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## Tax mimicking in French counties

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**Abstract** - The objective of this paper is to study tax mimicking and its sources in two French regions: Provence-Alpes-Côte d'Azur (PACA) and Rhône-Alpes. One of the most original aspects of this work is that it applies to a very narrow spatial level of analysis, the county level. The results confirm that the counties in the PACA and Rhône-Alpes regions mimic their neighboring counties' policies in terms of property tax rates. Several socio-demographic, fiscal and political variables such as population size, unemployment rate, per capita grants and left-wing incumbents are statistically significant. The results show that yardstick competition is the source of property tax mimicking in counties in the PACA region while spillover effects affect both regions' tax mimicking.

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**Key-words**

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## INTRODUCTION

Tax mimicking strategies have been introduced by Tiebout (1956) in his original “voting with feet” model, which measures the effects of local taxes and local public services on household residential mobility. Following Tiebout, several studies show that local public policy makers take into account the probability of people moving away from a given municipality in the case of a tax raise (Beck, 1983; Wilson, 1986; Zodrow and Mierzkoski, 1986; Oates, 1988; Guengant, 1992; Houdebine and Schneider, 1997; Brueckner and Saavedra, 2001; Feld and Kirchgassner, 2001). These studies demonstrate that there is a competitive model among municipalities, where each jurisdiction takes into consideration the policies adopted by other municipalities to remain attractive fiscally (Mintz and Tulkens, 1986; Wildasin, 1988a; Bucovetsky, 1991).

Some of these studies attempt to analyse the effect tax mimicking among local authorities has on the determination of tax rates. Two important theories explaining local tax mimicking have developed in recent years: yardstick competition (Salmon, 1987; Besley and Case, 1995) and spillover effects (Gordon, 1983; Case et al., 1993).

In France, Jayet et al. (2002) provide evidence that local competition and tax mimicking in a non-cooperative interaction between neighboring decision makers leads to a suboptimal Nash equilibrium. Leprince et al. (2005) detect tax mimicking among French departments that are determining taxes for housing, business, developed property, and undeveloped property. They work at the level of the French departments because they benefit from the data on social assistance, roads, secondary education, and economic development.

The objective of this paper is to study tax mimicking and its sources in two French regions: Provence-Alpes-Côte d’Azur (PACA) and Rhône-Alpes. One of the most original aspects of this work is that it applies to a very narrow spatial level of analysis, the county level. Most studies on the French territories look at a larger level of spatial analysis, such as regions, departments, and commuting zones (zones d’emplois), because of the difficulties in building a solid and reliable database at the county level. A long-term, meticulous collection of data has been performed at a county level to perform this analysis.

This paper is built as follows: Section 2 presents a brief literature review on tax mimicking; Section 3 provides data collection information and addresses methodological issues; Section 4 delivers the results of the study on tax mimicking; Section 5 delivers the results on the sources of tax mimicking; Section 6 concludes with a debate about local policies regarding tax mimicking in France.

### 1. TAX MIMICKING: A BRIEF LITERATURE REVIEW

A first series of models consider that local fiscal policy interactions could be due to yardstick competition (Downs, 1957; Salmon, 1987; Besley and Case, 1995; Delgado et al., 2015; Vermeir and Heydels, 2006 ; Rathelot and Sillard, 2008), which implies that consumer-voters ignore, to a certain degree, the exact quantity of public goods and services supplied by their own county. To judge the performance of their own local politicians, consumer-voters compare the tax policies of neighboring counties to the tax policies within their own county. If the neighboring counties’ tax rates are lower, then the voters “punish” their local politicians by not re-electing them. The politicians maximize their chances of being re-elected by mimicking the most favorable tax strategies of neighboring jurisdictions. In this case, local tax rates are positively related to the tax rates of the neighboring jurisdictions.

Yardstick competition is characterized by the existence of asymmetric information in favor of the elected politicians. Each local government aims to do better

than the local governments of neighboring jurisdictions in terms of tax rates and local public goods and services. In a yardstick competition model, incumbents might imitate neighboring tax rates for the sole purpose of being re-elected (Wittman, 1989; Alesina and Rosenthal, 1995).

Besley and Case (1995) estimate the probability of a local government official in the United States to not be re-elected when the state tax increases. They show that consumer-voters accept an increase of state tax rates if they observe that the local governments of neighboring states also increase their tax rates. Revelli (2002) works on the impact of tax policies on local elections for 662 English counties from 1979 to 1990. He finds that an increase in a county's property tax rate by 10% reduces the incumbents' popularity by 4%, while an increase of neighboring property tax rates by 10% increases the popularity of the county's incumbents by 3%. He explains that an increase in both tax rates and in local public goods and services usually decreases the popularity of an incumbent.

Bordignon et al. (2003) study 97 Italian counties between 1998 and 2000 to see if consumer-voters engage in comparative performance evaluation among Italian local governments. Their yardstick competition model shows that only incumbents with a low majority in a municipal council take into consideration the tax policy of their neighbors, as opposed to incumbents who control a large majority and are certain to win the election (Edmark and Agren, 2008).

Allers and Elhorst (2005) provide a spatial econometric analysis of yardstick competition among Dutch counties in 2002. Their results show that a 10% higher tax rate in neighboring counties leads to 3.5% tax rate increase in a given county. They also show that Dutch voters penalize their local elected government when the tax rates in neighboring counties are smaller than the tax rates of their own county. Bosh and Ollé (2007) also show that yardstick competition is the source of property tax mimicking among Spanish counties. They explain that tax rates are greater when left-wing parties control the local government. In general, left-wing parties opt for an increase of local public spending and tax rates as opposed to right-wing parties.

Delgado et al. (2015) consider that yardstick competition models build on the idea that the consumer-voters compare their tax policy to the tax policies of other jurisdictions to assess the attitudes of their own local government. This comparison means that choices adopted by nearby jurisdictions serve as a benchmark. The authors work on 2,713 Spanish counties with population over 1000 people in 2005. They focus on two important Spanish local taxes, the property tax and the motor vehicle tax, because they represent 66% of total tax revenue. To test the strategic interaction hypothesis, they define a tax reaction function. To estimate the tax reaction function, they use structural and socio-demographic variables, fiscal variables, and political variables. They also find that left-wing incumbents opt for greater tax rates, while right-wing incumbents opt for lower tax rates.

In France, different studies examine the presence of yardstick competition using the vote function (Lafay and Jérôme, 1991; Deffains et al., 1996, Jérôme and Jérôme-Speziari, 2002; Leprince et al., 2005; Farvaque et al., 2007; Dubois and Paty, 2010). Most studies find that tax rates are key contributors of electoral outcomes. Jérôme and Jérôme-Speziari (2002) look at 236 French counties and two different elections in 1989 and 1995. They indicate that the property tax rates have a negative impact on the incumbents' voteshare. Leprince et al. (2005) analyze the dilemma of elected local politicians, which consists of increasing the supply of both local public goods and tax rates, while preparing for future elections. Dubois and Paty (2010) test the existence of yardstick competition among 104 French local governments from 1989 to 2001. They estimate a vote function where consumer-voters compare the perfor-

mance of incumbents to that of the incumbents in neighboring local jurisdictions. Consumer-voters take into consideration the nearby geographical neighbors that are similar in term of socio-economic characteristics. They find that consumer-voters withdraw support from their incumbents if their own tax rates are higher than the tax rates of neighboring jurisdictions.

A second series of models consider that tax mimicking among counties is due to spatial spillover effects. Spillover effect models state that new tax policies or new public equipment in a county generate positive or negative externalities that affect the locational behavior of households in neighboring counties and represent a strategic incentive for the latter to change or adjust their tax policies (Gordon, 1983; Case et al., 1993; Hanes, 2002; Lundberg, 2006; Ollé, 2006).

Gordon (1983) stipulates that one challenge for local governments is how to increase local tax income without decreasing the welfare of the residents. Each local government decides on local taxes and local public spending to maximize the social welfare of its residents, but these decisions may impact the welfare of non-residents living in neighboring territories.

According to Kelejian and Robinson (1993), an increase in public expenditure in a county has a positive and significant influence on public expenditure in neighboring counties. Ollé (2006) also shows that local public spending mimicking occurs among Spanish counties. Spillover effects are the main source of local expenditure mimicking.

Stastna (2009) argues that the creation of cultural goods like cinemas and museums in one jurisdiction increases the welfare of residents of neighboring jurisdictions because they are able to take advantage of these goods and services. The optimal reaction in these neighboring jurisdictions is to decrease expenditures for these types of goods, and to reallocate their resources to different public goods.

Revelli (2010) works on the determination of local public expenditure mimicking and property tax mimicking among 296 English counties. He uses two different reaction functions: a property tax reaction function and a local expenditure reaction function. He confirms the presence of both property tax and local expenditure mimicking among English counties, mainly due to spillover effects.

Ferraresi et al. (2016) consider that the decisions on local public spending depend not only on household income, or on the socio-demographic and political characteristics of each county, but also on the local public spending of neighboring counties. They detect the presence of local expenditure mimicking among 5564 Italian counties from 2001 to 2011, which is due to the presence of spillover effects among Italian counties. Finally, Ramajo et al. (2020) analyze property tax mimicking among 388 Spanish counties from 2006 to 2015. In their reaction function, they include explanatory variables such as the population size, the percentages of elderly and young people in the population, unemployment rate, local public spending per capita, state aid per capita, and the number of left-wing incumbents. They provide evidence for property tax mimicking but show that it is determined only by yardstick competition and not by spillover effects.

Both modalities of tax mimicking, yardstick competition and spillover effects, are considered in this empirical work that is applied to two French regions.

## **2. DATA ANALYSIS AND METHODOLOGICAL ISSUES**

In our empirical analysis, we consider two French regions: Provence-Alpes-Côte-d'Azur and Rhône-Alpes. We work on cross-sectional data from 3865 French counties. The first region contains 978 counties, and the second contains 2887 counties. We focus on the property tax placed on developed properties, which is the primary and most important local tax and accounts for 48% of local tax revenues. We use two different

sets of information, nominal tax rate and property tax per receipt amount. The first index is chosen by counties, and the second may be used as a proxy of the effective property tax rate. Property tax income does not depend only on property tax rates, but also on the housing value, which is determined by the cadastral office.

The fiscal variables are provided by the French General Direction of Local Territories dataset. The databases of the French Institute of National Statistics provide information for economic and socio-demographic variables, while political and election variables were collected from the databases of the French Ministry of the Interior. The electoral data and the dependent variables, such as property tax rates and property tax per receipt amount, are collected for 2014, which was an election year. Data concerning all the control variables are available for 2016 to avoid endogeneity issues.

**Table 1: Descriptive statistics of variables for PACA**

PACA	N	Mean	Std. Dev.	Min	Max
Property tax rates (%)	978	15.57	7.32	0.28	44.42
Property tax per receipt (€)	978	1 332 510	5 765 084	2,348	14 000 000
Population	978	4,715	29,402	7	797,491
Unemployment rate (%)	978	9.3	10.21	0	25.7
Area (km <sup>2</sup> )	978	3239	3777	58	75 821
Elderly population (%)	978	29.98	17.28	0.198	1
Central gov. subsidies (€)	978	718,965	460,502	0	3 500 000
Right-wing incumbents	978	0.33	0.47	0	1
Left-wing incumbents	978	0.11	0.31	0	1
Electoral distance	978	31.50	18.35	0	78.77
Littoral	978	0.07	0.26	0	1

Source: Authors, INSEE, French General Direction of Local Authorities, and the Interior Ministry.

**Table 2: Descriptive statistics of variables for Rhône-Alpes**

Rhône-Alpes	N	Mean	Std. Dev.	Min	Max
Property tax rates (%)	2887	17.08	5.54	0.81	56.28
Property tax per receipt €	2887	553 104	3 615 365	131	14 700 000
Population	2887	1962	10 444	1	445 274
Unemployment rate (%)	2887	5.61	2.93	0	25.3
Area (km <sup>2</sup> )	2887	1,546	1,543	39	24 545
Elderly population (%)	2887	23.18	22.05	0	100
Central gov. subsidies (€)	2887	5,051	40,663	0	1 344 949
Right-wing incumbents	2887	0.15	0.35	0	1
Left-wing incumbents	2887	0.23	0.42	0	1
Electoral distance	2887	21.53	36.71	0	1

Source: Authors, INSEE, French General Direction of Local Authorities, and the Interior Ministry.

We use economic and socio-demographic variables, such as population, the area size of each county, the proportion of population over 65 years, unemployment, and dummy variables, such as the presence of a seacoast for PACA counties. We also consider fiscal indicators, such as political variables and the central government subsidies per capita received in each county. One dummy variable takes the value 1 if the county has a right-wing majority local government, and 0 otherwise. Another dummy variable takes the value of 1 if the county has a left-wing local government,

and 0 otherwise<sup>1</sup>. Finally, the electoral distance, as defined by Santolini (2008), is the percentage of votes against the actual local government on the previous elections. Tables 1 and 2 deliver descriptive statistics. Concerning the political variables, in Provence-Alpes-Côte-d'Azur 33% of the counties are governed by right-wing parties, whereas 11% of the counties are governed by leftist parties. In Rhône-Alpes, 15% of counties are governed by right-wing parties, and 24% are governed by left-wing parties. The average electoral distance in the Provence-Alpes-Côte-d'Azur region's counties is 31.5%, and 17.59% in Rhône-Alpes' counties.

We focus next on a spatial econometrics methodology to capture tax mimicking among counties, and to determine the sources of these interactions (Brueckner, 2001; Leprince et al., 2005; Delgado et al., 2015; Ramajo et al., 2020). We apply the empirical model of Delgado et al. (2015) using the property tax reaction function, which links the local property tax rate in one county to the different tax rates of competing neighboring counties. The nonspatial models are written as follows:

$$\ln_{PT_{it}} = \beta_{0it} + \beta_1 \ln_{POP_{it}} + \beta_2 \ln_{AREA_{it}} + \beta_3 POP65_{it} + \beta_4 UNEMP_{it} + \beta_5 LITT_{it} + \beta_6 \ln_{GRANT_{it}} + \beta_7 RH\_INCU_{it+2} + \beta_8 LEF\_INCU_{it+2} + \beta_9 ELC\_DIST_{it+2} + \varepsilon_{it}$$

with  $t = 2014$  and  $\forall i = 1, \dots, 978$  for PACA and  $\forall i = 1, \dots, 2887$  for Rhône-Alpes.

$$\ln_{TAX\_AMT_{it}} = \beta_{0it} + \beta_1 \ln_{POP_{it}} + \beta_2 \ln_{AREA_{it}} + \beta_3 POP65_{it} + \beta_4 UNEMP_{it} + \beta_5 LITT_{it} + \beta_6 \ln_{GRANT_{it}} + \beta_7 RH\_INCU_{it+2} + \beta_8 LEF\_INCU_{it+2} + \beta_9 ELC\_DIST_{it+2} + \varepsilon_{it}$$

with  $t = 2014$  and  $\forall i = 1, \dots, 978$ , for PACA and  $\forall i = 1, \dots, 2887$  for Rhône-Alpes.  $PT_{it}$  is the property tax rate, and  $PT\_AMT_{it}$  is the property tax per receipt amount.  $POP_{it}$  designates the population of each county,  $AREA_{it}$  is the area of each county,  $POP65_{it}$  is the share of the population with more than 65 years, and  $UNEMP_{it}$  is the unemployment rate.  $LITT_{it}$  is a dummy variable that takes the value 1 if the county is located near the littoral, and 0 otherwise.  $GRANT_{it}$  is the central government subsidies received per capita,  $RH\_INCU_{it}$  is a political variable that designates the right-wing incumbents, and  $LEF\_INCU_{it}$  is a political variable that indicates the left-wing incumbents.  $ELC\_DIST_{it}$  is also a political variable that designates the electoral distance.

**Table 3: Moran statistics on property tax choices**

PACA	Property tax rates	Property tax per receipt amount
First-order Neighbors	0.324***	0.239***
Second-order Neighbors	0.309***	0.168***
Nearest Neighbors, k = 4	0.201	0.205
RHÔNE-ALPES	Property tax rates	Property tax per receipt amount
First-order Neighbors	0.203***	0.139***
Second-order Neighbors	-0.098	0.081
Nearest Neighbors, k = 4	0.135	0.104

Notes: \*, \*\*, \*\*\* correspond to a significance at the thresholds of 1%, 5%, 10%, respectively.

Table 3 presents the Moran statistics on local tax decisions. It confirms the existence of a positive spatial autocorrelation. For both regions, the first-order neighbors indicate a high spatial autocorrelation for dependent variables. The two regions' counties differ when it comes to the second-order neighbors and k-nearest neighbor

<sup>1</sup> All local governments are not right or left wing oriented. Many local governments, especially in small and rural counties, appear as politically neutral.

approximation, with  $k = 4$ . To estimate our models, we focus on the first-order neighbors in both regions.

Table 4 presents the general results of the Moran I statistics, revealing neighborhood effects among PACA and Rhône-Alpes counties that influence their socio-demographic, fiscal, and political characteristics. For PACA, the Moran statistics for the population size, unemployment rate, and left-wing incumbents are close to zero. For the Rhône-Alpes, the Moran statistics on property tax income, population size, the proportion of elderly, and the provision central government subsidies are close to zero. Zero means that there is no spatial autocorrelation.

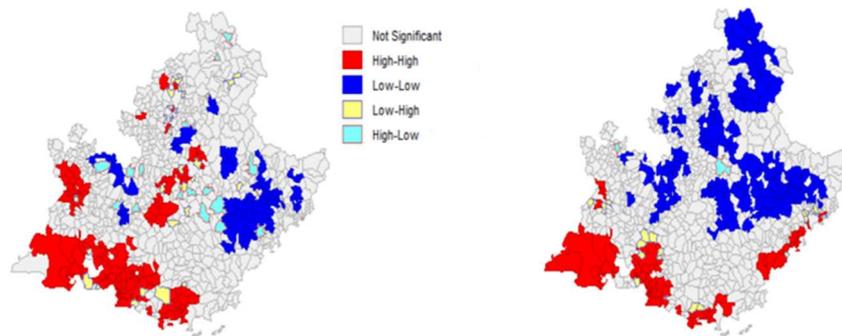
**Table 4: Moran I statistics**

	PACA	Rhône-Alpes
Property tax rates	0.323***	0.203***
Property tax income	0.239***	0.138***
Population	0.044***	0.050***
Area	0.427***	0.422***
Elderly	0.104***	0.042***
Unemployment rate	0.038***	0.284***
Central gov subsidies	0.758***	0.035***
Rightwing incumbents	0.362***	0.308***
Leftwing incumbents	0.052***	0.202***
Littoral	0.667***	-

Source: Authors, INSEE, French General Direction of Local Authorities and General Direction of Public Finance.

Figures 1 and 2 present the Lisa statistics for the property tax rate and the property tax income for the counties of PACA and Rhône-Alpes. The Lisa statistics are significant at a threshold of 5%. For PACA, when looking at the property tax rate, some High-High clusters appear at the Bouches-du-Rhône and the Var Departments, while Low-Low clusters are mainly found in the far-east Alpes-Maritimes Department. In the Rhône-Alpes, clustering is not so evident. Several small Low-Low clusters appear in the Hautes-Alpes and the Ardèche Departments.

**Figure 1: Lisa statistics for property tax rates and property tax income in PACA counties**

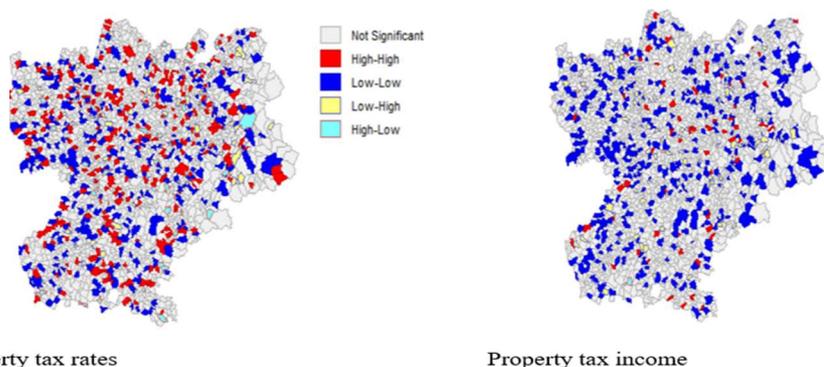


Property tax rates

Property tax income

Source: Authors, database of General Direction of Public Finance (DGFIP).

**Figure 2: Lisa statistics for property tax rates and property tax income in Rhône-Alpes counties**



Source: Authors, database of General Direction of Public Finance (DGFIP).

### 3. RESULTS FROM MODELLING TAX MIMICKING IN FRENCH COUNTIES

Tables 5 and 7 present the results of tax mimicking in counties in the PACA and Rhône-Alpes regions using a spatial econometric model. Two preliminary issues should be discussed: first, the parameter  $\rho$  is significant when studying property tax mimicking in counties within the Provence-Alpes-Côte-d'Azur and Rhône-Alpes regions. The coefficients of the parameter  $\rho$  are consistent with the Moran I findings and imply that spatial interaction is significant for the property tax rates model and property tax per receipt amount model. Second, Table 8 presents the results of the specifications tests which are based on the recommendations of Lesage and Pace (2009) and Elhorst (2010). Elhorst recommends starting with the SDM model as a general specification. Tables 6 and 9 deliver the results for marginal effects which feature direct, indirect and total effects. The indirect effects exhibit how a change in a variable in one county affects its neighbors.

In both regions, an increase in the property tax rate (or the property tax per receipt amount) in a county has a positive impact on the property tax rates (or the property tax per receipt amounts) of its neighboring counties, which confirms the hypothesis of property tax mimicking.

In both regions, the county's population has a positive effect on the property tax rate and on the property tax income. This could be explained by the fact that an increase in the population size increases local public spending and the local tax base value. Conversely, an increase in the population of a county has a negative effect on the property tax rates and property tax incomes of neighboring counties. This suggests that individuals leave smaller counties for relocation to the most populated ones due to a higher level of local public services. For the PACA region, a 1% increase in a county's population raises its property tax rate by 0.16% and the property tax per receipt amount by 1.11% (direct effects), while a 1% increase in its neighbor's population leads to a 0.07% decrease in its tax rate (indirect effect). For the Rhône-Alpes region, a 1% increase in a county's population raises the property tax rate by 0.11% and the property tax per receipt amount by 0.95% (direct effects). An increase in its neighbor's population leads to a decrease in the property tax rate by 0.03% (indirect effect).

Regarding the demographic composition of the counties, Shan (2010) asserts that high property tax rates push elderly homeowners to move, while Bocci et al. (2019) argue that the proportion of elderly people in the population has a positive impact on the property tax rate due to the higher level of demand for local services.

**Table 5: Property tax mimicking in counties in the Provence-Alpes-Côte-d'Azur region**

Variables	Property tax rates			Property tax per receipt amount		
	Nonspatial Model	SAR	SDM	Nonspatial model	SAR	SDM
Population	0.1454*** (0.0127)	0.1371*** (0.0123)	0.1303*** (0.0315)	1.1568*** (0.0831)	1.0187*** (0.0633)	1.1136*** (0.0632)
Area	0.02071 (0.0169)	-0.0025 (0.0200)	0.0433** (0.0231)	0.3204* (0.0831)	0.0341 (0.1008)	0.2839** (0.1011)
Population over 65	-0.0031* (0.0012)	-0.0030* (0.0017)	-0.0021 (0.0014)**	-0.0017 (0.0031)	-0.0014 (0.0078)	-0.0002 (0.0063)*
Unemployment rate	0.0721*** (0.0146)	0.0729*** (0.0195)	0.0729*** (0.0179)	0.0386 (0.0283)	0.0432 (0.0977)	0.0246 (0.0789)
Per capita grants	0.0083* (0.0038)	0.0081*** (0.0017)	0.0077*** (0.0016)	0.0331 (0.0211)	0.0306*** (0.0087)	0.0270*** (0.0071)
Left-wing incumbents	0.1152* (0.0357)	0.1054** (0.0504)	0.0908** (0.0465)	0.2268* (0.1118)	0.1655 (2513)**	0.3651** (0.2041)
Right-wing incumbents	0.0554 (0.0335)	0.0540 (0.0415)	0.0588 (0.0386)	-0.2747 (0.1562)	-0.2831 (0.2073)	-0.1499 (0.1694)
Electoral distance	0.0020** (0.0008)	0.0021** (0.0008)	0.0012** (0.0007)	-0.0023 (0.0035)	-0.0071 (0.0041)	-0.0022 (0.0033)
Littoral	0.1880*** (.0482)	0.1425** (0.0666)	0.1662** (0.0871)	3.468** (1.0205)	2.657*** (0.3445)	1.6522*** (0.3819)
Spatial $\rho$	-	0.0602*** (0.0211)	0.5003*** (0.0418)	-	0.1578*** (0.0235)	0.7725*** (0.0334)
$w_x$						
Population	-	-	-0.1344*** (0.0248)	-	-	-0.8660*** (0.1118)
Area	-	-	-0.0812*** (0.0221)	-	-	-0.4633*** (0.0929)
Population over 65	-	-	-0.0054 (0.0039)**	-	-	-0.0087 (0.0173)*
Unemployment rate	-	-	-0.0257*** (0.0719)	-	-	-0.1330 (0.3145)
Per capita grants	-	-	-0.0013*** (0.0045)	-	-	0.0107 (0.0197)
Right-wing incumbents	-	-	0.0296 (0.0903)	-	-	0.2659 (0.3961)
Left-wing incumbents	-	-	0.1842** (0.1123)	-	-	-0.2154** (0.4938)
Electoral distance	-	-	0.0015 (0.0020)	-	-	-0.0034 (0.0087)
Littoral	-	-	-0.0233** (0.1686)	-	-	-0.7743 (0.7782)
Intercept	1.3822*** (0.1425)	14747*** (0.1554)	1.2058*** (0.1498)	1.8661** (0.6584)	3.2708*** (0.7867)	2.6094*** (0.6555)
Observations	978	978	978	978	978	978
Log likelihood	-	-649.26	-580.038	-	-2222.57	-2060.17

Note: \*, \*\*, \*\*\* correspond to significance at the thresholds of 1%, 5%, 10%, respectively. Source: Authors, (INSEE), French General Direction of Local Authorities (DGCL) and the Ministry of the Interior.

In PACA, the proportion of elderly people in a county not only negatively affects its property tax rate but also the property tax rates of its neighbors; this parameter is not significant for counties in the Rhône Alpes. This seems to align with the demographics of both regions. The southern PACA region receives a steady influx of elderly people who choose to relocate to the sunny French Riviera. The elderly make up the largest

electoral body in the PACA municipalities; these municipalities adapt their fiscal and public goods and services policies to the needs of this population group.

In both regions, a county's unemployment rate has a positive effect on its property tax rate. This may appear to be a controversial result. Bordignon et al. (2003), Gérard et al. (2009) and Cassette et al. (2012) reported a negative effect of unemployment rate on a county's property tax rate. Conversely, Leprince et al. (2005), Edmark and Agren (2008) and Lyytikainen (2012) show that the unemployment rate has a positive effect on the property tax rate. Bastida et al. (2019) stress the fact that residents of counties with a high level of unemployment need more local public services which can only be funded through local taxes. In both French regions' counties, a higher unemployment rate clearly leads to higher property taxes, which confirms the assumption that higher public services are funded by local governments through the taxation of real estate. Unemployment does not affect the tax rates in neighboring counties.

**Table 6: Direct and indirect effects of property tax mimicking in counties in the Provence-Alpes-Côte-d'Azur region**

Effects	Variables	Property tax rate		Property tax per receipt amount	
		SAR	SDM	SAR	SDM
Direct Effects	Population	0.1372*** (0.0123)	0.1666*** (0.0141)	1.0225*** (0.0632)	1.1126*** (0.0646)
	Area	-0.0025 (0.0200)	0.0384** (0.0231)	0.0342 (0.1011)	0.2381** (0.1076)
	Population over 65	-0.0030* (0.0015)	-0.0026** (0.0015)	-0.0014 (0.078)	-0.0019 (0.0078)
	Unemployment rate	0.0730*** (0.0195)	0.0738*** (0.0198)	0.0433 (0.0980)	0.0031 (0.1082)
	Per capita grants	0.0081*** (0.0017)	0.0080*** (0.0016)	0.0307*** (0.0087)	0.0329*** (0.0083)
	Right-wing incumbents	0.0540 (0.0415)	0.0640 (0.0404)	-0.2841 (0.2080)	-0.1217 (0.2021)
	Left-wing incumbents	0.1054** (0.0504)	0.1108** (0.0488)	0.1661 (0.2522)	0.3776** (0.2454)
	Electoral distance	0.0021** (0.0008)	0.0014* (0.0007)	-0.0007 (0.0041)	-0.0032 (0.0039)
	Littoral	0.1425** (0.0666)	0.1754** (0.0813)	2.666*** (0.344)	2.0372*** (0.3549)
	Indirect effects	Population	0.0075** (0.0027)	-0.0786*** (0.0344)	0.1619*** (0.0265)
Area		-0.0001 (0.0011)	-0.0957** (0.0314)	0.0054 (0.0156)	-0.8176** (0.3082)
Population over 65		-0.0001 (0.0001)	-0.0103 (0.0064)	-0.0002 (0.0012)	-0.0301 (0.0600)
Unemployment rate		0.0040 (0.0018)	0.0172 (0.1163)	0.0068 (0.0155)	-0.3819 (1.0754)
Per capita grants		0.0004 (0.0001)	0.0041 (0.0071)	0.0048** (0.0015)	0.1058 (0.0671)
Right-wing incumbents		0.0029 (0.0025)	0.0951 (0.1464)	-0.0449 (0.0339)	0.5028 (1.3640)
Left-wing incumbents		0.0058* (0.0034)	0.3692** (0.1842)	0.0263 (0.0400)	0.2232 (0.0296)
Electoral distance		0.0001* (0.0006)	0.0034 (0.0031)	-0.0001 (0.0006)	-0.1745 (0.02964)
Littoral		0.0078* (0.0041)	0.1713** (0.2271)	0.4223*** (0.0744)	6.8701*** (1.9428)

Effects	Variables	Property tax rate		Property tax per receipt amount	
		SAR	SDM	SAR	SDM
Total effects	Population	0.1448*** (0.0126)	0.0879*** (0.0357)	1.1842*** (0.0698)	1.0936** (0.3231)
	Area	-0.0026 (0.0211)	-0.0576** (0.0395)	0.0397 (0.1167)	-0.5795 (0.3691)
	Population over 65	-0.0031* (0.0016)	-0.0129** (0.0395)	-0.0016 (0.0090)	-0.0321 (0.0652)
	Unemployment rate	0.0771*** (0.0207)	0.0911*** (0.1262)	0.0502 (0.1135)	-0.3787 (1.1537)
	Per capita grants	0.0085** (0.0018)	0.0121*** (0.0077)	0.0356*** (0.1012)	0.1387 (0.0719)
	Right-wing incumbents	0.0570 (0.0438)	0.1591 (0.1641)	-0.3291 (0.2411)	0.3811 (1.4907)
	Left-wing incumbents	0.1112** (0.0531)	0.4801** (0.2055)	0.1925 (0.2925)	0.6008** (1.8632)
	Electoral distance	0.0022* (0.0008)	0.0049* (0.0035)	-0.0008 (0.0047)	-0.0206 (0.0320)
	Littoral	0.1504** (0.0696)	0.3467*** (0.2075)	3.0890*** (0.3804)	8.9073*** (1.9395)

Note: \*, \*\*, \*\*\* correspond to significance at the thresholds of 1%, 5%, 10% respectively.  
Source: Authors, (INSEE), French General Direction of Local Authorities (DGCL) and the Ministry of the Interior.

The fiscal indicator of the subsidies per capita received by the county from the central government has a positive effect on the property tax rate and on the property tax per receipt amount for the counties in both regions. Subsidies per capita can be used as a proxy of the influence of the central government on local governments' expenditure policies (Bastida et al., 2019). Leprince et al. (2005) attribute this positive relation to a fly paper effect<sup>2</sup>. For the counties in the Provence-Alpes-Côte-d'Azur region, a 1% increase in subsidies per capita from the central government, increases the property tax rate by 0.008% and the property tax per receipt amount by 0.032% (direct effect). For the region of the Rhône-Alpes, the property tax rate is increased by 0.0021% and the property tax per receipt amount by 0.0016% (direct effect). The results also show that an increase in subsidies from the central government in a county does not have an effect on the property tax rates of neighboring counties.

Next, it clearly appears that left-wing local governments are correlated with higher property tax rates in the counties of both regions. Tellier (2006) reinforces that left-wing parties increase local public spending and property tax rates while right-wing parties decrease them. For counties in the Provence-Alpes-Côte-d'Azur region, a 1% increase in left-wing incumbent participation in the municipal council increases the property tax rate by 0.11% (direct effect) and the property tax rates of neighboring counties by 0.36% (indirect effect). In counties of the Rhône Alpes, a 1% increase in left-wing incumbents increases the property tax rate by 0.05%, the property tax per receipt amount by 0.201% (direct effect) and the property tax rates

<sup>2</sup> The fly paper effect describes a strategy adopted by low income counties seeking subsidies from the central government. For this, they plan the production of new public goods and services which are financed by local taxes and Central State's funds. Hines and Thaler (1995) and Bailey and Cannolly (1998) show that the central government supports counties which produce public goods when they make an effort to finance a part of their expenses through local funds.

of neighboring counties by 0.25% (indirect effect). The presence of right-wing governments does not affect tax rates in the PACA region while it negatively affects tax rates in the Rhône-Alpes.

**Table 7: Property tax mimicking in counties in the Rhône-Alpes region**

Variables	Rhône-Alpes					
	Property tax rates			Property tax per receipt amount		
	Nonspatial model	SAR	SDM	Nonspatial model	SAR	SDM
Population	0.136*** (0.008)	0.111*** (0.007)	0.113*** (0.007)	1.043*** (0.0261)	1.011*** (0.017)	0.95*** (0.019)
Area	-0.018* (0.0104)	-0.064*** (0.010)	0.028** (0.011)	0.134*** (0.0269)	0.086*** (0.024)	0.268*** (0.028)
Population over 65	-0.00006 (0.0007)	0.0001 (0.0005)	-0.00001 (0.0005)	0.00062 (0.0022)	0.00075 (0.0014)	0.00027 (0.0012)
Unemployment rates	0.037* (0.014)	0.035* (0.018)	0.0368** (0.0162)	0.0403** (0.0201)	0.0378 (0.0443)	0.0311 (0.0403)
Per capita grants	0.0002*** (0.00004)	0.0001*** (0.00006)	0.0002*** (0.00)	0.0016*** (0.00038)	0.0016*** (0.00016)	0.0016*** (0.00015)
Left-wing incumbents	0.056** (0.0201)	0.0504** (0.022)	0.0384** (0.019)	0.157** (0.0558)	0.154** (0.097)	0.189*** (0.189)
Right-wing incumbents	-0.075*** (0.0183)	-0.071*** (0.019)	-0.0175*** (0.018)	0.1058** (0.0518)	0.0977** (0.0479)	0.11** (0.045)
Electoral distance	-0.0000063 (0.00001)	-0.0000003 (0.00)	0.00000295 (0.0000)	-0.000034* (0.00002)	-0.000032 (0.00008)	-0.0000004 (0.00007)
Spatial $\rho$	-	0.14*** (0.077)	0.63*** (0.022)	-	0.034*** (0.0065)	0.558*** (0.0252)
$w_x$						
Population	-	-	-0.088*** (0.0135)	-	-	-0.518*** (0.0438)
Area	-	-	-0.15*** (0.012)	-	-	-0.446*** (0.0314)
Population over 65	-	-	-0.004 (0.0021)	-	-	-0.009* (0.0053)
Unemployment rate	-	-	-0.046*** (0.048)	-	-	-0.0087 (0.121)
Per capita grants	-	-	0.00016*** (0.00017)	-	-	-0.00083** (0.00042)
Left-wing incumbents	-	-	0.11** (0.045)	-	-	0.0189 (0.1131)
Right-wing incumbents	-	-	-0.078** (0.039)	-	-	-0.0075 (0.095)
Electoral distance	-	-	-0.0007 (0.000008)	-	-	-0.00038* (0.00021)
Intercept	1.81*** (0.082)	2.003*** (0.011)	1.66*** (0.071)	3.73*** (0.21)	3.94*** (0.188)	3.505*** (0.177)
Observations	2887	2887	2887	2887	2887	2887
Log likelihood	-1215.32	-941.36	-	-	-3756.75	-3550.81

Note: \*, \*\*, \*\*\* correspond to significance at the thresholds of 1%, 5%, 10% respectively. Source: Authors, INSEE, French General Direction of Local Authorities (DGCL) and the Ministry of the Interior.

Finally, coastal areas exhibit higher property tax rates and property tax income in counties of the PACA region. This is due to the fact that these counties feature higher tax base values because of land competition between primary and secondary residences.

**Table 8: Results from the specification tests**

	Provence-Alpes-Côte-d'Azur		Rhône-Alpes	
	Property tax rates	Property tax per receipt amount	Property tax rates	Property tax per receipt amount
LM-Lag	302.23***	24.17***	325.43***	29.36***
LM-Error	747.51***	19.53***	801.25***	25.93***
RLM-Lag	1.72	6.59***	0.99	9.28***
RLM-Error	467.24***	0.003	511.36***	0.016
LR ( $H_0$ ) : $\alpha' = \beta' = 0$ ; SLM	413.58***	481.05***	382.78***	414.29***
LR( $H_0$ ) : $\alpha' + \rho\alpha = 0$ ; $\beta' + \rho\beta = 0$ ; SEM	34.25***	43.96***	26.35***	38.81***

Note: \*, \*\*, \*\*\* correspond to significance at the thresholds of 1%, 5%, 10% respectively.

**Table 9: Direct and indirect effects of tax mimicking in counties in the Rhône-Alpes**

Effects	Variables	Property tax rates		Property tax per receipt amount	
		SAR	SDM	SAR	SDM
Direct effects	Population	0.1116*** (0.0071)	0.1115*** (0.0075)	1.011*** (0.0175)	0.9514*** (0.0187)
	Area	-0.065*** (0.0102)	0.0134 (0.0117)**	0.086** (0.0247)	0.241*** (0.0289)
	Population over 65	0.0001 (0.0005)	-0.0004 (0.0006)	0.00075 (0.0014)	-0.00057 (0.0014)
	Unemployment rate	0.0351* (0.0184)	0.0342** (0.0182)	0.0378 (0.0443)	0.0318 (0.0439)
	Per capita grants	0.00019** (0.00006)	0.00021** (0.0006)	0.0016*** (0.00016)	0.0016*** (0.00016)
	Left-wing incumbents	0.0505** (0.022)	0.0533** (0.021)	0.154** (0.0531)	0.201*** (0.051)
	Right-wing incumbents	-0.0708*** (0.0198)	-0.0275 (0.0189)	0.0977** (0.0479)	0.1155*** (0.0464)
	Electoral distance	-0.000003 (0.0000332)	-0.000005 (0.00)	-0.000032 (0.00008)	-0.00004 (0.000079)
Indirect effects	Population	0.0149*** (0.0014)	-0.0315 (0.0217)	0.0300*** (0.0057)	0.020 (0.0461)
	Area	-0.0087*** (0.0018)	-0.252*** (0.0239)	0.0025*** (0.00071)	-0.489*** (0.049)
	Population over 65	0.000014 (0.00007)	-0.008* (0.0041)	0.0000225 (0.000042)	-0.015* (0.009)
	Unemployment rate	0.0047* (0.024)	-0.045 (0.095)	0.0011 (0.0013)	0.0143 (0.2038)
	Per capita grants	0.00025** (0.000009)	0.00053 (0.0003)	0.00005*** (0.00001)	0.00013 (0.0007)
	Left-wing incumbents	0.0067** (0.003)	0.256** (0.085)	0.0045** (0.00181)	0.2057 (0.1831)
	Right-wing incumbents	-0.0094** (0.0027)	-0.171** (0.071)	0.0028* (0.0015)	0.0897 (0.1531)
	Electoral distance	-0.000 (0.0000037)	-0.0001 (0.00017)	-0.000 (0.00)	-0.00063* (0.00036)

Effects	Variables	Property tax rates		Property tax per receipt amount	
		SAR	SDM	SAR	SDM
Total effects	Population	0.126*** (0.0077)	0.079** (0.0232)	1.041*** (0.0169)	0.971*** (0.049)
	Area	-0.0738*** (0.0119)	-0.239*** (0.027)	0.0887*** (0.0253)	-0.248*** (0.0574)
	Population over 65	0.0001 (0.0006)	-0.0084* (0.0045)	0.00077 (0.0014)	-0.0159 (0.0097)
	Unemployment rate	0.039* (0.0208)	-0.011 (0.105)	0.0389 (0.0456)	0.0461 (0.2261)
	Per capita grants	0.00021** (0.0007)	0.0007** (0.00037)	0.0017*** (0.00017)	0.0017** (0.00079)
	Left-wing incumbents	0.0573** (0.025)	0.31** (0.0932)	0.1593** (0.0547)	0.4064** (0.2007)
	Right-wing incumbents	-0.0803*** (0.0225)	-0.199** (0.0781)	0.101** (0.049)	0.205 (0.1684)
	Electoral distance	-0.000003 (0.00)	-0.00014 (0.00019)	-0.000033 (0.00008)	-0.00067* (0.0004)

Note: \*, \*\*, \*\*\* correspond to significance at the thresholds of 1%, 5%, 10% respectively. Source: Authors, INSEE, French General Direction of Local Authorities (DGCL) and the Ministry of the Interior.

#### 4. THE SOURCES OF TAX MIMICKING IN FRENCH COUNTIES

The results presented in the previous section confirm the existence of property tax mimicking among the 978 counties in the Provence-Alpes-Côte-d'Azur region and the 2,887 counties in the region of the Rhône-Alpes. Two mechanisms explain the presence of strategic interaction among local governments: yardstick competition and spillover effects. Bordignon et al. (2003) suggest that tax mimicking can be attributed to both phenomena equally. We show that yardstick competition is the main source of tax mimicking in counties in the PACA region, while both yardstick competition and spillover effects determine tax mimicking in the Rhone Alpes region.

In yardstick competition models, consumer-voters compare the tax rate in their county to those of neighboring counties. If property tax rates of neighboring counties are lower than that of their own county for a similar public good endowment, the consumer-voters are not likely to re-elect their local incumbents. To test a yardstick competition model, we follow Ferraresi et al. (2016) and Bocci et al. (2019), but we modify the reaction function by including a specific interaction term between the electoral distance and the average neighboring tax wt as follows:

$$t = \rho wt + X\beta + \delta_1(\text{electoral}_{distance} \cdot wt) + \varepsilon$$

If the coefficient of the interaction term is significant and nonzero, this indicates that counties mimic each other in terms of their fiscal policies. A negative interaction between neighboring property tax policies and the electoral distance shows that incumbents are interested in mimicking the property tax policies of neighboring counties in order to be re-elected. A positive interaction between neighboring property tax policies and electoral distance implies that incumbents from different counties may have common interests and form electoral alliances. Finally, if the coefficient is not significant, then there is no evidence of yardstick competition between counties. In that case, local tax decisions do not interfere with the electoral outcome in neighboring counties.

**Table 10: Results from the yardstick competition model**

Variables	Provence-Alpes-Côte-d'Azur		Rhône-Alpes	
	Property tax rates	Property tax per receipt amount	Property tax rates	Property tax per receipt amount
$\rho$	0.104*** (0.029)	0.273*** (0.241)	0.141*** (0.111)	0.0347*** (0.0347)
Population	0.146*** (0.0126)	0.904*** (0.0618)	0.111*** (0.0071)	1.011*** (0.0175)
Area	0.0009 (0.0202)	0.245** (0.0987)	-0.064*** (0.0102)	0.0897*** (0.0248)
Population over 65	-0.0032** (0.0015)	-0.006 (0.0074)	0.0002 (0.005)	0.0007 (0.0014)
Unemployment rate	0.071*** (0.0193)	0.043 (0.0931)	0.0351* (0.0183)	0.0379 (0.0443)
Per capita grants	0.0081*** (0.0017)	0.0284** (0.0083)	0.0002** (0.000068)	0.0016*** (0.00016)
Left-wing incumbents	0.1015** (0.049)	0.301 (0.2400)	0.0504** (0.022)	0.155** (0.0530)
Right-wing incumbents	0.0448 (0.0412)	-0.313 (0.197)	-0.0708*** (0.0198)	0.0967** (0.0478)
Electoral distance	0.0023** (0.0008)	0.0019 (0.004)	-0.000003 (0.0000)	-0.00003 (0.00007)
W*electoral distance	-0.0048** (0.00204)	-0.067*** (0.0089)	-0.00016 (0.00009)	-0.0006 (0.0002)
Littoral	-0.0897 (0.067)	-3.043*** (0.343)	-	-
Intercept	2.652*** (0.381)	6.214*** (1.87)	1.996*** (0.077)	3.927*** (0.188)
Observations	978	978	2887	2887
Log likelihood	-640.02	-2179.43	-1213.98	-3753.53

Notes: \*, \*\*, \*\*\* correspond to significance at the thresholds of 1%, 5%, 10% respectively. Source: Authors, INSEE, French General Direction of Local Authorities (DGCL) and the Ministry of the Interior.

Table 10 presents the estimations from the yardstick competition models in both regions. As expected, for counties in the Provence-Alpes-Côte-d'Azur's region, the interaction coefficients are negative and significant. This implies that the incumbents of counties in this region imitate each other in order to appeal to consumer-voter preferences. Spatial property tax mimicking is responsive to the electoral cycle. This implies that property tax policies are influenced by neighboring property tax policies because of electoral campaigns. This is not the case for counties in the Rhône-Alpes region because the coefficient is not significant. In the Rhône-Alpes, spatial property tax mimicking is nonresponsive to the electoral cycle.

The absence of yardstick competition among counties in the Rhône-Alpes region could indicate that consumer-voters trust their local incumbents to spend the totality of local tax revenues on providing local public goods and services. As stressed previously, average property taxes are lower in the Rhône-Alpes region than in Provence-Alpes-Côte-d'Azur.

We then test if tax mimicking is due to spillover effects. The existence of spillover effects indicates that tax choices and local public expenditures generate positive or negative externalities affecting the welfare of consumers of neighboring local governments. A change in the tax policy of a local government provides a strategic incentive for neighboring local governments to also modify their tax policies. Following Ferraresi et al. (2016) and Bocci et al. (2019), we test the spillover effects model, but

we modify the reaction function by including a specific interaction term between the population size and the average neighboring tax wt as follows:

$$t = \rho wt + X\beta + \delta_2(\text{population. wt}) + \varepsilon$$

The interaction term is used to verify whether county size influences spatial interdependencies. Table 11 presents the results of spillover effects in the counties of both regions.

**Table 11: Results of spillover effects**

Variables	Provence-Alpes-Côte-d'Azur		Rhône-Alpes	
	Property tax rates	Property tax per receipt amount	Property tax rates	Property tax per receipt amount
$\rho$	0.4044*** (0.0384)	0.706*** (0.0322)	0.507*** (0.0201)	0.3442*** (0.0236)
Population	0.2018*** (0.013)	1.265*** (0.0549)	0.1631*** (0.0071)	1.087*** (0.0178)
Area	-0.015 (0.018)	-0.001 (0.082)	-0.0722*** (0.0094)	0.0065 (0.024)
Population over 65	-0.002 (0.0014)	0.0015 (0.0063)	0.00024 (0.0005)	0.001 (0.0013)
Unemployment rate	0.081*** (0.018)	0.0887 (0.0792)	0.0341** (0.017)	0.0295 (0.0427)
Per capita grants	0.0084*** (0.0016)	0.0309*** (0.0070)	0.00021** (0.00006)	0.0017*** (0.0001)
Left-wing incumbents	0.1012** (0.047)	0.405** (0.2041)	0.0451** (0.0204)	0.168** (0.0512)
Right-wing incumbents	0.081** (0.038)	-0.0083 (0.168)	-0.0151 (0.0185)	0.1593** (0.046)
Electoral distance	0.0016** (0.0007)	-0.0024 (0.0033)	0.00001 (0.00003)	0.0000036 (0.00007)
W*population	-0.1638*** (0.015)	-1.219*** (0.0601)	-0.178*** (0.009)	-0.5617*** (0.0414)
Littoral	-0.143** (0.0642)	-2.377*** (0.291)	-	-
Intercept	1.61*** (0.3747)	7.07*** (1.58)	1.897*** (0.0719)	4.081*** (0.181)
Observations	978	978	2887	2887
Log likelihood	-594.12	-2058.48	-1043.74	-3670.81

Note: \*, \*\*, \*\*\* correspond to significance at the thresholds of 1%, 5%, 10% respectively. Source: Authors, INSEE, French General Direction of Local Authorities (DGCL) and the Ministry of the Interior.

The coefficients for the counties in the Rhône-Alpes region are negative and significant, which implies that property tax mimicking between a county and its neighbors is weakened by an increase in population. Counties with a large population guarantee a higher provision of local public goods and services to the entire population even if they are not all taxpayers. Therefore, these counties are less interested in imitating the tax policies of their neighbors because they have higher expenditure needs. Smaller counties mimic tax policies of neighboring jurisdictions because they are more sensitive to the tax choices of their neighbors since they feature similar levels of local revenue and local public expenditures.

In the region of Provence-Alpes-Côte-d'Azur, the coefficient of interaction between the demographic variable and the neighboring property tax is also negative and significant. This result implies that property tax mimicking among the counties

of Provence-Alpes-Côte-d'Azur is due to both yardstick competition and to spillover effects. This indicates that small counties in both regions mimic neighboring property tax policies in order to increase their property tax income.

### CONCLUSION

The first objective of this paper is to explore the existence of property tax mimicking among French counties in two different regions: Provence-Alpes-Côte-d'Azur and Rhône-Alpes. The second is to detect the source of property tax mimicking among French counties, that is, either yardstick competition or spillover effects. To detect the presence of property tax mimicking among French counties, we use the property tax reaction function.

The paper takes a novel approach in its application to the county, a very narrow level of spatial analysis. Highly consistent data collection has been performed for that purpose. The paper does not focus on fiscal cooperation since tax mimicking models do not build on such hypotheses. In France, each county can determine its own local tax rates but cooperation may also occur within intercounty associations (intercommunalité). Intercounty associations are a unique feature of the French regional and local institutional system. They allow neighboring counties to cooperate in the production of local public goods and services and in the management of public networks such as transport. In many cases, some fiscal homogeneity may also occur. Since we compare the counties in each region, regional differences do not affect our results but differences at the department level may also appear. A portion of property tax income is allocated to the departments<sup>3</sup>, which means that departments may also influence the determination of local tax rates.

The results confirm that the counties in the PACA and Rhône-Alpes regions mimic their neighboring counties' policies in terms of property tax rates. Several socio-demographic, fiscal and political variables such as population size, area size, unemployment rate, per capita grants and left-wing incumbents are statistically significant.

To explore if property tax mimicking is due to yardstick competition, we modify the property tax reaction function by introducing an interaction term between the electoral distance and the property tax rates of neighboring counties. The results show that yardstick competition could be a source of property tax mimicking in counties in the PACA region but not in those in the Rhône-Alpes region. To explore if tax mimicking due to spillover effects exists in counties in the Rhône-Alpes and acts as a second source of tax mimicking for counties in the PACA region, we introduce into the property tax reaction function an interaction term between the population size and the property tax rates of neighboring counties. The results show that spillover effects are the source of property tax mimicking in counties in both the Rhône-Alpes and PACA regions.

Future work could cover the whole French territory but this would require a very consistent and long-term data collection. The level and type of local public expenses could also be examined to understand how counties aim to differentiate their local public goods supply compared to neighboring counties.

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<sup>3</sup>This is no longer the case in 2021. Counties receive almost all income from property taxes – a small portion goes to the Region. However, intercounty associations may also receive a part of these taxes.

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### **Mimétisme fiscal en France : le cas des communes de PACA et Rhône-Alpes**

**Résumé** – Cet article étudie le mimétisme fiscal dans les communes de deux régions françaises : Provence-Alpes-Côte d’Azur (PACA) et Rhône-Alpes. Cette analyse s’applique à un niveau d’analyse spatial très fin, jamais exploré en France, la commune. Les résultats économétriques montrent l’existence d’un mimétisme fiscal dans les deux régions. En PACA, le mimétisme repose sur la concurrence par comparaison des municipalités entre elles, tandis que dans la région Rhône-Alpes le mimétisme fiscal semble plus lié à la présence d’externalités d’agglomération.

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**Mots-clés**

Mimétisme fiscal  
Concurrence fiscale locale  
Externalités intercommunales  
France

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