

Inter-municipal cooperation in France and related tax issues^{*}

Marie-Laure Breuillé¹ and Pascale Duran-Vigneron²

¹CESAER UMR1041, INRAE, Institut Agro, Université Bourgogne
Franche-Comté

²Cour des comptes

September 2023

^{*} We thank David Agrawal, James Poterba, and Owen Zidar for their stimulative initiative on tax competition as well as the participants at the NBER Conference on "Policy Responses to Tax Competition", Spring 2023, and especially David Agrawal and Stefanie Stantcheva for their enlightened feedback. We also acknowledge Camille Grivault's very valuable support.

1 Introduction

Growing inter-municipal cooperation around the world and its bases

This chapter focuses on inter-municipal cooperation as a policy response to tax competition. Inter-municipal cooperation enables several (usually nearby) municipalities to jointly provide public goods and services, possibly financed by autonomous tax collection. This practice is very widespread in Europe (Teles and Swianiewicz 2018). Even in the United Kingdom, where inter-municipal cooperation was referred to as the "missing ingredient" (Kelly 2007), it emerged in the 2010s and became quasi-generalized (Dixon and Elston 2020). Inter-municipal cooperation also shapes relations between municipalities in OECD countries outside Europe (OECD 2019), as well as in other developed and developing countries (e.g., in Brazil (Silvestre et al. 2020), Ecuador (Villalba Ferreira et al. 2020), El Salvador (Muraoka and Avellaneda 2021) and South Africa (Leck and Crick 2020)).

The softest forms of inter-municipal cooperation consist of single or multi-purpose shared-service agreements, which may be the exclusive collaborative practice among local councils, as in the United Kingdom and several former British colonies (such as Australia, Ireland, and New Zealand) or co-exist with stronger forms of integration as in France. Partnerships in the United Kingdom, for instance, may concern back-office administration or shared service programs devoted to health and social care, housing, highways, culture, regulation and planning, or waste management (Dixon and Elston 2020). On the other side of this spectrum of collaboration, inter-municipal cooperation can lead to the creation of supra-municipal authorities with delegated competencies (e.g., France, Portugal, Spain). As pointed out by OECD 2019, France is the "only OECD country that has systematically set up public institutions for inter-communal co-operation with taxing powers, i.e. able to raise their own sources of tax revenue". This makes it a particularly interesting country to analyze.

Economies of scale are the main driver for inter-municipal cooperation.¹ Greater efficiency is thought to arise from providing public goods and services on a larger scale regarding the population served. In countries characterized by a high degree of territorial fragmentation with small municipalities and a strong attachment to local entities —whose attempts to merge have often failed— inter-municipal cooperation appears to be a fallback solution in order to circumvent the drawbacks of

¹See Bel and Sebo 2023 for an extensive review of the main factors that drive in practice the choice of inter-municipal cooperation.

municipal boundaries. Historical divisions are usually no longer appropriate to provide bundles of public goods in present-day societies characterized by communication technologies, more service-sector jobs, and interdependent territories due to increasing mobility. Furthermore, small municipalities, which lack the critical size and financial resources necessary to exercise certain competencies alone, reinforce their capacity or improve service quality through inter-municipal cooperation. It also proves to be a horizontal equalization mechanism by reducing the financial disparities caused by the unequal distribution of resources over the territory. Finally, inter-municipal cooperation may influence management practices in member municipalities and favor coordination on other policies.

Beyond these benefits, inter-municipal cooperation is characterized by potential risks and limitations, such as coordination costs (*a fortiori* when political decision-makers belong to different political parties), slower decision-making, duplication of personnel due to bureaucratic inertia, democratic deficit, governance issues, reduced accountability, and free-riding.

State of the art of the literature on the effects of inter-municipal cooperation

Since the most frequent motive for cooperation among local authorities is to achieve economies of scale, most academic papers evaluating the impact of inter-municipal cooperation have focused on local government's efficiency in the provision of public services, or on the amount of spending in the absence of data on costs and/or techniques such as nonparametric methods for estimating production frontiers (Moradi-Motlagh and Emrouznejad 2022). Although we cannot directly compare results in order to draw clear-cut and universal conclusions about the benefits and limitations of inter-municipal cooperation, as papers adopt different methods (e.g., estimation of municipal spending choice using panel data and spatial econometrics, fuzzy regression discontinuity design, difference-in-differences), for different periods and in countries characterized by different forms of inter-municipal cooperation, we provide a brief review of the state of the art of the literature. Luca and Modrego 2021 produced one of the rare papers based on the computation of technical efficiency (thanks to a robust data envelop analysis), finding no significant effect of inter-municipal cooperation on municipal efficiency in the provision of public goods in Italy. Estimating a stochastic cost frontier for Dutch municipalities, Niaounakis and Blank 2017 identify a significant relation between inter-municipal cooperation and cost efficiency through scale only. Frère, Leprince, and Paty 2014 found no

significant effect at all of inter-municipal cooperation, whether on municipal spending or interactions. More recently, Paty and Ubeda 2022 confirm the absence of a negative effect on spending from the joint provision of public goods for almost all competencies. However, other papers identify clear benefits of inter-municipal cooperation on expenditures and/or the associated costs, e.g., Silvestre, Marques, and Gomes 2018 for a meta-review focusing on the water and wastewater industries, Silvestre et al. 2020 for Brazil, and Ferraresi, Migali, and Rizzo 2018 for Italy.

Bel and Sebó 2021 explain these divergent outcomes by conducting a meta-regression analysis. According to their results, population size and governance are key determinants of the role of inter-municipal cooperation in reducing service delivery costs. For instance, focusing on waste collection in Spain, Pérez-López et al. 2016 identified that inter-municipal cooperation is most effective in smaller municipalities (up to 20,000 inhabitants). In addition, the literature has revealed that benefits differ according to the type of public goods provided. In New York State, the multivariate assessment of the effect of cooperation by Aldag, Warner, and Bel 2020 reveals i) cost reductions for solid waste management, roads and highways, police, library, and sewerage services, ii) higher costs in elder services and in planning and zoning and iii) no significant effect for economic development, ambulance/EMS, fire, water, and youth recreation. Finally, the benefits may differ according to the timing of the adoption of inter-municipal cooperation, as shown by Tricaud 2021 for France.

Very few studies have investigated the effects of inter-municipal cooperation on other dependent variables, such as local public sector size (Jaaidane and Larribeau 2023), firm creation (Binet, Lebrun, and Leprince 2022), peer effects through budgetary decisions (Breuillé and Le Gallo 2017) and taxation, which is the key focus of this book. The paucity of papers on the subject of taxation is explained by the extremely small number of countries or regions in which establishments for inter-municipal cooperation (hereafter, EIMCs) benefit from tax autonomy. Beyond the collection in some countries such as Germany of taxes related to a specific public service such as waste administration (Silva and Puey 2018), or to inter-local industrial parks (Bischoff and Kosfeld 2021), France is a notable case because of the ability of EIMCs to levy taxes in addition to or in place of the municipal authorities to finance the whole bundle of public goods and services. In a sample limited to French urban areas, Charlot, Paty, and Piguet 2015 find an increase in the local business tax rate when municipalities fully transferred business tax powers to their EIMC, which can be explained as the consequence of a decrease in the number of jurisdictions levying the business tax rate, which reduces the intensity of tax competition and

thus confirms Hoyt 1991’s theoretical predictions. Breuillé, Duran-Vigneron, and Samson 2018 extend the analysis to all municipalities and the four local direct tax rates by evaluating the causal impact of inter-municipal cooperation on tax rates. They estimate that the creation of EIMCs led to an increase in the four (municipal plus inter-municipal) tax rates, which accounts on average for 35% of the increase observed by the taxpayer, and exacerbated the tax disparities between the EIMC member municipalities. Inter-municipal cooperation also affects the fierceness of tax competition, strategic interactions among peer members of the same EIMC being less intense than strategic interactions with municipalities outside of the cooperative unit, as shown by Agrawal, Breuillé, and Le Gallo 2020, due to less strategic interactions within the EIMC.

Whilst the aim of reducing tax competition has never driven inter-municipal cooperation, tax externalities may be crucially affected by the type of funding scheme, the tax architecture (i.e., which tier taxes which tax base?), and the share of competencies within member municipalities of the EIMC.

In this chapter, we will first describe collaborative practices among municipalities in one of the countries (if not the country) with the most integrated form of inter-municipal cooperation, which is France. By theoretical formalization, we will then analyze channels through which inter-municipal cooperation affects tax competition in a two-tier setting with two tax bases.

2 Spectrum of inter-municipal cooperation in France

The French institutional context

Inherited from the French Revolution, around 44,000 municipalities were created in 1789² (often replacing tax communities or ecclesiastical parishes) to build a new society governed identically throughout the country, in line with the abolition of privileges. In their wake, an upper level consisting of departments (“départements”) was created³. It was not until the mid-twentieth century that early forms of a third tier composed of regions (“régions”) appeared. Municipalities, departments, and regions are the three levels enshrined in the French constitution (Article 72) as territorial authorities of the Republic.

²Decree of December 14, 1789, related to the constitution of "assemblies" (a term that will turn into "communes" from 1793.). The number of assemblies is estimated at 43,915.

³The “départements” were created by the Law of December 22, 1789, and their number, i.e., 83, was defined by the Decree of February 26, 1790.

In practice, a fourth tier consisting of establishments for inter-municipal cooperation (EIMC) has gradually emerged. With the first forms created in 1890 of EIMCs formed by municipalities that freely decided to group together, EIMCs had become increasingly widespread until they became mandatory in 2014. As coined by Hertzog 2018, inter-municipal cooperation in France is a "continuous reform". EIMCs have the status of administrative public establishments, which implies that they have legal personality, financial autonomy, and leeway to recruit their own staff. Their administrative decisions are subject to the control of legality exercised by the prefect and the jurisdictional control of the administrative court.

France has undergone several waves of inter-municipal cooperation, with roughly three different forms of inter-municipal cooperation. The most flexible one takes the form of "associative" cooperation through the formation of syndicates without tax powers. At the other extreme, some municipalities can voluntarily merge, often in response to financial incentives. In between, emerged in the second half of the 20th century "project-based" or "federative" form of cooperation through the formation of establishments for inter-municipal cooperation with their own tax powers (EIMCs).

2.1 The least integrated form of cooperation: the syndicates

2.1.1 The three types of syndicates

Single-purpose inter-municipal syndicates (SIVU)

Inter-municipal cooperation dates back to the Law of March 22, 1890, which created the single-purpose inter-municipal syndicate (SIVU) status consisting of an association of municipalities that pool resources to produce a unique public good that they could not have produced alone or to generate scale economies. A SIVU can employ its own personnel and possess equipment. The first SIVUs were devoted to the development of electrification and water networks. The potential areas of intervention have since been considerably enlarged, and the competences of SIVUs may now cover the collection and treatment of household waste, the development of tourism and culture, public transportation and school transport, or the management and protection of natural parks, for example. In 2023, there were 4,738 SIVUs in France.

Multiple-purpose inter-municipal syndicates (SIVOM)

The SIVOM, created by the Ordinance of January 5, 1959, is similar to the SIVU, with the exception of being responsible for several competences rather than a sin-

gle one. Since 1988, the membership conditions have been more flexible with the introduction of “à la carte” formulas, each municipality being free to join for a single subset of competences. In 2023, there were 1,214 SIVOMs, which EIMCs are gradually replacing.

Mixed syndicates (“syndicats mixtes”)

Syndicates may also be “mixed” by including various partners. In addition to municipalities, the Decree-Law of October 30, 1935 enabled departments, establishments for inter-municipal cooperation with their own tax powers (EIMCs) and private bodies such as chambers of commerce to join forces. This status is particularly well suited to providing major public facilities (e.g., underground railway systems) or developing business parks. A distinction should be made between the closed mixed syndicate, which only associates municipalities and EIMCs, and the open mixed syndicate. In 2023, there were 1,964 closed mixed syndicates and 806 open mixed syndicates.

2.1.2 Financing aspects and trends towards rationalization

These three types of syndicates have no tax powers, and are funded either by contributions from their member municipalities (the share of which is fixed by the statutes of the syndicate) for administrative public services, or by fees and prices for industrial and commercial public services. Some exceptions are the funding of the household waste competence, for which the household waste removal tax (TEOM/REOM) can be levied, and the contribution to the function of transportation. The number of syndicates remains very high, despite several attempts to rationalize their mapping through their absorption by EIMCs (based on the design of the inter-municipal cooperation schemes described below) or mergers of syndicates. The French Court of Auditors published a critical report (Cour des comptes, 2016) pointing out a large number of small syndicates, an inefficient overlapping of boundaries and advocating the pursuit of rationalization.

Since syndicates have no tax powers and are usually poorly integrated, we will omit them from the rest of this paper and focus on the other form of inter-municipal cooperation: establishments for inter-municipal cooperation with their own tax powers (EIMCs). However, the historical formation of syndicates proves to be a relevant instrument for explaining the current membership of these EIMCs without reference to current tax decisions, as used by Agrawal, Breuillé, and Le Gallo 2020.

2.2 The most integrated form of cooperation: mergers of municipalities

Largely unsuccessful attempts to reduce the number of municipalities from the French Revolution to the twenty-first century

Just a few months after the creation of the 44,000 municipalities, the laws of August 12 and 20, 1790, voted by the Revolutionary Assembly, urged the merger of very small municipalities with fewer than 250 inhabitants. This first attempt to reduce the number of municipalities had very limited effects, like all the others that followed in the nineteenth and twentieth centuries. A major flop was the Marcellin Law (1971), which encouraged the adoption of a "merger-association" status and included the right to reverse the decision in order to ease the fears of certain municipalities. Only 838 mergers occurred between 1971 and 1977, involving 2,045 municipalities (Tellier (2017)). Some of the "Marcellin municipalities" were subsequently dismantled, leading to a limited decline in the number of municipalities from 37,700 to 36,400.

The most recent attempt : the "Communes nouvelles"

After the failure of the Marcellin law, which had enshrined the negatively connoted term of "fusion" (merger) in the minds of local politicians, the Réforme des Collectivités Territoriales law⁴ of 2010 (RCT law) has brought the term "commune nouvelle" (new municipality) to the forefront. After being initially shunned, with only 25 creation of "communes nouvelles" within the first four years, the financial incentives of the Pélissard-Le Roux law⁵ of 2015 prompted more municipalities to create a "commune nouvelle". Between 2010 and 2023, 795 "communes nouvelles" were created by the amalgamation of 2,553 municipalities, leading to a 5% reduction in the number of French municipalities, which has now dropped below the symbolic 35,000 mark.

However, the "Inspection générale de l'administration" has recently published a critical report entitled "New communes: a disappointing assessment, uncertain prospects" (Acar, Reix, and Giudici 2022). Essentially, this report criticizes the low number and small size of the "communes nouvelles", in addition to their lack of real added value.

⁴See <https://www.legifrance.gouv.fr/loda/id/JORFTEXT000023239624>

⁵See <https://www.legifrance.gouv.fr/loda/id/JORFTEXT000030361485>

Table 1: Comparison of changes in the number of municipalities with some other European countries

Country	N° of municipalities in 1950	N° of municipalities in 2021	Change (%)
Germany	14338	10792	-25
Austria	4039	2095	-48
Belgium	2359	581	-75
Bulgaria	1389	264	-81
Denmark	1387	98	-93
Spain	9214	8131	-12
Finland	547	309	-44
France	38800	34965	-10
Hungary	3032	3155	4
Italy	7781	7904	2
Norway	744	356	-52
Czech Republic	11459	6258	-45
United Kingdom	1118	379	-66
Sweden	2281	290	-87

Source: Authors from the Balladur 2009 Report and OECD data

A lack of critical mass for the vast majority of French municipalities in comparison to most of their European counterparts

In comparison, most European countries have made great strides on this issue over the last 70 years. Table 1, for instance, shows that 25% of German municipalities, 66% of UK municipalities and 87% of Swedish municipalities have been abolished. Despite a reduction of 10%, the bottom-most tier in France still consists of 35,000 municipalities, which corresponds to 40% of the total number of municipalities in all European Union countries.

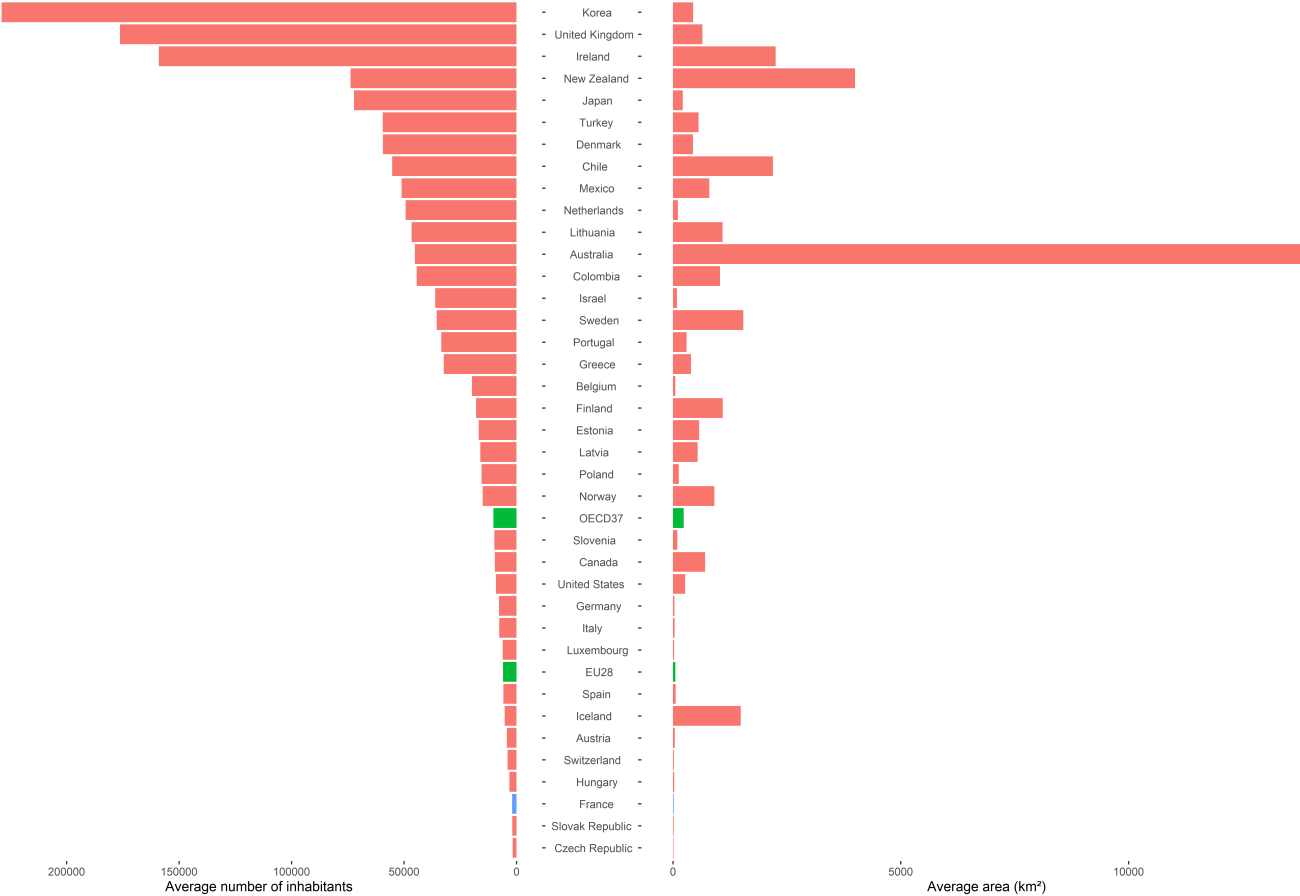
As shown in Figure 1, both the number of inhabitants per municipality and the average surface area per municipality are among the lowest in the OECD.

Half (49.6%) of France's 35,000 municipalities have fewer than 500 inhabitants, and 71.6% have fewer than 1,000 inhabitants.

2.3 Intermediate forms of intermunicipal cooperation: establishments for intermunicipal cooperation (EIMCs) with their own tax powers

Contrary to syndicates, EIMCs must group municipalities together in a single block and without an enclave. In addition, a municipality must belong to a single EIMC (as multiple memberships are not permitted to avoid the overlapping of competences)

Figure 1: Average number of inhabitants and area in OECD countries in 2019



Source: Authors from OECD 2021

while simultaneously being a member of one or more syndicates. The creation or extension of an EIMC can sometimes lead to the dissolution of a syndicate if the EIMC acquires a competence that was formerly managed by the syndicate. This is a more integrated form of cooperation than via syndicates, with the collective management of local projects financed by **autonomous tax collection**, which is our primary focus.

EIMCs are governed by two principles: i) the principle of specialty, according to which EIMCs only intervene in the field of competences that have been transferred to them and within a territory restricted to the scope of member municipalities, and ii) the principle of exclusivity, which ensures that EIMCs are the only ones to intervene in the fields related to the competences they exercise. In addition, they only exercise competences qualified as being of “community interest”.

We distinguish between four types of EIMCs, which together cover the entire French territory.

2.3.1 The four types of EIMCs

Communities of Communes (“Communautés de Communes”)

The smallest and least integrated form of EIMC is the community of communes, created by the Law of February 6, 1992. They often group together municipalities of sparsely populated areas with a low population density. Since the NOTRe Law of August 7, 2015, an EIMC must contain at least 15,000 inhabitants (unless specific derogations apply). Another unit – the “community of cities” – was also created in 1992 and has since disappeared (due to its lack of success, with only five creations) after being integrated into agglomeration communities. Creating communities of communes was a cornerstone in intermunicipal cooperation by instilling a project dimension, whereas the sole vocation of the SIVU or the SIVOM is to manage equipment or infrastructures. Communities of communes exercise both compulsory competences and optional competences of community interest on behalf of member municipalities (see Table 2)⁶. To finance them, they can freely opt for an additional taxation regime or a single professional tax regime, which will be defined later. In 2023, there are 992 communities of communes.

⁶For the exhaustive list of competences for communities of communes, see: https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000045213277/

Figure 2: Range of competencies by legal status

	Communities of communes	Agglomeration communities	Urban communities	Metropolises
Law	1992	1999	1966	2010
Number in 2023	992	227	14	21 (including Paris and Marseille) + Lyon
Minimal population threshold	15000	50000	250000	400000
Tax regime	FPU or additional taxation	FPU	FPU	FPU
Competencies	* <u>Compulsory competences:</u> - Urban planning - Economic development actions - Management of aquatic environments and flood prevention - Reception areas for members of traveler communities - Collection and processing of household and similar waste - Wastewater treatment * <u>Optional competences of community interest:</u> - Protection and enhancement of the environment - Highways - Cultural and sports facilities and pre-elementary and elementary education facilities - Social welfare - City policy * <u>By agreement with the department,</u> some or all powers in the social welfare field	* <u>Compulsory competences:</u> - Urban planning - Economic development actions - Management of aquatic environments and flood prevention - Reception areas for members of traveler communities - Collection and processing of household and similar waste - Social balance of housing - City policy * <u>Optional competences of community interest (at least 3 of the 7 competences):</u> - Protection and enhancement of the environment - Highways - Cultural and sports facilities - Social welfare - Wastewater treatment - Water - Public service centers * <u>By agreement with the department,</u> some or all powers in the social welfare and highways fields	* <u>Compulsory competences:</u> - Economic, social and cultural development and planning (activity zones, economic development actions, cultural, socio-cultural, socio-educational and sports facilities, high schools and colleges, tourism, support for higher education and research establishments) - Urban planning (including mobility plan, highways including department-level roads, railway stations) - Local housing policy and social balance of housing - City policy - Management of public-interest services (wastewater treatment, water, cemeteries, slaughterhouses, fire and rescue services, energy transition, urban heating, public electricity and gas supplies, charging infrastructures for electric vehicles) - Environmental protection (household and similar waste collection, measures to control air pollution and noise pollution, actions to control energy demand, management of aquatic environments and flood prevention) - Reception areas for members of traveler communities * <u>By agreement with the department,</u> some or all powers in the social welfare and highways fields	* <u>Compulsory competences:</u> - Economic, social and cultural development and planning (activity zones, economic development actions, cultural, socio-cultural, socio-educational and sports facilities, high schools and colleges, tourism, support for higher education and research establishments) - Urban planning (including mobility plan, highways including department-level roads, railway stations) - Local housing policy and social balance of housing, improvement of the housing stock - City policy - Management of public-interest services (wastewater treatment, water, cemeteries, slaughterhouses, fire and rescue services, energy transition, urban heating, public electricity and gas supplies, charging infrastructures for electric vehicles) - Environmental protection (household and similar waste collection, measures to control air pollution and noise pollution, actions to control energy demand, management of aquatic environments and flood prevention) - Reception areas for members of traveler communities * <u>By agreement with the department,</u> some or all powers in the social welfare field, highways, allocation of aid under the solidarity fund for housing, integration program, assistance to young people in difficulty, specialized prevention actions for young people and families in difficulty, elderly people, "collèges" (middle schools), tourism. * <u>By agreement with the State,</u> some of its competences

Source: Authors from legifrance.gouv.fr

Agglomeration Communities (“Communautés d’Agglomération”)

The Chevènement Law of 1999 created the new status of agglomeration communities for more urbanized areas. They encompass more than 50,000 inhabitants (or 30,000 inhabitants if they include the prefecture of the department) within the area around a central city of more than 15,000 inhabitants (or the prefecture or largest city of the department). On behalf of their member municipalities, agglomeration communities exercise both compulsory competences and optional competences of community interest that must be chosen from several groups of competences provided for by the law (see Table 2)⁷. In 2023, there are 227 agglomeration communities.

Urban Communities (“Communautés Urbaines”)

The urban community is the oldest form of EIMC, created by the Law of December 31, 1966. The first four urban communities (around Bordeaux, Lille, Lyon and Strasbourg) were imposed as a means of narrowing the gap between administrative and economic realities. Those that followed were created on a voluntary basis by mayors. The minimum population threshold has been lowered by law to reach 250,000 inhabitants since the MAPTAM law of 2014 (unless specific derogations apply). In addition to compulsory competences, they are authorized to intervene in some of their department’s fields of competence by agreement (see Table 2)⁸. In 2023, there are 14 urban communities.

Metropolises (“Métropoles”)

The metropole, created by the Law of 16th December, 2010, is the most integrated form of EIMC. In addition to the fields of competence of urban communities, they are also authorized to exercise competences legally attributed to the department or even the State, subject to concluding an agreement (see Table 2).⁹. In 2023, there are 21 metropolises, including Paris and Marseille, which have special status. Lyon, although a metropole in name, is not an EIMC but a territorial authority with a special status due to the merger of the urban community of Lyon and, within its territory, the department of Rhône in 2018.

⁷For the exhaustive list of competences for agglomeration communities, see: https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000037666796/2018-11-25

⁸For the exhaustive list of competences for urban communities, see: https://www.legifrance.gouv.fr/codes/section_lc/LEGITEXT000006070633/LEGISCTA000006192470

⁹For the exhaustive list of competences for metropolises, see: <https://www.legifrance.gouv.fr/codes/id/LEGISCTA000023245477>

2.3.2 EIMCs' governance

EIMCs are administered by their own body, the EIMC Council. Seats on the EIMC council are allocated to the municipalities according to their population (proportional representation at the highest average), with at least one seat per municipality. In communities of communes and agglomeration communities, seats can be distributed differently if municipalities conclude a local agreement, which must respect strict conditions. In particular, the share of seats allocated to a municipality may not differ by more than 20% from the share of its population in the total population of the EIMC. EIMC councilors must be municipal councilors. The means of appointing EIMC councilors depends on the size of the member municipality. Since the 2014 elections, **in municipalities with more than 1,000 inhabitants**, voters have simultaneously voted for municipal councilors and EIMC councilors who represent the municipality within the EIMC by submitting a single ballot paper with their choice of candidate for the municipal election on the left-hand side and candidate for election to the EIMC on the right (who must necessarily come from the list of municipal councilors on the left-hand side). A proportional voting system with a 50% majority for the list that comes first applies. This dual ballot system is based on the model used in Paris-Lyon-Marseille, where borough ("arrondissement") councilors and city councilors are elected at the same time. This election by direct universal suffrage, although linked to municipal elections, recognizes the increasingly important role played by the EIMCs in the territorial landscape and marks a further step towards territorial authority status. Before 2014, EIMC councilors who represented a municipality were appointed by the municipal council. **In municipalities with fewer than 1,000 inhabitants**, EIMC councilors are appointed from among the members of the municipal council according to their status, i.e. first the mayor, then the deputy mayors according to the order of their election, followed by the other municipal councilors if necessary (depending on the limit of the number of seats allocated to the municipality on the EIMC council).

2.3.3 Tax regimes of EIMCs

To finance the competencies transferred by member municipalities, EIMCs have the ability to levy their own taxes on the four main local direct tax bases, which are:

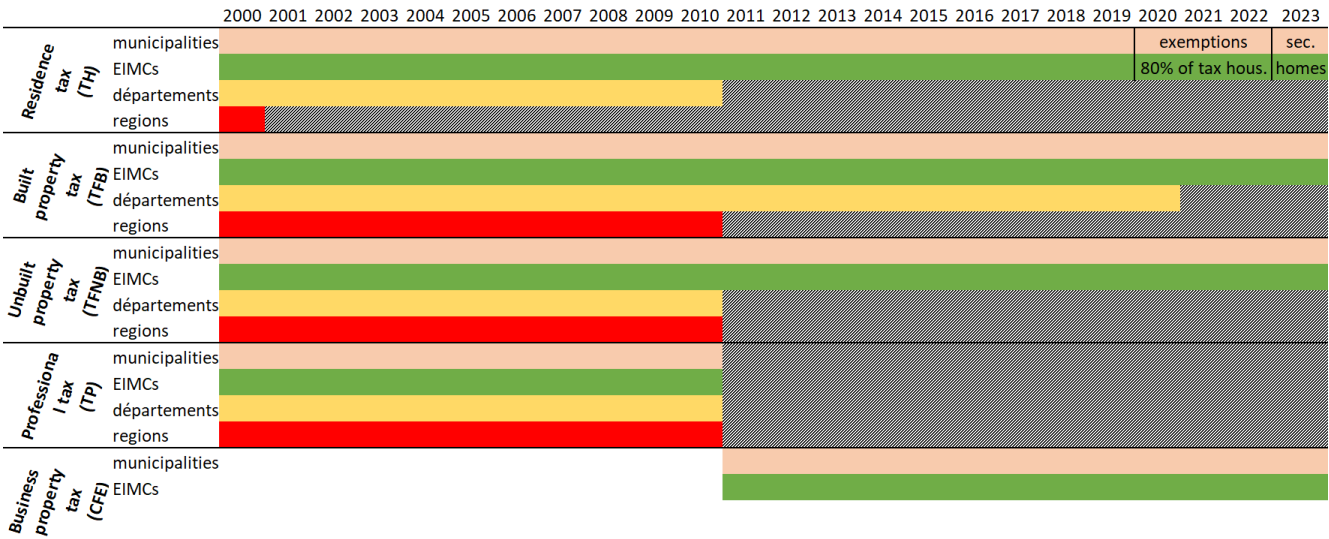
- i) the residential tax on secondary homes and other furnished premises not used as a main residence ("*taxe d'habitation sur les résidences secondaires*"), which is the remaining part after the gradual abolition of the residential tax on main residences

from 2020 to 2023;

- ii) the property tax on developed land (*"taxe foncière sur les propriétés bâties"*);
- iii) the property tax on undeveloped land (*"taxe foncière sur les propriétés non bâties"*);
- iv) the territorial economic contribution (CET), consisting of the *"cotisation sur la valeur ajoutée des entreprises"* - CVAE over which municipalities and EIMCs have no power to set rates and the business property tax (*"cotisation foncière des entreprises - CFE"*) based on property rentals.

Figure 3 charts the co-occupation by the four tiers of subnational jurisdictions (municipalities, EIMCs, départements and regions) of the main local tax bases throughout the reforms. 2011 was a pivotal year due to a substantial reduction in the number of tiers sharing common tax bases, with potential consequences regarding vertical externalities.

Figure 3: Who taxes what? Co-occupation throughout the reforms of the main tax bases on which sub-national authorities have a tax-setting power



Source: the authors

Tax revenues collected by municipalities and/or EIMCs from these four main local tax bases account for 55% of their tax revenues (even 62% if we add revenues from CVAE).

Two tax regimes exist for EIMCs.¹⁰ The first one, introduced from the earliest days of inter-municipal cooperation, is the additional tax regime ("régime de fiscalité additionnelle" - FA), in which EIMCs have the authority to levy an additional tax on each of the four main direct tax bases, in addition to municipal taxes. In other words, EIMCs and member municipalities share the four tax bases, i.e. both the EIMC and the municipalities can set the tax rates for each of the four tax bases. In this case, the cumulative tax paid by residents (firms or households) corresponds to the inter-municipal tax plus the municipal tax for each tax base.

The second regime is the single professional tax regime ("régime de fiscalité professionnelle unique" - FPU) for which only the EIMC collects the business property tax instead of its member municipalities. A single tax rate is therefore applied to the municipalities' pooled business tax bases within the EIMC. While municipalities continue to levy a tax on secondary homes, a property tax on developed land, and a property tax on undeveloped land, the EIMC also sets additional rates for each of these taxes as under the additional tax regime.¹¹ This regime is inherited from the single business tax regime in which the EIMC only levied the business tax, which was introduced in 1983 with several objectives. First, the tax specialization characterizing this regime was intended to limit the tax inflation arising from a tax-base sharing system. Second, the single business tax regime was supposed to reduce inequalities arising from the highly unequal distribution of the tax base – 80% of the tax base is concentrated in 5% of the municipalities – and to limit the tax competition between municipalities induced by the mobility of firms. Third, this tax regime was designed to promote the coordination of fiscal policies between EIMCs and member municipalities, since EIMCs are reliant on only one direct tax (the business tax). However, the limited tax autonomy of EIMCs led to the creation of a mixed taxation regime in 1999: by allowing EIMCs to set additional tax rates on municipal direct taxes, this tax regime provided EIMCs with the means to address potential financial difficulties.¹²

¹⁰A zonal tax on the business property tax base can also be collected in an economic activity zone

¹¹EIMCs also levy the flat-rate network taxes ("imposition forfaitaire des entreprises de réseaux" - IFER), whose components are wholly or partially paid by the local authorities, and the tax on commercial floor space ("taxe sur les surfaces commerciales" – TASCOT). They can adjust the CFE rate and the TASCOT multiplier coefficient.

¹²The reform of the business tax (2009) ended the distinction between the single business tax regime, where the EIMC only levies the business tax and the mixed taxation regime, where the EIMC levies both the business tax instead of member municipalities and additional taxation on

Table 2: Tax architecture under the two tax regimes

Additional tax regime (FA)				
Municipal tax rates	t^B	t^R	t^{PD}	t^{PU}
Inter-municipal tax rates	T^B	T^R	T^{PD}	T^{PU}
Cumulative tax rates	$T^B + t^B$	$T^R + t^R$	$T^{PD} + t^{PD}$	$T^{PU} + t^{PU}$
Single professional tax regime (FPU)				
Municipal tax rates		t^R	t^{PD}	t^{PU}
Inter-municipal tax rates	T^B	T^R	T^{PD}	T^{PU}
Cumulative tax rates	T^B	$T^R + t^R$	$T^{PD} + t^{PD}$	$T^{PU} + t^{PU}$

B=business property tax; R=residence tax; PD=property tax on developed land; PU=property tax on undeveloped land.

All metropolises and —except for six derogations —all urban and agglomeration communities are automatically subject to the single professional tax regime,¹³. Among the communities of communes, which have the ability to choose their tax regime, 82.1% of them currently have a single professional tax regime.

2.3.4 Equalization among EIMCs

Since 2012, a horizontal equalization mechanism, the national fund for the equalization of inter-municipal and municipal resources (*"Fonds national de péréquation des ressources intercommunales et communales"* - *FPIC*), has set out to reduce the disparities in local resources. A measure of the aggregate financial potential (*"potentiel financier agrégé"* - PFIA) is calculated for the inter-municipal bloc made of the EIMC and its member municipalities by aggregating their financial potential. The national fund is financed by the contributions of inter-municipal blocs whose PFIA exceeds a certain threshold. The redistribution of the fund's resources then depends on the rank determined according to a synthetic index (SI) that accounts for their resources, their inhabitants' average income, and their tax effort, enabling the fund's resources to be redirected towards less favorably endowed inter-municipal blocs. It should be noted that municipal and inter-municipal authorities are granted considerable leeway in the sharing of levies or repayments within the inter-municipal bloc. This equalization scheme now exceeds €1 billion.

the three other tax bases.

¹³See <https://bofip.impots.gouv.fr/bofip/8316-PGP.html/identifiant%3DBOI-IF-COLOC-10-20-10-20220421>

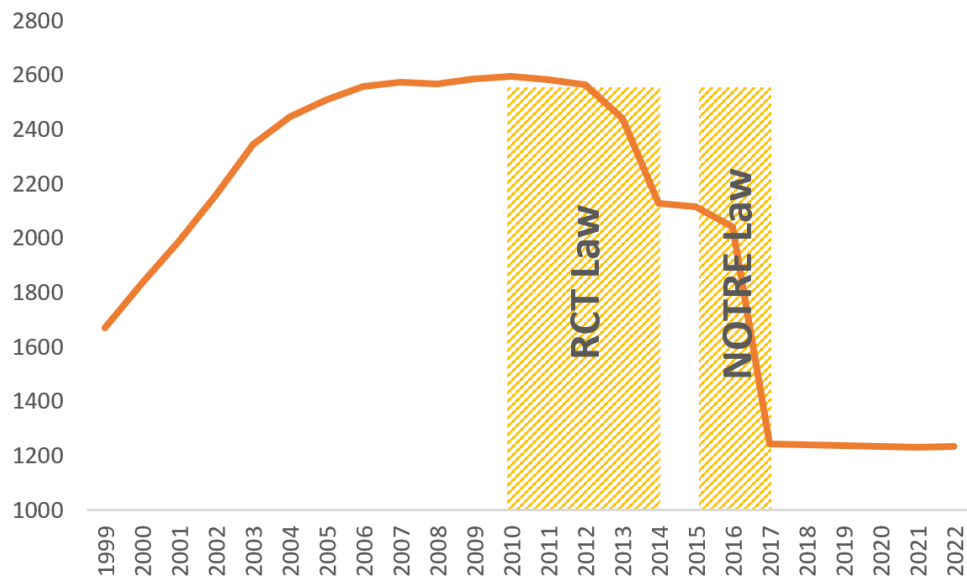
2.3.5 A recent rationalization of inter-municipal cooperation

In the 2010s, France actively engaged in generalizing and rationalizing the inter-municipal map, supported mainly by two laws.

Law reforming local authorities of December 16, 2010 (known as the "RCT law")

The RCT law became a cornerstone of inter-municipal cooperation by requiring by early 2014 the nationwide coverage of France by EIMCs.¹⁴ This law removed any isolated or landlocked municipalities, which numbered almost 2,500 in 2009. It also rationalized the boundaries of EIMCs by introducing a minimum threshold of 5,000 inhabitants and improving their spatial coherence, which explains the sharp drop in the number of EIMCs in Figure 4 from 2,595 in 2010 to 2,127 in 2014.

Figure 4: Changes in the number of EIMCs



Source: the authors from BANATIC data

In addition, attempts were made to reduce the number of syndicates, possibly by transferring their competencies to EIMCs. The "préfet" (the representative of the State at the département level), assisted by the Departmental Commission on inter-municipal cooperation (CDCI), was given a key role in this rationalization process with the power to modify boundaries and merge or dissolve syndicates. This law also created "metropoles" in order to meet the needs of large conurbations and improve regional competitiveness and cohesion. Finally, it improved local democracy with

¹⁴Inner suburbs of Paris are exempted as they would be integrated into the future Greater Paris Metropole

the election of the (previously appointed) councilors of EIMCs.

Law on the new territorial organization of the Republic of August 7, 2015 (known as the "NOTRe law")

The aim of rationalizing the inter-municipal map and giving EIMCs a more important role as drivers of planning and development was reaffirmed by the NOTRe law, which increased the minimum population threshold of EIMCs from 5,000 to 15,000 inhabitants (with some exemptions depending mainly on the density of both the EIMC and the department). Through a series of mergers, the number of EIMCs dropped from 2,115 in 2015 to 1,254 in 2023, as shown in Figure 4. In addition, the integration of municipalities within the EIMC was reinforced by adding two new items (tourism promotion and the management of reception areas for travelers) to the set of compulsory competences for communities of communes. Their optional competencies were also extended.

3 Channels through which inter-municipal cooperation affects tax competition in a two-tier setting with two tax bases

3.1 The theoretical setting

We propose a theoretical framework to analyze the influence on tax externalities of the type of inter-municipal cooperation. We consider a model of capital tax competition in a two-tier setting like Wrede (1997) and Breuillé and Zanaï (2013). Our country comprises two sub-national tiers with $n > 1$ identical EIMCs, indexed by $i = 1, \dots, n$, and within each EIMC, $m > 1$ identical municipalities, indexed by $j = 1, \dots, m$. These two tiers can potentially raise tax revenues through taxes on two tax bases, x and y . Let $t_{i,j}^k$ be the proportional tax rate levied by municipality j in EIMC i on its tax base k , and T_i^k be the proportional tax rate chosen by EIMC i on its tax base k_i , with $k = x, y$. By construction, the EIMC tax base k_i is the sum of the member municipalities's tax bases, i.e.,

$$k_i = \sum_{j=1}^m k_{i,j}$$

with $k = x, y$.

3.1.1 Horizontal tax externalities through the taxation of a municipal mobile tax base

Let us first consider that the tax base y is immobile (e.g., land rents) and taxed by EIMCs only. The other tax base is a mobile production factor (e.g., labor) on which only municipalities can levy a tax rate. Tax base x in municipality ij is thus a function of municipality ij 's tax policy, $t_{i,j}^x$, the tax policies of neighboring municipalities belonging to the same EIMC i , $\mathbf{t}_{i,-j}^x$, and the tax policies of other municipalities belonging to other EIMCs, $\mathbf{t}_{-i,j}^x$.

The implicit demand function for factor x is $x_{i,j}(r_{i,j}^x)$, where $r_{i,j}^x$ is the after-tax return for factor x :

$$r_{i,j}^x = \rho^x + t_{i,j}^x$$

with $\rho^x(t_{i,j}^x, \mathbf{t}_{i,-j}^x, \mathbf{t}_{-i,j}^x)$ being the equilibrium net return for factor x implied by perfect mobility across the country. We assume non-atomistic jurisdictions, meaning that their tax choices have an impact on the welfare in other jurisdictions, i.e., jurisdictions have market power.¹⁵ *Horizontal tax externalities* among municipalities occur through the taxation of the factor x . An increase in the tax rate levied on the factor by a municipality ij induces an outflow of the factor from the municipality ij and thus an inflow to all other same-tier municipalities. Municipalities do not usually take the positive horizontal tax externalities into account, only the distortive effect of taxation on their own tax base, i.e. $\varepsilon_{mun}^{x,SH} = \frac{\partial x_{i,j}}{\partial r_{i,j}^x} \frac{\partial r_{i,j}^x}{\partial t_{i,j}^x} < 0$. The standard result is a race to the bottom, i.e., inefficiently low tax rates (Wilson 1986 and Zodrow and Mieszkowski 1986). No externalities are generated by inter-municipal taxation due to tax base immobility.

¹⁵See Agrawal, Hoyt, and Wilson 2022 for more insights on the comparison between atomistic versus strategic (game-theoretic) tax competition.

3.1.2 Vertical externalities add though the co-occupation of a mobile tax base

Now, suppose that EIMCs set an additional tax rate on the mobile factor x . As a result of this co-occupation, the tax base in municipality ij also becomes a function of its EIMC's tax policy, T_i^x , and tax policies of other EIMCs, $\mathbf{T}_{-i}^x$.

The after-tax return $r_{i,j}^x$ is increased by the EIMC tax rate:

$$r_{i,j}^x = \rho^x + t_{i,j}^x + T_i^x \quad (1)$$

with $\rho^x(t_{i,j}^x, \mathbf{t}_{i,-j}^x, \mathbf{t}_{-i,j}^x, T_i^x, \mathbf{T}_{-i}^x)$ the equilibrium net return for factor x . In addition to horizontal tax externalities at the municipal level and horizontal tax externalities at the EIMC level, *vertical tax externalities* (SV) also arise due to tax base sharing. An increase in the tax rate levied on factor x by a jurisdiction induces an outflow of this factor from the jurisdiction(s) sharing the same tax base in the other tier and thus an inflow to all other jurisdictions of this other tier. Vertical externalities induced by municipal taxation are *bottom-up* and the ones induced by EIMC taxation are *top-down*. Objective functions in the literature are specified in such a way that municipalities usually internalize only a proportion of the vertical bottom-up negative externalities imposed on the tax base of their EIMC, which are denoted by $\varepsilon_{mun}^{x,SV}$, as they only care about the welfare of their own inhabitants:

$$\varepsilon_{mun}^{x,SV} = \frac{1}{m} \sum_{h=1}^m \frac{\partial x_{ih}}{\partial r_{ih}^x} \frac{\partial r_{ih}^x}{\partial t_{ij}^x} < 0$$

On the contrary, EIMC authorities usually fully internalize the negative vertical top-down externalities imposed on their members' tax base, which are denoted as $\varepsilon_{EIMC}^{x,SV}$, since they care about the welfare of all their members' citizens:

$$\varepsilon_{EIMC}^{x,SV} = \sum_{j=1}^m \frac{\partial x_{ij}}{\partial r_{ij}^x} \frac{\partial r_{ij}^x}{\partial T_i^x} < 0$$

.

In this setting, horizontal and vertical externalities reinforce each other, which results in inefficiently low municipal and inter-municipal tax rates.

3.1.3 Same-base and cross-base horizontal and vertical tax externalities

Finally, let us suppose that tax bases x and y are both mobile and co-occupied by municipalities and EIMCs. For instance, these two tax bases may be two factors firms use for their production. Crucially, one factor's mobility may impact the other, i.e., they may be interdependent. The interdependence is expressed by the demand functions: $x_{i,j}(r_{i,j}^x, r_{i,j}^y)$ and $y_{i,j}(r_{i,j}^x, r_{i,j}^y)$. In the event of complementarity between the two tax bases, a higher cost of factor x in jurisdiction ij reduces demand for factor x , i.e., $\frac{\partial x_{i,j}}{\partial r_{i,j}^x} < 0$, as well as demand for factor y , i.e., $\frac{\partial y_{i,j}}{\partial r_{i,j}^x} < 0$. In contrast, the substitutability between tax bases implies that a higher cost of factor x in jurisdiction ij reduces demand for factor x while increasing demand for factor y , i.e. $\frac{\partial y_{i,j}}{\partial r_{i,j}^x} > 0$.

The after-tax return is defined as in equation 1 for each tax base:

$$r_{i,j}^x = \rho^x + t_{i,j}^x + T_i^x \quad (2)$$

with $\rho^x(t_{i,j}^x, \mathbf{t}_{i,-j}^x, \mathbf{t}_{-i,j}^x, T_i^x, \mathbf{T}_{-i}^x)$ being the equilibrium net return for factor x , and

$$r_{i,j}^y = \rho^y + t_{i,j}^y + T_i^y \quad (3)$$

with $\rho^y(t_{i,j}^y, \mathbf{t}_{i,-j}^y, \mathbf{t}_{-i,j}^y, T_i^y, \mathbf{T}_{-i}^y)$ being the equilibrium net return for factor y .

Therefore, the factors' interdependence affects the factors' demand but not their return.

This interdependence between tax bases generates cross-base tax externalities (in addition to same-base tax externalities). This is what Keen 1998 defines as effective concurrency. Although there are two different taxes and thus no formal concurrency between the taxes, the tax choices for one tax base do affect the tax choices for the other tax base: interdependence leads to effective concurrency. As Keen points out, "it seems hard [...] to conceive of federal tax arrangements that do not involve some degree of effective concurrency". *Cross-base horizontal tax externalities (CH)* occur when an increase in the tax rate set by a jurisdiction on a factor affects the amount of the other factor available to all other same-tier jurisdictions. As for same-base horizontal externalities (SH), a jurisdiction usually only cares about the cross-base externality on its tax base, respectively $\varepsilon_{mun}^{k,CH}$ for municipalities and $\varepsilon_{EIMC}^{k,CH}$ for EIMCs, and neglects the externalities imposed on the tax base of the

other same-tier jurisdictions, respectively $\varepsilon_{mun}^{k,CH}$ and $\varepsilon_{EIMC}^{k,CH}$:

$$\varepsilon_{mun}^{k,CH} = \frac{\partial(-k)_{i,j}}{\partial r_{i,j}^k} \frac{\partial r_{i,j}^k}{\partial t_{i,j}^k}, \quad \varepsilon_{EIMC}^{k,CH} = \sum_{j=1}^m \frac{\partial(-k)_{i,j}}{\partial r_{i,j}^k} \frac{\partial r_{i,j}^k}{\partial T_i^k} \quad \text{with } k = x, y$$

and $-k$ is the other tax base. The sign of the cross-base horizontal tax externalities depends on the nature of the interdependence between the two tax bases. The externality on the jurisdiction's own tax base is negative, pointing in the same direction as the same-base horizontal externality when tax bases are complementary, i.e. $\varepsilon_{mun}^{k,CH} < 0$ and $\varepsilon_{EIMC}^{k,CH} < 0$, while it is positive, pointing in the opposite direction to the same-base horizontal externality when the tax bases are substitutable, i.e. $\varepsilon_{mun}^{k,CH} > 0$ and $\varepsilon_{EIMC}^{k,CH} > 0$.

The interdependence of factors combined with tax base sharing also generates "*cross-base vertical tax externalities (CV)*", an increase in the tax raised by a jurisdiction on a factor affecting the amount of the other factor available to the other-tier jurisdictions. In the case of complementarity, the externalities correspond to an outflow of factors from the jurisdiction(s) sharing the same tax base to all other jurisdictions. In contrast, in the event of substitutability, the externalities correspond to an inflow of factor to the jurisdiction(s) sharing the same tax base. These externalities are cross-base "*vertical bottom-up externalities*" when arising from municipal taxation and "*cross-base vertical top-down externalities*" when arising from EIMC taxation.

As for same-base vertical externalities, municipalities usually internalize a proportion $\frac{1}{m}$ of the cross-base vertical bottom-up externalities imposed on their EIMC, denoted by $\varepsilon_{mun}^{k,CV}$, and EIMCs internalize all cross-base vertical top-down externalities, denoted by $\varepsilon_{EIMC}^{k,CV}$, imposed on their member municipalities.

$$\varepsilon_{mun}^{k,CV} = \frac{1}{m} \sum_{h=1}^m \frac{\partial(-k)_{i,h}}{\partial r_{i,h}^k} \frac{\partial r_{i,h}^k}{\partial t_{i,j}^k}, \quad \varepsilon_{EIMC}^{k,CV} = \sum_{j=1}^m \frac{\partial(-k)_{i,j}}{\partial r_{i,j}^k} \frac{\partial r_{i,j}^k}{\partial T_i^k} \quad \text{with } k = x, y$$

and $-k$ is the other tax base.

The sign of the cross-base vertical tax externalities depends on the nature of the interdependence between the two tax bases. The cross-base vertical tax externalities internalized by jurisdiction are negative, pointing in the same direction as the same-base vertical ones when tax bases are complementary, i.e. $\varepsilon_{mun}^{k,CV} < 0$ and $\varepsilon_{EIMC}^{k,CV} < 0$, while they are positive, pointing in the opposite direction to the same-base vertical

externalities when tax bases are substitutable, i.e. $\varepsilon_{mun}^{k,CV} > 0$ and $\varepsilon_{EIMC}^{k,CV} > 0$.

3.2 Externalities associated with each type of inter-municipal cooperation

Tax externalities can therefore be defined along two dimensions: i) horizontal *versus* vertical externalities, i.e. externalities among authorities at the same tier *versus* externalities among authorities at two different tiers, ii) same-base *versus* cross-base externalities, i.e. externalities due to the migration of a tax base k arising from a modification of a tax rate on this base (t^k or T^k), *versus* externalities due to the migration of a tax base k arising from a modification of the tax rate on the other tax base (t^{-k} or T^{-k}). Cross-base externalities only occur when $F_{xy}^{ij} = F_{yx}^{ij} \neq 0$, i.e. when the demand for one factor is affected by the taxation of the other factor.

We investigate which type of these externalities are at work depending on the form of the EIMC and its tax regime. *Syndicates* are likely not to change tax externalities existing among municipalities before cooperation, provided that the provision of public goods and services delegated to the syndicates is now financed by municipal transfers funded by tax revenues previously collected. Only same-base and cross-base horizontal tax externalities at the municipal level, i.e., $\varepsilon_{mun}^{k,SH}$ and $\varepsilon_{mun}^{k,CH}$ occur. However, achieving scale economies through larger scale supply could reduce the overall envelope and thus contribute to lessening the tax burden for all municipalities.

Mergers of municipalities by creating "communes nouvelles" amounts to considering only n jurisdictions rather than nm jurisdictions. As shown by Hoyt 1991, the merger of same-tier jurisdictions leads to increased tax rates and, therefore, public goods provision as the number of jurisdictions decreases. This results from the reduction in both same-base and cross-base horizontal tax externalities. When a "commune nouvelle" increases its tax rate, the tax base inflow to other "communes nouvelles" diminishes. Decreasing the number of jurisdictions reduces the change in the tax base; increasing the jurisdiction's tax rate is, therefore, less harmful for that jurisdiction.

EIMC with single professional tax regime (FPU) —assuming no additional taxation on the other tax base —generates same-base horizontal externalities at the EIMC level on the professional tax base and same-base horizontal externalities at the mu-

Table 3: Externalities at work for each type of EIMC

	Same-base	Cross-base
Horizontal externalities	Mergers, FA, FPU	Mergers, FA
Vertical externalities	FA	FA, FPU

FA=EIMC with additional tax regime; FPU=EIMC with single professional tax regime (assuming no additional taxation on the other tax base).

municipal level on the other tax base. Since each tier only taxes one specific tax base, cross-base horizontal tax externalities and same-base vertical externalities are ruled out. However, vertical externalities still occur when tax bases are interdependent. Therefore, exclusive tax bases do not preclude vertical tax externalities.

Finally, *EIMC with additional tax regime (FA)* generates all types of externalities since both tax bases are co-occupied by municipalities and EIMCs.

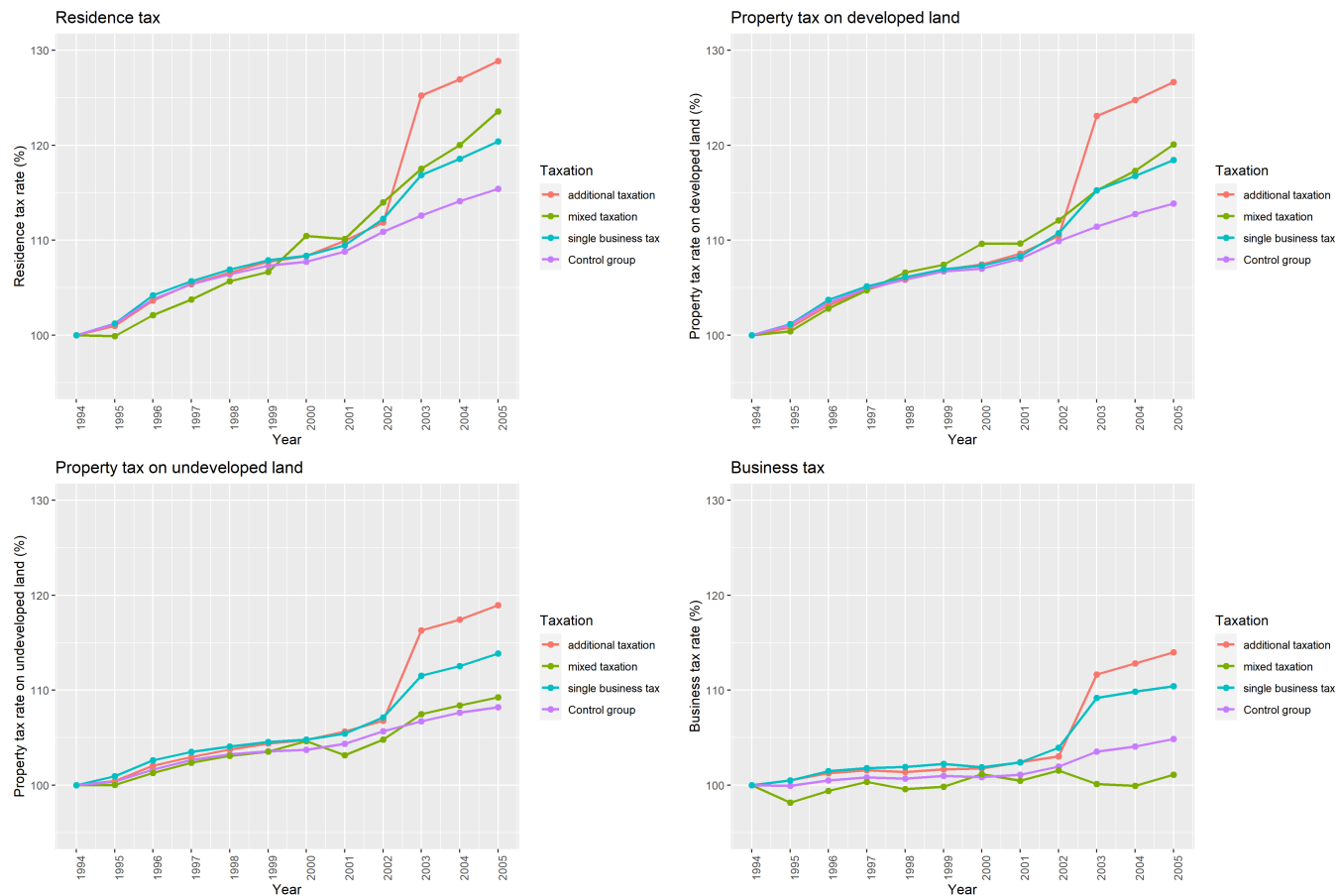
Table 3 summarizes the externalities at work for each type of EIMC. With the exception of syndicates, all other forms of cooperation impact tax competition. In the absence of further assumptions regarding the share of competences among tiers and the degree of complementarity versus substitutability between tax bases, we cannot rank forms of inter-municipal cooperation regarding their ability to reduce the perverse effects of tax competition. Breuillé and Duran-Vigneron 2023 show that there exists a level of expenditure decentralization such that EIMC with an additional tax regime is better than mergers in terms of welfare, whatever the degree of interdependence between the tax bases. In addition, for a sufficiently high degree of substitutability between the tax bases, EIMC with single professional tax regime can lead to the lowest welfare.

3.3 Empirical evidence of the impact of EIMC's tax regimes on taxation

We empirically investigate, for France, whether the evolution of cumulative tax rates—which are the sum of municipal and inter-municipal tax rates—changes on average in accordance with the EIMC's tax regime. In Figure 5, we plot over the period 1994-2005 the average evolution of each one of the four cumulative tax rates (i.e., the residence tax, the property tax on developed land, the property tax on

undeveloped land, and the business tax) for the restricted sample of municipalities that joined an EIMC for the first time in 2003¹⁶ (the EIMC may already exist), for an overall total of 2,189 municipalities. We track the trend of average tax rates for the three tax regimes, i.e., i) the single business tax regime (FPU/TPU, in blue, with 921 municipalities), where the EIMC levies the business tax and the municipalities levy the other three taxes; ii) the additional taxation regime (FA, in red, with 1,239 municipalities), where EIMCs and member municipalities share the four tax bases, and iii) the mixed taxation regime (in green, with only 29 municipalities) in which a single business tax is levied by the EIMC and the three other tax bases are taxed by both the EIMC and its member municipalities. The last curve in purple corresponds to the average tax rate of municipalities that joined an EIMC created from 2006 onwards.

Figure 5: Average changes according to the tax regime in cumulative tax rates for municipalities that joined an EIMC for the first time in 2003 (base 100 in 1994)



¹⁶2003 is chosen to be soon enough after the Chevènement Law of 1999, which led to the creation of numerous EIMCs

Before a municipality joins or creates an EIMC, the trends of the average cumulative tax rates are very similar, irrespective of the chosen tax regime. In the first year of membership (i.e., 2003), we systematically observe a strong surge, except for the mixed taxation regime, for which we observe no change in the trend in 2003. On each dial, i.e., considering each tax independently, we observe the strongest increases for the additional tax regime and lower increases for the single business tax regime. These heterogeneous trends in accordance to the tax regime are consistent with the results of Breuillé, Duran-Vigneron, and Samson 2018, except for the mixed taxation regime. However, no direct comparison can be made with Figure 5 because only 29 municipalities that joined an EIMC in 2003 adopted a mixed taxation regime. Beyond showing that inter-municipal cooperation led to an increase in the cumulative tax rates, the results of Breuillé, Duran-Vigneron, and Samson 2018 reveal a higher increase in cumulative tax rates when the municipalities and their EIMC share the same tax base, i.e. for all tax rates in an additional taxation regime and, to a lesser extent, all tax rates but the business tax rate for the mixed taxation regime (the estimated parameters are almost twice as small as those in the additional taxation regime). Table 6 in their paper reports a significant correlation between the effect of the EIMC's tax regime and the effect of cooperation.

Figure 6: Impact of IMC on taxation according to the tax regime from Breuillé, Duran-Vigneron, and Samson 2018

Interaction with tax regimes.

	B	R	PD	PU
ΔCoop_{it}	0.245*** [0.027]	0.076*** [0.013]	0.127*** [0.023]	0.488*** [0.078]
$\Delta\text{Coop}_{it}^* \text{add. taxation}$	0.360*** [0.035]	0.649*** [0.018]	1.051*** [0.031]	2.180*** [0.105]
$\Delta\text{Coop}_{it}^* \text{mixed taxation}$	-0.116 [0.087]	0.364*** [0.042]	0.546*** [0.073]	1.213*** [0.195]
Control variables	Yes	Yes	Yes	Yes
Total effect of add. taxation	0.605***	0.725***	1.178***	2.668***
Total effect of mixed taxation	0.129	0.440***	0.673***	1.701***
F-test for eq. of interaction terms	31.66***	45.92***	48.01***	25.05***
Observations	134,289	134,360	134,360	134,360
F-Stat.	89.14	341.28	323.83	149.17

Notes: *** indicates statistical significance at 1%, ** at 5%, and * at 10% level. B=business tax; R=residence tax; PD=property tax on developed land; PU=property tax on undeveloped land. Control variables are the same as those used in Table 6. Cluster-robust standard errors are in brackets. All estimations include time fixed effects, municipal fixed effects and linear municipality-time trends. F-test for equality of the interaction terms gives the F stat of the test of equality of coefficients between $\Delta\text{Coop}_{it}^* \text{Add. Taxation}$ and $\Delta\text{Coop}_{it}^* \text{Mixed Taxation}$

These results align with the theoretical literature on same-base vertical tax externalities, which predicts that tax-base sharing will increase tax rates (Keen 1998, Keen and Kotsogiannis 2002, Breuillé and Zanaj 2013). Further investigation would be required to identify the differentiated influence of cross-base horizontal and vertical externalities with respect to tax regimes.

4 Conclusion

With its long history of inter-municipal cooperation (over a century old), the large spectrum of forms it may take, and its total coverage of the territory, the French case is a laboratory for both practitioners and researchers. The number of EIMCs,

the number of member municipalities, the share of competencies that are delegated to EIMCs, and the choice of tax regime are all factors that have major repercussions on the tax externalities at work and, consequently on the tax burden. The construction of a theoretical model thus enables —by isolating transmission channels that reinforce or offset each other— a more specific analysis of the link between inter-municipal cooperation and tax competition, a link that needs to be estimated empirically. This would complement the existing estimates, which show the inflationary impact of the creation of EIMCs on local tax choices. Beyond that, this chapter points to the need for future research on inter-municipal cooperation, both theoretically and empirically, through the use of causal inference methods exploiting quasi-natural experiences to enable practitioners to specify the size of EIMCs, and tax and spending assignments across municipalities and EIMCs in order to reduce tax externalities and increase the efficiency of the provision of local services, governance arrangements and democratic control.

References

- Acar, Bruno, Patrick Reix, and Virginie Giudici (2022). “Les communes nouvelles : un bilan décevant, des perspectives incertaines.” *IGA Report n°22014-R*.
- Agrawal, David R, Marie-Laure Breuillé, and Julie Le Gallo (2020). “Tax competition with intermunicipal cooperation”. *Available at SSRN 3560611*.
- Agrawal, David R, William H Hoyt, and John D Wilson (2022). “Local policy choice: theory and empirics”. *Journal of Economic Literature* 60.4, pp. 1378–1455.
- Aldag, Austin M, Mildred E Warner, and Germà Bel (2020). “It depends on what you share: the elusive cost savings from service sharing”. *Journal of Public Administration Research and Theory* 30.2, pp. 275–289.
- Balladur, E (2009). “Comité pour la réforme des collectivités locales-«Il est temps de décider»-Rapport au Président de la République”. *Paris, La Documentation française, Fayard*.
- Bel, Germà and Marianna Sebő (2021). “Does inter-municipal cooperation really reduce delivery costs? An empirical evaluation of the role of scale economies, transaction costs, and governance arrangements”. *Urban Affairs Review* 57.1, pp. 153–188.
- (2023). “26. Intermunicipal cooperation: an assessment of drivers and effects”. *Handbook on Local and Regional Governance*, p. 393.

- Binet, Marie-Estelle, Ewen Lebrun, and Matthieu Leprince (2022). “Does intermunicipal cooperation favor higher firm creation? French evidence from a natural experiment”. *The Annals of Regional Science*, pp. 1–20.
- Bischoff, Ivo and Reinhold Kosfeld (2021). *Does inter-local cooperation reduce the intensity of tax competition? Evidence on inter-local industrial parks in Germany*. Tech. rep. MAGKS Joint Discussion Paper Series in Economics.
- Breuillé, Marie-Laure and Pascale Duran-Vigneron (2023). *Decentralization when tax bases are interdependently mobile: Shared or exclusive tax bases ?* Tech. rep.
- Breuillé, Marie-Laure, Pascale Duran-Vigneron, and Anne-Laure Samson (2018). “Inter-municipal cooperation and local taxation”. *Journal of urban economics* 107, pp. 47–64.
- Breuillé, Marie-Laure and Julie Le Gallo (2017). “Spatial fiscal interactions among French municipalities within inter-municipal groups”. *Applied Economics* 49.46, pp. 4617–4637.
- Breuillé, Marie-Laure and Skerdilajda Zana (2013). “Mergers in fiscal federalism”. *Journal of Public Economics* 105, pp. 11–22.
- Charlot, Sylvie, Sonia Paty, and Virginie Piguet (2015). “Does fiscal cooperation increase local tax rates in urban areas?” *Regional Studies* 49.10, pp. 1706–1721.
- Dixon, Ruth and Thomas Elston (2020). “Efficiency and legitimacy in collaborative public management: Mapping inter-local agreements in England using social network analysis”. *Public Administration* 98.3, pp. 746–767.
- Ferraresi, Massimiliano, Giuseppe Migali, and Leonzio Rizzo (2018). “Does intermunicipal cooperation promote efficiency gains? Evidence from Italian municipal unions”. *Journal of Regional Science* 58.5, pp. 1017–1044.
- Frère, Quentin, Matthieu Leprince, and Sonia Paty (2014). “The impact of inter-municipal cooperation on local public spending”. *Urban Studies* 51.8, pp. 1741–1760.
- Hertzog, Robert (2018). “Inter-municipal cooperation in France: A continuous reform, new trends”. *Inter-Municipal Cooperation in Europe: Institutions and Governance*, pp. 133–155.
- Hoyt, William H (1991). “Property taxation, Nash equilibrium, and market power”. *Journal of Urban Economics* 30.1, pp. 123–131.
- Jaaidane, Touria and Sophie Larribeau (2023). “The effects of inter-municipal cooperation and central grant allocation on the size of the French local public sector”. *European Journal of Political Economy* 76, p. 102271.

- Keen, Michael (1998). "Vertical tax externalities in the theory of fiscal federalism". *Staff Papers* 45.3, pp. 454–485.
- Keen, Michael J and Christos Kotsogiannis (2002). "Does federalism lead to excessively high taxes?" *American Economic Review* 92.1, pp. 363–370.
- Kelly, Josephine (2007). "The missing ingredient: Inter-municipal cooperation and central-local relations in the UK". *Inter-municipal cooperation in Europe*. Springer, pp. 193–210.
- Leck, Hayley and Florence Crick (2020). "Beyond urban-rural boundaries: Encouraging inter-municipal collaboration for climate change adaptation in KwaZulu-Natal, South Africa". *Planning Across Borders in a Climate of Change*. Routledge, pp. 59–73.
- Luca, Davide and Felix Modrego (2021). "Stronger together? Assessing the causal effect of inter-municipal cooperation on the efficiency of small Italian municipalities". *Journal of Regional Science* 61.1, pp. 261–293.
- Moradi-Motlagh, Amir and Ali Emrouznejad (2022). "The origins and development of statistical approaches in non-parametric frontier models: A survey of the first two decades of scholarly literature (1998–2020)". *Annals of Operations Research* 318.1, pp. 713–741.
- Muraoka, Taishi and Claudia N Avellaneda (2021). "Do the networks of inter-municipal cooperation enhance local government performance?" *Local Government Studies* 47.4, pp. 616–636.
- Niaounakis, Thomas and Jos Blank (2017). "Inter-municipal cooperation, economies of scale and cost efficiency: an application of stochastic frontier analysis to Dutch municipal tax departments". *Local Government Studies* 43.4, pp. 533–554.
- OECD (2019). *OECD Multi-level Governance Studies Making Decentralisation Work A Handbook for Policy-Makers*. OECD.
- (2021). "Subnational governments in OECD countries". *OECD, Paris*.
- Paty, Sonia and Morgan Ubeda (2022). "Inter-municipal Cooperation and the provision of local public goods: Economies of scale, fiscal competition or "zoo" effect?"
- Pérez-López, Gemma et al. (2016). "Cost efficiency in municipal solid waste service delivery. Alternative management forms in relation to local population size". *European Journal of Operational Research* 255.2, pp. 583–592.
- Silva, Patrícia and Esther Pano Puey (2018). "Striving for local governance capacity in Portugal and Spain". *Inter-municipal cooperation in Europe: Institutions and governance*, pp. 79–104.

- Silvestre, Hugo Consciência, Rui Cunha Marques, and Ricardo Corrêa Gomes (2018). “Joined-up Government of utilities: a meta-review on a public–public partnership and inter-municipal cooperation in the water and wastewater industries”. *Public Management Review* 20.4, pp. 607–631.
- Silvestre, Hugo Consciência et al. (2020). “Is cooperation cost reducing? An analysis of public–public partnerships and inter-municipal cooperation in Brazilian local government”. *Local Government Studies* 46.1, pp. 68–90.
- Teles, Filipe and Pawel Swianiewicz (2018). “Inter-municipal cooperation in Europe”. *London: Palgrave Macmillan* 10, pp. 978–3.
- Tellier, Thibault (2017). “La constitution d’un nouveau modèle d’action publique territoriale: la loi Marcellin de 1971 et la fusion de communes”. *Revue française d’administration publique* 2, pp. 253–266.
- Tricaud, Clemence (2021). “Better alone? Evidence on the costs of intermunicipal cooperation”.
- Villalba Ferreira, Mario Emmanuel et al. (2020). “Towards a typology of inter-municipal cooperation in emerging metropolitan regions. A case study in the solid waste management sector in Ecuador”. *Cogent Social Sciences* 6.1, p. 1757185.
- Wilson, John D (1986). “A theory of interregional tax competition”. *Journal of urban Economics* 19.3, pp. 296–315.
- Wrede, Matthias (1997). “Tax competition and federalism the underprovision of local public goods”. *FinanzArchiv/Public Finance Analysis*, pp. 494–515.
- Zodrow, George R and Peter Mieszkowski (1986). “Pigou, Tiebout, property taxation, and the underprovision of local public goods”. *Journal of urban economics* 19.3, pp. 356–370.