of the business tax rate and of the land tax rate of municipality j to the regression models. These four measures in a single model represent a local tax competition cluster in which municipality j is located. The results of this approach are analogously reported for citizens in Table 4, columns 5–8 and for local politicians in Table 5, columns 5–8.

5.2. Results

In the description of the results, we predominantly focus on the variables related to our hypotheses and refrain from putting effort into discussing the results of the control variables. In our regression tables, we highlight the variables that test our hypotheses in bold.

In contrast to the other fields, we find the expected negative impact of the *business tax rate* in the field of joint business parks for the citizens subsample. The result holds for both tax competition specifications (Table 4, columns 1 and 5) and gives rise to hold H1. However, we have to reject H1 for the local politicians' subsample. There is no significant relationship between the local tax competition measures and support for joint business parks, nor for other fields.

Testing the self-interest hypothesis H2, we find evidence for the citizens. Compared to the other fields, there is only a positively significant influence of the variable *residential property* on IMC for joint business parks. The result suggests that citizens who possess residential property are more supportive of IMC than those who do not. The result holds for both local tax competition specifications (Table 4, columns 1 and 5). However, we have to reject H2 for local politicians. None of our estimated regression models provide a significant relationship.

Table 4. Results from the weighted multi-level logit regression models for citizens.

	standard specification				cluster specification			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	business parks	public administration	construction yard	household-oriented infrastructure	business parks	public administration	construction yard	household-oriented infrastructure
Municipal-level variables								
business tax rate (log)	−12.34**	−4.444	2.630	1.079	−11.41**	−3.506	2.806	0.866
	(5.215)	(5.850)	(4.732)	(3.381)	(4.758)	(5.263)	(4.597)	(3.405)
land tax rate (log)	−0.393	0.305	−0.335	0.607	−1.221	−0.682	−1.150	0.874
	(1.845)	(2.492)	(2.215)	(2.024)	(1.972)	(2.463)	(2.117)	(1.948)
spatial lag business tax rate (log)					−0.524	−2.236	−5.576	0.837
					(8.783)	(9.675)	(7.130)	(7.024)
spatial lag land tax rate (log)					3.033	3.696	3.335	−1.014
					(2.618)	(2.493)	(2.991)	(2.690)
debt per capita (log)	0.660	0.291	−0.0135	0.162	0.564	0.227	0.0586	0.171
	(0.417)	(0.362)	(0.303)	(0.283)	(0.422)	(0.488)	(0.355)	(0.304)
fiscal capacity (log)	−0.159	−0.0914	0.0779	0.0291	−0.156	−0.0918	0.0699	0.0296
	(0.105)	(0.0741)	(0.0871)	(0.0640)	(0.103)	(0.0709)	(0.0854)	(0.0621)
tax base per capita (log)	−0.100	−0.458	−0.0709	−0.0254	−0.0867	−0.443	−0.0595	−0.0295
	(0.304)	(0.326)	(0.552)	(0.257)	(0.306)	(0.326)	(0.557)	(0.254)
share large firms	0.0629**	0.0291	−0.0116	−0.0308*	0.0685***	0.0383	0.00222	−0.0337
	(0.0246)	(0.0306)	(0.0233)	(0.0181)	(0.0236)	(0.0275)	(0.0230)	(0.0207)
motorway access	0.232	0.453	−0.277	−0.0662	0.128	0.360	−0.288	−0.0456
	(0.637)	(0.501)	(0.425)	(0.465)	(0.605)	(0.520)	(0.481)	(0.490)
share farm land	0.0291	0.0301	−0.0133	0.0182	0.0370	0.0362	−0.0162	0.0171
	(0.0280)	(0.0228)	(0.0249)	(0.0202)	(0.0327)	(0.0283)	(0.0293)	(0.0250)
population size (log)	1.040***	0.253	0.0696	0.563	1.142***	0.371	0.170	0.531
	(0.357)	(0.407)	(0.569)	(0.352)	(0.363)	(0.406)	(0.543)	(0.336)
no. larger neighbors	−0.164	0.0189	−0.352	0.262	−0.146	0.0505	−0.299	0.251
	(0.212)	(0.273)	(0.342)	(0.208)	(0.173)	(0.236)	(0.336)	(0.205)
no. neighbors same mayors party	0.314**	−0.0324	0.0588	−0.130**	0.298**	−0.0417	0.0805	−0.130
	(0.125)	(0.0867)	(0.0977)	(0.0604)	(0.146)	(0.117)	(0.117)	(0.0858)
turnout	0.0654*	−0.0136	0.00137	−0.0240	0.0710*	−0.00717	0.00595	−0.0256
	(0.0366)	(0.0491)	(0.0492)	(0.0468)	(0.0379)	(0.0474)	(0.0510)	(0.0438)
Individual-level variables								
residential property	0.801**	−0.0538	0.758*	0.0113	0.801**	−0.0541	0.758*	0.0114
	(0.367)	(0.442)	(0.436)	(0.298)	(0.367)	(0.442)	(0.436)	(0.298)
female	0.00417	0.0347	0.00719	−0.354	0.00406	0.0347	0.00723	−0.354

(Continued)

Table 4. (Continued).

Variables	standard specification				clusters specification			
	(1) business parks	(2) public administration	(3) construction yard	(4) household-oriented infrastructure	(5) business parks	(6) public administration	(7) construction yard	(8) household-oriented infrastructure
	(0.255)	(0.274)	(0.253)	(0.281)	(0.254)	(0.273)	(0.253)	(0.281)
age (log)	-1.601***	1.272***	-0.0703	0.808	-1.601***	1.272***	-0.0703	0.808
	(0.524)	(0.452)	(0.527)	(0.584)	(0.524)	(0.452)	(0.527)	(0.584)
high education	-0.0568	0.640**	0.441*	0.805***	-0.0568	0.640**	0.441*	0.805***
	(0.272)	(0.255)	(0.239)	(0.247)	(0.272)	(0.255)	(0.239)	(0.247)
household income	0.331	0.678**	0.174	-0.296	0.331	0.679**	0.175	-0.296
	(0.295)	(0.321)	(0.282)	(0.249)	(0.295)	(0.321)	(0.282)	(0.250)
active	-0.376	-0.610*	-0.664**	-0.637**	-0.377	-0.610*	-0.664**	-0.637**
	(0.286)	(0.333)	(0.286)	(0.300)	(0.286)	(0.333)	(0.286)	(0.300)
trust local politics	-0.366	-0.479*	-0.512**	-0.287	-0.366	-0.479*	-0.512**	-0.287
	(0.255)	(0.268)	(0.209)	(0.218)	(0.255)	(0.268)	(0.209)	(0.218)
IMC positive effect	1.009***	1.603***	1.322***	1.322***	1.009***	1.603***	1.323***	1.322***
	(0.352)	(0.316)	(0.260)	(0.269)	(0.352)	(0.316)	(0.260)	(0.269)
IMC reduce influence	-0.456	-2.009***	-1.399***	-1.506***	-0.457	-2.010***	-1.400***	-1.505***
	(0.407)	(0.623)	(0.389)	(0.370)	(0.407)	(0.623)	(0.389)	(0.370)
Constant	63.33**	11.89	-14.02	-15.25	46.02	1.592	1.874	-14.02
	(25.57)	(24.28)	(23.72)	(15.10)	(46.99)	(49.82)	(44.30)	(39.77)
Variance of random intercept	2.175***	2.495**	2.249***	1.362***	2.117**	2.402**	2.196***	1.358***
	(0.835)	(0.970)	(0.634)	(0.358)	(0.837)	(0.992)	(0.611)	(0.352)
Observations	999	997	997	997	999	997	997	997
Number of groups	58	58	58	58	58	58	58	58
Random intercept	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Random slope	No	No	No	No	No	No	No	No

Robust standard errors in parentheses

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

Table 5. Results from the weighted multi-level logit regression models for local politicians.

	standard specification				cluster specification			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	business parks	public administration	construction yard	household-oriented infrastructure	business parks	public administration	construction yard	household-oriented infrastructure
Municipal-level variables								
business tax rate (log)	3.113	−4.077	−2.156	−1.770	1.180	−5.093*	−1.901	−2.700
	(3.858)	(3.101)	(3.576)	(2.758)	(3.872)	(3.096)	(3.666)	(2.826)
land tax rate (log)	−2.925	2.939*	1.612	1.974	−2.259	2.911	0.940	2.339
	(2.116)	(1.787)	(2.030)	(1.532)	(2.151)	(1.832)	(2.135)	(1.586)
spatial lag business tax rate (log)					−10.42	−11.69**	−4.509	−6.943
					(6.692)	(5.716)	(6.599)	(5.031)
spatial lag land tax rate (log)					−0.667	1.900	2.858	−0.159
					(2.580)	(2.110)	(2.541)	(1.866)
share large firms	0.0781***	0.0396**	0.0227	−0.0166	0.0933***	0.0638***	0.0355	−0.00503
	(0.0226)	(0.0181)	(0.0208)	(0.0155)	(0.0258)	(0.0215)	(0.0251)	(0.0188)
motorway access	−0.262	−0.0105	0.0864	−0.529	−0.0747	0.0927	0.0701	−0.438
	(0.663)	(0.529)	(0.610)	(0.467)	(0.652)	(0.516)	(0.617)	(0.468)
share farm land	0.0482*	0.0367*	0.0150	0.0254	0.0216	0.0177	0.0144	0.0103
	(0.0272)	(0.0222)	(0.0253)	(0.0191)	(0.0295)	(0.0240)	(0.0284)	(0.0211)
population size (log)	0.327	0.512	0.489	0.00447	0.332	0.605	0.567	0.0298
	(0.446)	(0.381)	(0.426)	(0.345)	(0.445)	(0.378)	(0.433)	(0.352)
no. larger neighbors	−0.853***	−0.166	−0.108	−0.196	−0.763***	−0.0836	−0.0719	−0.160
	(0.294)	(0.228)	(0.269)	(0.230)	(0.289)	(0.223)	(0.273)	(0.230)
debt per capita (log)	0.639*	0.335	0.577*	0.123	1.015**	0.640**	0.627	0.366
	(0.351)	(0.286)	(0.337)	(0.253)	(0.399)	(0.318)	(0.396)	(0.296)
fiscal capacity (log)	−0.159*	0.000411	−0.0724	−0.0251	−0.169**	−0.0115	−0.0793	−0.0353
	(0.0850)	(0.0700)	(0.0810)	(0.0578)	(0.0831)	(0.0680)	(0.0817)	(0.0581)
tax base per capita (log)	0.178	−0.189	−0.339	−0.0598	0.163	−0.195	−0.329	−0.0788
	(0.423)	(0.346)	(0.409)	(0.310)	(0.412)	(0.335)	(0.410)	(0.309)
no. neighbors same mayors party	0.370***	0.0422	−0.0232	−0.0202	0.448***	0.128	−0.00689	0.0369
	(0.118)	(0.0908)	(0.102)	(0.0758)	(0.123)	(0.0976)	(0.112)	(0.0836)
turnout	0.0582*	−0.0264	−0.0301	−0.0574**	0.0547	−0.0235	−0.0268	−0.0588**
	(0.0342)	(0.0279)	(0.0321)	(0.0252)	(0.0334)	(0.0271)	(0.0321)	(0.0255)
Individual-level variables								
residential property	0.540	−0.159	−0.520	−0.146	0.589	−0.123	−0.532	−0.111
	(0.421)	(0.401)	(0.423)	(0.397)	(0.422)	(0.400)	(0.424)	(0.396)
female	−0.452	−0.633**	−0.378	0.239	−0.452	−0.606**	−0.366	0.252

(Continued)

Table 5. (Continued).

Variables	standard specification				cluster specification			
	(1) business parks	(2) public administration	(3) construction yard	(4) household-oriented infrastructure	(5) business parks	(6) public administration	(7) construction yard	(8) household-oriented infrastructure
	(0.317)	(0.290)	(0.296)	(0.290)	(0.317)	(0.289)	(0.297)	(0.290)
age (log)	0.0629 (0.613)	0.324 (0.550)	−0.976* (0.593)	0.251 (0.557)	−0.00151 (0.617)	0.357 (0.551)	−0.918 (0.598)	0.208 (0.560)
high education	0.0305 (0.281)	0.311 (0.263)	0.598** (0.272)	0.902*** (0.263)	0.0154 (0.281)	0.298 (0.261)	0.598** (0.272)	0.892*** (0.263)
household income	−0.186 (0.272)	0.222 (0.243)	0.123 (0.252)	0.102 (0.245)	−0.197 (0.272)	0.231 (0.241)	0.131 (0.252)	0.105 (0.245)
active	−1.358** (0.656)	0.364 (0.501)	0.398 (0.508)	0.173 (0.481)	−1.355** (0.660)	0.328 (0.503)	0.375 (0.509)	0.166 (0.484)
trust local politics	−0.0955 (0.334)	0.302 (0.325)	0.464 (0.335)	0.361 (0.313)	−0.0601 (0.335)	0.358 (0.325)	0.476 (0.336)	0.414 (0.315)
IMC positive effect	0.537* (0.287)	0.824*** (0.262)	0.817*** (0.265)	0.447* (0.251)	0.560* (0.288)	0.836*** (0.262)	0.825*** (0.265)	0.465* (0.251)
IMC reduce influence	−0.0730 (0.526)	−1.374*** (0.506)	−0.541 (0.519)	−1.552** (0.708)	−0.0560 (0.528)	−1.358*** (0.506)	−0.547 (0.522)	−1.500** (0.706)
belongs mayor's fraction	0.459 (0.340)	−0.841*** (0.319)	−0.783** (0.332)	−0.305 (0.317)	0.481 (0.339)	−0.844*** (0.317)	−0.807** (0.333)	−0.286 (0.318)
go for office	−0.784*** (0.297)	−0.124 (0.267)	−0.0843 (0.277)	0.0990 (0.268)	−0.787*** (0.297)	−0.112 (0.267)	−0.0736 (0.278)	0.0901 (0.269)
position in council	0.259 (0.268)	0.374 (0.250)	0.411 (0.256)	0.0868 (0.253)	0.248 (0.267)	0.353 (0.250)	0.404 (0.256)	0.0786 (0.253)
years of office	−0.0289 (0.0177)	0.00905 (0.0169)	−0.0131 (0.0174)	−0.0150 (0.0177)	−0.0299* (0.0177)	0.00757 (0.0169)	−0.0127 (0.0174)	−0.0164 (0.0178)
IMC loss power	0.141 (0.281)	0.971*** (0.267)	0.790*** (0.273)	1.094*** (0.260)	0.154 (0.280)	1.009*** (0.268)	0.808*** (0.274)	1.120*** (0.261)
Constant	−10.66 (19.69)	−2.791 (15.93)	2.930 (18.43)	−2.818 (14.26)	64.53 (44.14)	61.03* (36.58)	13.85 (43.29)	43.41 (32.75)
Variance of random intercept	0.908** (0.404)	0.453* (0.249)	0.811** (0.384)	0.155 (0.188)	0.814** (0.377)	0.367 (0.228)	0.800** (0.378)	0.142 (0.178)
Observations	460	467	462	461	460	467	462	461
Number of groups	58	58	58	58	58	58	58	58
Random intercept	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Random slope	No	No	No	No	No	No	No	No
Party fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Standard errors in parentheses	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Among the control variables, a few results are noteworthy. First, we find the belief that IMC saves costs and/or improves service quality to be highly significant and positive across all fields of IMC for both citizens and local politicians. Similarly, citizens who believe that IMC reduces their influence are less likely to support IMC in all fields except for joint business parks. Looking at Table 5, we find partial support for the local politicians' self-interest. On the one hand, there is the expected negative relationship between local politicians who run for the next election (*go for office*) and IMC in joint business parks only (Table 5, columns 1 and 5). On the other hand, local politicians who belong to the mayor's fraction oppose IMC more likely in the fields of public administration and construction yards but not in the field of business parks.

6. Discussion

The main focus of the analysis rests on the link between the intensity of intra-regional tax competition and the support for IMC among citizens and local politicians. The corresponding hypothesis is supported for citizens: The lower the business tax multiplier in citizens' home municipality and thus the more intense tax competition their home municipality is facing, the more likely citizens are to support the formation of joint business parks. The fact that the neighborhood median tax rate is not significant partly is somewhat surprising, but does not necessarily weaken the support for our main hypothesis. After all, municipalities not only compete with their direct neighbors but also with other municipalities in the region. The fact that the significant effect only exists for joint business parks but not for other forms of IMC is also in line with our prediction.

Turning to the local politicians, we do not find any support for the expected effect for joint business parks, nor for other forms of IMC. This result is surprising – especially given the fact that we do find an effect for citizens. After all, politicians are likely to be more aware of the intensity of tax competition than citizens. It is important to note that the overall support for joint business parks among politicians is similar to that of citizens. Thus, we cannot conclude that local politicians reject this form of IMC despite intense tax competition. Instead, it suggests that local politicians support joint business parks for other reasons but do not see their primary purpose in the reduction of intense tax competition.

The results in Table 4 also support our second hypothesis: Citizens with residential property in their home municipality are more likely to support the formation of joint business parks. Again, and in line with our hypothesis, the same effect is not found for other forms of IMC. This indicates that homeowners understand the special relationship between business parks, their land tax burden and the value of their property. This in turn makes them more supportive of joint business parks.

One may argue that local politicians should also understand this relationship and thus be more supportive of joint business parks if they own residential property within their home municipality. There are two potential reasons why the effect does not show in our regressions. First, it may result from the lack of variation in the sample (87% are house owners). Second, it is in line with the study by Breton et al. (2022) on the attitudes among local politicians and citizens in Canada towards the general topic of local autonomy. They do not find specific drivers of politicians' attitudes towards local autonomy while citizens' attitudes are conditional on individual characteristics.

At the same time, politicians' office-related self-interest drives the support for IMC in our study just like it does in Bergholz and Bischoff (2018). In three fields of IMC – including the one on joint business parks – support for IMC is lower among local politicians who have more power to lose when their home municipality cooperates with its neighbors. Interestingly, we do not find any evidence that local politicians' party affiliation drives their acceptance of IMC. In particular, we do not find any evidence that leftwing politicians from the Social Democratic Party or "Die Linke" are more likely to support joint business parks or any other form of IMC. Finally, both citizens and politicians are more supportive of IMC if they expect it to have a positive impact.

Our study is not without shortcomings. First, the survey is not fully representative – especially for the local citizens. We mitigate this shortcoming using weighted regressions but we cannot control for heterogeneity in all dimensions. Thus, we cannot fully exclude the possibility of biased estimates due to a response bias. Second, we do not capture other instruments of intra-regional competition for firms. At the same time, however, tax rates are a strong instrument in this competition that is comparatively easy to observe.

What are the political implications of our study?

First, our results indicate that joint business parks do not evoke severe political resistance – neither among local politicians nor among citizens. In fact, the approval rates are even higher than in the other fields analyzed in this paper. This is good news from an environmental perspective: Joint business parks may take the bite out of the still commonly observed competition for mobile capital that leads municipalities to seal too much land which later remains underused (e.g. Büttner 2021; Taylor 1992). Our results indicate that political resistance does not constitute a major obstacle for a more careful and efficient use of land in this respect.

Second, the fact that politicians' support for IMC in general and joint business parks in particular does not seem to depend on the intensity of intra-regional competition is noteworthy. Certainly, it does not support the pessimistic notion according to which local politicians actively seek IMC-arrangements because they see them as platforms to coordinate policies and circumvent the disciplining effect of inter-local competition – be it tax competition or yardstick competition (e.g. Di Liddo and Giuranno 2016). In other words, there is less need to worry about the negative side effects of IMC than Public Choice theory suggests.

This conclusion in turn has far-reaching consequences for the current debate about the future of local public administration after the digital transformation. Given the large fixed costs and negligible marginal costs of many public administrative services, some scholars argue that it is necessary to intensify IMC massively. Accordingly, delegating substantial shares of these services to shared service centers is seen as the only politically feasible way to leverage the benefits from public sector digitalization for small and medium-sized municipalities. Critics fear that this will lead to a loss in accountability and prefer regional reforms of IMC to preserve accountability. Our results strengthens the view of the supporters – suggesting that IMC can be an important part of the digital transformation of local government.

7. Conclusion

The main contribution of the paper is to analyze the impact of intra-regional tax competition on citizens' and local politicians' support for IMC. The connection between tax competition and preferences for IMC has been neglected in the literature so far. From a theoretical point of view, the link is plausible for two reasons: First, intense tax competition tightens the local budget constraint and thus sets high incentives to make use of the cost savings from IMC. Second, IMC-arrangements represent a political platform to coordinate local tax rates with neighboring municipalities and reduce the intensity of tax competition. Both arguments are particularly strong when it comes to joint business parks.

Our main findings generally support the notion for citizens. Citizens in municipalities facing intense intra-regional tax competition are more likely to support the formation of joint business parks. The effect does not exist for other forms of IMC. Surprisingly, we do not find the same effect for local politicians, neither for joint business parks nor for other fields of IMC. Thus, politicians do not seem to think of IMC as a device to weaken the disciplining effect of inter-local competition. From a scientific perspective, our results suggest that the Public Choice logic of IMC does not dominate the behavior of local politicians when deciding about joint business parks or other forms of cooperation. This in turn is good news for those practitioners who see IMC as an important part of the ongoing digital and ecological transformation of local government. At the same time, we need more studies on the effects of IMC that look beyond the narrow scope of the specific services provided jointly. The question whether IMC – through the backdoor – may undermine the positive effects of fiscal decentralization and inter-local competition deserves more attention.

Notes

1. We do not review the abundant literature on the emergence of IMC that motivate our use of municipal-level control variables in our analysis. In this regard an excellent overview has been delivered by Bel and Warner's (2016) meta study. Also, the emergence of joint economic development projects has been analyzed in a number of studies. Using data from a survey among local development officials, Feiock et al. (2009) provide rich insights on obstacles and drivers in the US setting: heterogeneity across neighboring jurisdictions, such as economic or land-use disparities turns out to be a major barrier for cooperation. Strebel and Bundi (2022) show that (Swiss) IMC activity varies along the perception of a respective policy field: Cooperation is less likely in policy fields perceived as "politicized" and more likely in fields perceived as "relevant" by local office holders.
2. Recent empirical studies on the impact of IMC on tax competition show that the formation of French "establishments for inter-municipal cooperation" lead to an increase in the local tax burden (Agrawal, Breuillé, and Le Gallo 2020; Breuillé, Duran-Vigneron, and Samson 2018). It should be noted that these institutions are similar to fully-fledged jurisdictions – similar to the German "Verbandsgemeinde" – with its own elected council, a wide range of tasks and the right to raise own taxes. Thus, their introduction is much more far-reaching than thematic IMC-arrangements such as joint business parks.
3. Some small businesses, service providers and retail traders are situated in mixed zones that allow for certain business activities and housing in the same quarter. At the same time, firms from most other sectors, especially from manufacturing, wholesale and logistics, as well as large parts of the retail trade sector, are located in special business areas. In the last decades,

German municipalities provide additional commercial land almost exclusively in the form of business parks.

4. When firms develop business parks jointly, they generally settle their agreements in a formal contract. This contract covers all relevant aspects of joint land development – including the division of investments, running costs and future tax revenues (Bischoff, Melch, and Wolfschütz 2021).

5. The argument also applies to local politicians. The survey revealed that virtually all local politicians are active in the above-mentioned form. This is why we did not include it for local politicians.

6. We use the stata command survwgt and municipapl-specific information on the above-mentioned variables.

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