

ARE STRATEGIC INTERACTIONS BETWEEN MOROCCAN LOCAL GOVERNMENTS GEOGRAPHICAL OR POLITICAL?

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This article aims to demonstrate empirically the existence of strategic interactions between the decisions of local governments in Morocco. The main objective is to know whether the interactions between Moroccan municipalities are geographical or political. In order to do this analysis, we use a detailed panel data on 1280 Moroccan municipalities from 2005 to 2009. Our results highlighted that expenditure choices of municipalities are influenced by choices taken in neighboring municipalities. These interactions exist not only among neighboring municipalities but also among municipalities whose Municipal Council have the same partisan affiliation. The analysis of neighboring interactions versus political interactions reveals the intensification of strategic behaviors between neighboring municipalities than municipalities that have the same political party at the top of Municipal Council. Therefore, decentralization induces strategic interactions between municipalities belonging to the same range in developing countries as well as in developed countries.

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JEL Classification: D72, H72, H77

1. INTRODUCTION

Decentralizing public activities has been a good way to make local governments closer to citizens and to make the provision of public goods and services more efficient and in line with local preferences (Oates, 1972). In fact, according to the “proximity principle”, decentralization improves knowledge in terms of needs and preferences of populations (Hayek, 1948) and fosters the alignment between the provision of public goods and services and the preferences of inhabitants (Tiebout, 1956; Oates, 1972). Moreover, the “principle of competition” supports the idea by introducing

inter-jurisdictional competition, decentralization should encourage local governments' efficiency (Salmon, 1987; Besley and Case, 1995). Therefore, autonomous local governments are more able to develop their own fiscal strategy to compete with jurisdictions from the same range (horizontal competition) or from different levels (vertical competition) leading to a better provision of goods and services, better allocation within the population and lower production costs. In this article, we focused our analysis on horizontal competition.

The principle of competition emerged in the literature with Tiebout (1956) which analyzed inter-jurisdictional strategic behaviors. According to the First Generation of Fiscal Federalism, decentralization helps improve the local government spending efficiency through the "voting with feet" or the "yardstick competition principles". The Tiebout's voting with feet hypothesis indicates that people can move across jurisdictions to influence local government's policies. Therefore, local governments compete with other jurisdictions using taxes and spending packages to attract populations and thus increase their tax base. The "yardstick competition" was initially developed by Salmon (1987) and Belsey and Case (1995). It suggests that horizontal competition gives the opportunity to people to compare economic performance of their elected representatives with the performance of the neighboring jurisdictions. In that case, each jurisdiction will consider particularly the program decision taken in the neighboring jurisdictions.

The empirical literature confirmed the existence of expenditure spillovers among local governments in developed countries. Case, Rosen and Hines (1993) estimate a spatial auto-regression model using annual data from Continental US over the period 1970-1985. Their results show that a state increases its own expenditures by 70 cents following a one dollar increase of the state's neighbors' expenditures. Similarly, in Spain, Sole-Olle (2006) measures the "benefit spillovers" and the "crowding spillovers" of local government's public spending policies in Spain. The findings suggest that spillovers are significant and are considerable in urban areas. Moreover, it shows that both types of spillovers are important in the suburbs, but only crowding externalities are relevant in the city center. Finally, using a dataset of 90 French municipalities with a population higher than 50,000 inhabitants over a period of 20 years (1983-2002), Foucault, Madies and Paty (2008) find significant interactions between neighboring French municipalities with respect to primary and investment expenditures. More specifically, their results show that there are interdependencies between cities whose mayors are affiliated to the same political party and that the yardstick competition doesn't significantly explain these spending interactions.

These findings have been supported by several empirical works in developed countries. For instance, in Germany (Buettner, 2001), Switzerland (Feld and Kirchgässner, 2001), the United-States (Ladd, 1992; Besley and Case, 1995; Baiker, 2001), Canada (Brett and Pinkse, 2000), and France (Jayet, Paty and Pentel, 2002; Feld, Josselin and Rocaboy, 2002).

However, the specific context of developing countries can challenge the pertinence of traditional theories and empirical studies. In fact, some hypotheses on which the

argument of competition is based - existence of local democracy, political awareness of citizens or even inter-jurisdictional mobility of inhabitants - can be perceived as little realistic in some cases (Bardhan, 2002; Dafflon and Madiès, 2008). The lack of transparency constitutes another obstacle to horizontal fiscal competition in Sub-Saharan Africa (Chambas, 2010). Furthermore, the literature on decentralization in developing countries essentially focuses on the “proximity principle” (Caldeira et al., 2014).

Nevertheless, the few empirical studies involving developing countries showed the existence of strategic interactions among local governments (Akin, Hutchinson and Strumpf, 2005; Arze, Martinez-Vasquez and Puwanti, 2008; Caldeira, Rota-Graziosi and Foucault, 2012). These authors analyzed respectively the decentralization of health services in Uganda, local public spending and level of taxes in Indonesia and local expenditures in Benin. They conclude the existence of coordination among local governments. Also, Zine El Alaoui (2017) finds that taxes of Moroccan municipalities are influenced by choices taken in neighboring municipalities, mainly for urban municipalities. Indeed, the coefficient of the weighted average vector of local taxes per capita between urban communes as well as between rural communes is significant at least at 1%. Furthermore, it becomes a more powerful value between urban communes (0.105) than between rural communes (0.051). The intensity of the spatial interactions between Moroccan municipalities can be increased with urbanization and higher municipalities’ resources.

Therefore, decentralization induces strategic interactions between municipalities belonging to the same level in developing countries even if these countries are centralized or enrolled in decentralization reforms. For instance, the central government of China can create a yardstick competition among local officials by rewarding or punishing them on the basis of relative performance as voters do in democratic countries (Caldeira, 2012). Hence, local governors may consider the risk of damaging their career since the probability of their reappointment depends on how well they perform in fulfilling their mandates from above (Tsui and Wang, 2008). Thus, the central government creates competition among local governments by evaluating them on the basis of their relative performance in providing public services.

This work aims at verifying the existence of spending interactions between municipalities in Morocco. It contributes to the literature on fiscal decentralization and strategic interactions in two ways. First, the literature dealing with strategic interactions in developing countries is scarce because of the lack of information on local public finances. Second, Morocco is a unitary country and developing country. In this context¹, we may expect that despite the spending interactions between municipalities don’t exist or would remain modest. The analysis will not be limited to the study of interactions between neighboring municipalities but also between municipalities whose council has the same partisan affiliation. In fact, we want to know how political calculations are done at a decentralized level in Morocco. We chose Morocco as a case country because

¹ The context of ongoing regionalization reforms and developing countries.

decentralization has been on the political agenda for over three decades. In fact, the decentralization reform process has been introduced through the 2011 Constitution and elaborated through the Advanced Regionalization agenda. According to the World Bank (2019), Morocco stands out from other Middle East and North African countries by according a high level of financing to local administrations - 3.5 percent of gross national product, compared with only 1 percent in Tunisia, for instance and by devolving important functions to them (including, for example, roadways, public areas, urban transport, waste, water, sanitation, and hygiene). Therefore, this article contributes to the empirical literature on developing countries by testing the existence of geographical and political inter-jurisdiction interactions in terms of local spending.

The hypothesis of strategic interactions among municipalities is analyzed using a spatial autoregressive model: where the spending of a municipality depends on the level of spending of its neighbors and/or municipalities affiliated to the same political party and its own characteristics. The findings will then be compared to those found in developed and developing countries. This empirical analysis is based on a dataset of 1280 Moroccan municipalities over the period 2005-2009.

The remainder of the article is organized as follows: Section 2 provides a description of decentralization and municipal functioning in Morocco. In Section 3 and 4, the data and the empirical model are presented respectively. Section 5 presents and discuss the results of regression. Finally, Section 6 outlines our conclusions.

2. DECENTRALIZATION IN MOROCCO

Morocco is a parliamentary constitutional monarchy. The most recent Constitution was approved by referendum in 2011. Morocco has implemented a wide-range of reforms which set the basis for a more open and democratic society, a more modern state of law and institutions, greater separation of powers, and increased decentralization (World Bank, 2016). The law is a hybrid civil law system, based on French and Islamic law. The country held regional and municipal elections in September 2015 which should deepen the decentralization agenda and local governance. Even before 2011 the institutional evolution of local government in Morocco has gone through several reforms. Various laws and decrees have been passed to expand the jurisdiction and resource system of sub-national governments (Burn et al., 2005).

The process of decentralization started since the independence with the establishment of the Constitution on November 11, 1959. The decentralization process has been long and changing over time. The Moroccan territory is divided into 16 regions², 13 prefectures and 62 provinces, and 1503 municipalities (221 are urban and 1282 are rural). The municipality is the smallest subdivision. In parallel with the decentralization system, there is a system of “deconcentration”. The state’s

² In 2015, the number of regions has been reduced from sixteen to twelve.

deconcentrated organization - local government authority - is based mainly on this territorial division: the Wali is the highest representative of the central authority at this deconcentrated level and exercises jurisdiction at a regional level (within the wilaya), while the governor exercises jurisdiction at the prefecture and provincial level (World Bank, 2019). There is no strict hierarchy between the different levels and each local and regional authority has certain autonomy in the sphere of its own competences (Franzsen and Elkhdari, 2017). Indeed, this is also reflected in the 2011 Constitution, according to which “no local government can exercise control over another.”

Morocco has historically prioritized a decentralization centered upon the municipalities (World Bank, 2009). Indeed, the different constitutions of 1963, 1970, 1976 and 1996 have enhanced the municipalities’ status on both institutional and economic sides, by extending their scope of authority and intervention. In that respect, the Moroccan decentralization process increased the competencies of municipalities and developed their fiscal autonomy.

The municipal council is responsible for resolving all issues related to economic and social development of the municipality in accordance with the guidelines and objectives set by the national plan. It decides to make or participate in urban restructuring programs, habitat programs, ensuring the preservation and promotion of local architecture. It is responsible for managing local public services, particularly in the electricity and water sectors, and urban transport supply. The municipal council also deals with the collection and treatment of household waste and contributes to the realization, maintenance and management of cultural and sports facilities. It initiates all actions necessary for the promotion of social, cultural and sports activities. (Elkhdari, 2018).

The budget of the municipalities is determined by the Municipal Council collaborating with the municipal recipient. Then, it is presented to the members of the Council for a vote. For urban municipalities, the budget is approved by the Ministry of the Interior after a visa from the Ministry of Finance. For rural municipalities, the approbation and the visa of the budget are respectively insured by the governor and the regional treasurer, prefectural or provincial acting on the behalf of the Ministry of the Interior, the Ministry of Finance. Once voted and approved, the budget constitutes a mandatory financial document that must be strictly applied. Its execution is the responsibility of the President of the municipal council.

The council exercises other functions, such as: fixing the equipment program, advising the central government on actions to be taken to promote municipal development. Under the law, two standing committees are formed by the council and are responsible for reviewing economic matters that must be submitted to the plenary assembly: The Financial and Fiscal Affairs Committee and the Committee on Economic and Social Affairs. These committees are chaired by the President or his delegate.

The central government also devotes other responsibilities to the municipal council including the maintenance of schools and health centers, the conduct of reforestation programs, the implementation and the maintenance of training centers and infrastructure equipment.

The municipal council has prerogatives in local fiscal matters, in particular it is responsible for setting the rates and tariffs of certain taxes, managing the tax base, collecting and controlling the various taxes and charges, with the exception of business tax, residence tax and municipal services tax (see Section 3).

Two types of elections are held in Morocco: municipal elections and legislative elections. The municipal elections of 1960 constituted the starting point of the Moroccan electoral experience. It consists of the election of the municipal councils by universal suffrage for a period of six years. In September 2015, regional elections were held for the first time to elect the regional councils. There were eight municipal elections since 1960 (1963, 1969, 1976, 1983, 1992, 1997, 2003, 2009) and one “municipal and regional” election in 2015.

For municipal elections, the participation rate remained around 70-75% until 1997 (with the exception of 1976, when participation was down to 66%) and went down to around 51-54% in the era of King Mohamed VI. The participation rate was 53% in the last local elections.

The legislative elections are held to elect the members of the House of Representatives. A minimum of 6% of votes is required to obtain a seat, and this threshold has been revised to 3% since 2016. Ten legislative elections have been held since 1960: 1963, 1970, 1977, 1984, 1993, 1997, 2002, 2007, 2011 and 2016. The participation rate has declined over the last few years, for instance the rate went from 85% in 1984 to 37% in 2007; it then increased slightly to reach 43% in 2016.

3. DATA AND DESCRIPTIVE STATISTICS

The dataset used has been collected from three different organizations and covers a period of 5 years (2005-2009). The data on municipal revenues and expenditures were collected from the General Treasury of the Kingdom (TGR)³. The data on socio-economic and demographic indicators were provided by the High Commission for Planning (HCP)⁴ and come from the 2004 inhabitants census data and 2007 surveys on living standards, poverty, vulnerability, and inequality at the municipal level. Finally, political data were provided by the Ministry of Interior and contain information on the political affiliation of the municipal council.

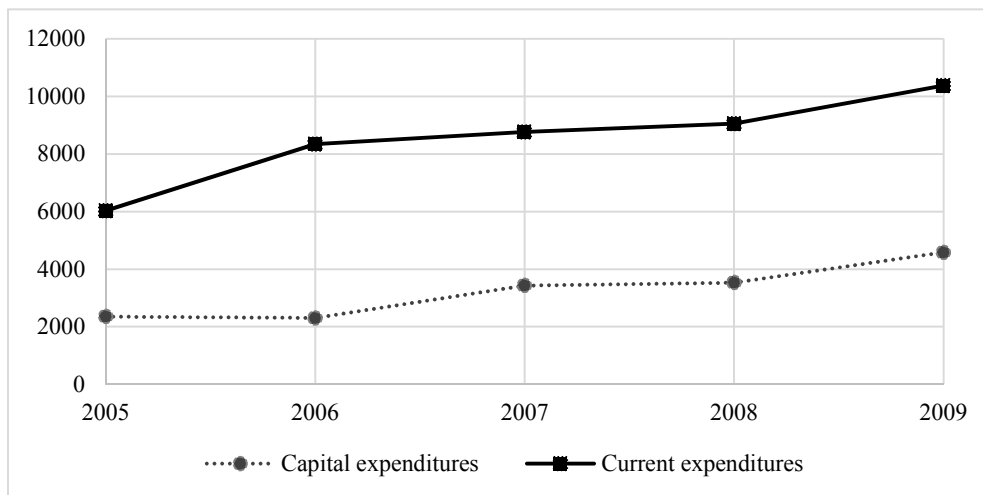
Figure 1 presents the evolution of current and capital expenditures over the period under study. It shows that municipal spending did not increase significantly between 2005 and 2009.

On average current expenditures account for 72.7% of the total expenditures, which shows that Moroccan municipalities invest three times less in expenses related to current expenditures (salary, material, etc.). The Advanced Regionalization reform confirmed

³ The TGR is a department of the Ministry of Finance of Morocco.

⁴ The HCP is the Moroccan National Statistics Institute.

the main role of municipalities in the provision of key basic services that are critical to significant economic growth. Although the reforms gave them more autonomy, municipalities still face mounting challenges to step up to the task of delivering the infrastructure needed to accommodate the continued increase in urban population (World Bank, 2019). Indeed, The World Bank Group estimated that Morocco's urban municipalities will need to multiply their current investment level by five in order to accommodate future investment needs. Therefore, in Morocco there are strong inequalities between the municipalities: 20% of the municipal's accounts for 73.7% of the total expenditures of municipalities in Morocco.



Source: General Treasury of the Kingdom, authors' calculations

Figure 1. Evolution of Municipal Expenditures per Components (in Million Dirhams)

Table 1 provides more granular information on the composition of current and capital spending. By looking at the composition of current spending, it appears that a large part of the municipal budget is allocated to salaries and equipment expenditures which represent on average respectively 55.67% and 19.53% of current expenditures. Equipment expenditures gather various management expenses such as water, electricity, phone, car park maintenance, public lighting, and reimbursement of private companies for solid waste management. Subventions and loans respectively represent 10.2% and 7.53% of the current expenditures.

Concerning capital expenditures, the main building block of the category (47.63%) is dedicated to "new construction", then comes integrated projects' spending such as the construction of train stations. National programs account for the third expense item in

the category. It gathers electrification programs, drinking water supply programs and the national road program. Movable and real estate acquisitions represent respectively 7.59% and 8.67% of the investment expenses.

Table 1. Moroccan Municipalities' Expenditures (in Million Dirhams)

	2005	2006	2007	2008	2009
Current expenditures	6027.52	8336.38	8760.54	9047.35	10373.70
% of total expenditures	71.94	78.35	71.87	71.93	69.37
Council	124.07	119.12	201.31	217.73	199.05
% of current expenditures	2.06	1.43	2.30	2.41	1.92
Equipment	1 149.98	1 734.40	1 699.24	1 714.78	2 011
% of current expenditures	19.08	20.81	19.40	18.95	19.39
Staff	3574.19	4685.03	4812.55	4845.76	5641.48
% of current expenditures	59.30	56.20	54.93	53.56	54.38
Debt	479.30	670.64	685.41	646.21	721.51
% of current expenditures	7.95	8.04	7.82	7.14	6.96
Interest	358.20	392.15	472.03	448.32	499.34
% of current expenditures	5.94	4.70	5.39	4.96	4.81
Grant	303.57	671.78	890.00	1174.56	1301.32
% of current expenditures	5.04	8.06	10.16	12.98	12.54
Other	38.21	63.25	-	-	-
% of current expenditures	0.63	0.76	-	-	-
Capital expenditures	2351.59	2302.96	3429.59	3530.54	4580.23
% of total expenditures	28.06	21.65	28.13	28.07	30.63
Movable acquisition	62.67	93.25	368.66	400.50	419.19
% of capital expenditures	2.67	4.05	10.75	11.34	9.15
Real estate acquisition	249.97	216.84	252.72	257.32	-
% of capital expenditures	10.63	9.42	7.37	7.29	-
New construction	1413.75	1292.69	1420.12	1340.89	2246.62
% of capital expenditures	60.12	56.13	41.41	37.98	49.05
National program	-	0.63	823.00	1016.66	913.50
% of capital expenditures	-	0.03	24.00	28.80	19.94
Integrated project	625.20	699.55	565.09	515.17	1000.93
% of capital expenditures	26.58	30.26	16.48	14.59	21.85
Total expenditures	8379.11	10639.34	12190.13	12577.89	14953.93
% of national GDP	1.59	1.84	1.97	1.83	2.04

Source: General Treasury of the Kingdom, authors' calculations.

Besides, municipalities generated surpluses for several years. Indeed, over the period studied, municipal revenues exceeded municipal spending by MAD⁵ 7.5 billion on average. However, these surpluses do not originate from efficient governance. In fact, according to the Organic Law No.45-08, Title II, Article 6, municipalities should have a balanced budget and budget surpluses should be carried over the next year's budget.

The big gap between the current and capital expenditures is linked to the lack of skills, competencies and strategic envisioning of the Mayors and the human resources of municipalities. Besides, the municipalities have a low rate of supervision: the proportion of senior managers and technicians in the workforce does not exceed 10%⁶. In addition, some of the local elected representatives, particularly in rural areas, are illiterate. It is essential to recall that in the last municipal elections of September 2015, 43% of the local elected officials did not go beyond the primary school.

Moroccan municipalities' revenues are divided into two categories. On one hand, capital revenues linked to local taxes and transfers. On another hand, current revenues which comprise service product, patrimonial revenue, donation and legacy, previous surplus, private domain alienation and loans. Local taxes are managed and collected by municipalities, which determines the tax base and the tax rate except for three local taxes managed and recovered by the General Treasury of the Kingdom (GTK) for municipalities (business tax, residence tax and municipal services tax). The GTK retains 10% of the amount collected to cover the tax collection costs and allocates the remaining 90% to municipalities. The tax base and the tax rate of these three taxes are set annually by the central government. The contribution of all local taxes is relatively small: local taxes plus the three local taxes administered by the central government represent around 20% of the total municipality revenue.

4. ECONOMETRIC FRAMEWORK

The fixed effects estimation results of both models for all 53 countries are presented in Table A2⁷. Both the model with the current explanatory variables and the model with the lagged explanatory variables show similar results.

Horizontal strategic interactions may be motivated either by the expansion of the tax base or by re-election reasons. The literature review revealed the existence of spending strategic interactions between neighboring collectivities belonging to the same hierarchical range. In the literature, the spatial character of this question generally involved the use of spatial econometric techniques (Anselin, 1988; Jayet, 1993).

⁵ The dirham is the Moroccan currency. On 24 February 2021, 1 dirham = 0.093 Euros and 0.11 US dollars.

⁶ Court of Audit report on local taxation, May 2015.

⁷ The result of the Hausman tests indicate that the fixed-effects estimator should be preferred to the random-effects one (p-value = 0.0002).

This section presents the empirical strategy used to test the existence of inter-jurisdiction strategic interactions in terms of expenditures in Morocco. More specifically, the analysis will focus on whether the interactions between municipalities are geographical and/or political.

The application will be based on the works of Case, Rosen and Hines (1993) and of Foucault, Madies and Paty, (2008)⁸. The spatial auto-regressive model used posits that a municipality's expenditures per capita depend on the neighboring municipalities' expenditures per capita choices and on a set of local socioeconomic and demographic indicators. It is presented as follows (Anselin, 1988; Jayet, 1993)⁹.

$$\ln Y_{it} = \theta \sum_{i \neq j} W_{ij} \ln Y_{jt} + \beta \ln X_{it} + \epsilon_{it}, \quad (1)$$

where Y_{it} is a vector of expenditures per capita in the municipality i . W is a weight matrix that accounts for the spatial or political relationship among the municipalities capturing the notion of proximity among the municipalities. The spatial lag term $W_{ij} \ln Y_{jt}$ represents the average spending per capita of neighboring municipalities and θ is the spatial autocorrelation parameter that measures the response of municipality's spending to changes in spending of neighboring municipalities, it indicates the strength and sign of any spatial relationship. Therefore, the spatial autoregression term $\theta W_{ij} \ln Y_{jt}$ will allow us to estimate the strength of geographical/political spending dependencies among municipalities.

X is a vector of socioeconomic and demographic characteristics and β is the corresponding vector of coefficients. In fact, besides the variable of interest, several other control variables are included in the estimation to capture economic conditions at the local level such as the poverty rate. Jayet et al. (2002) and Zine El Alaoui (2017) showed that urbanization may have an impact on strategic interactions strength. Therefore, an urban dummy equal to 1 if the municipality is in an urban area and 0 otherwise is included. Moreover, the population size is used to consider economies of scale. In fact, Case, Rosen and Hines (1993) show that the population density has a negative effect on per capita spending suggesting economies of scale in the provision of public goods.

We retain time dummies to capture shocks which are common to all municipalities in each period. Our sample covers one local election in 2009 and therefore contains information about the possible impact of the political budget cycle. Indeed, local politicians may manipulate instruments of economic policy by increasing expenses of local public goods (security, roadways, school services, etc.), by decreasing the volume of tax revenue supported by potential electors, or by looking for a mix optimal

⁸ The choice for these articles has been made according to the variables and the methods used, and the data availability.

⁹ For a detailed presentation of the theoretical model of strategic interactions, refer to Wildasin (1988) and Besley, Case and Harvey (1995).

(Bhattacharyya and Wassmer, 1995).

Finally, ϵ is a random error, uniformly and independently distribute; $i = 1, \dots, n$ denotes municipalities and $t = 1, \dots, T$ denotes time periods.

Since the objective of this study is to know whether the interactions between municipalities are geographical or political, different weighting schemes are explored to allow different patterns of spatial interactions.

First, to analyze the geographical interactions we use the weight matrix W^d which is an inverse distance function between two municipalities i and j .

$W^d = \frac{1}{d_{ij}}$, where d_{ij} represents distance between municipalities i and j .

Second, to test the existence of spending interactions between municipalities that have the same political affiliation, we follow Foucault, Madies and Paty (2008) and define a political weight matrix W^{pol} based on the political proximity of municipal councils. This matrix takes the value 1 when two municipal councils i and j have been affiliated to the same political party, and zero otherwise.

Nevertheless, in the present model, we will also test the eventual presence of spatial autocorrelations. In that case, residuals are dependents on locations according to the following relation $\epsilon = \lambda W \epsilon + \mu$, where λ is the coefficient of spatial autocorrelation, assuming that μ uniformly and independently distributed.

The Ordinary Least Squares approach is not directly applicable to the model as the auto regression factor introduces interdependencies between the endogenous variable values in different points of space. As a result, estimated coefficients will be skewed and inefficient. Therefore, the use of the spatial dimension requires the usage of the Maximum Likelihood (ML) Techniques. The ML estimator which takes into account the error structure (Case, Rosen and Hines, 1993). The ML method consists in using a non-linear optimization routine to estimate the spatial coefficient (Brueckner, 2003). Besley and Case (1995), Brueckner and Saavedra (2001) used the ML approach.

Thus, a reduced form of Equation (1) will be estimated using the (ML) and our model is defined as follow:

$$\ln Y = (I - \theta W)^{-1} \beta \ln X + (I - \theta W)^{-1} \epsilon. \quad (2)$$

Case, Rosen and Hines (1993) show there is no reason to assume that pattern of expenditure interdependencies are the same for all categories of spending. Similarly, Foucault, Madies and Paty (2008) estimate the effect of different public expenditures components including primary expenditures, operating expenditures, payroll expenditures and investment expenditures. Therefore, in this work we will disaggregate total expenditures between capital expenditures and current expenditures.

5. RESULTS

Table 2 presents the results of estimating spending interactions between

municipalities using ML. Columns 1 and 2 show the findings for current expenditures and columns 3 and 4 show the findings for capital expenditures.

The results indicate that interactions among municipalities are significant; possibly pointing toward mimicking or interaction. Indeed, we cannot know if these interactions are from “vote with feet” or “yardstick competition” due to lack of information on intern migration and competitiveness elections.

Table 2. Estimation Results of Municipal Expenditures per Capita - ML Estimator

Dependent variable	(1)	(2)	(3)	(4)
	Current expenditures		Capital expenditures	
Weighting scheme	W^d	W^{pol}	W^d	W^{pol}
Spending in municipality j	0.056*** (0.012)	0.016** (0.006)	0.054*** (0.015)	0.008 (0.016)
Poverty rate	-0.062*** (0.014)	-0.061*** (0.013)	-0.023 (0.032)	-0.045 (0.031)
Urban dummy	1.378*** (0.044)	1.403*** (0.04)	0.661*** (0.074)	0.634*** (0.067)
Inhabitants' municipalities'	-0.266*** (0.028)	-0.424*** (0.016)	-0.266*** (0.028)	-0.263*** (0.026)
Time dummies:				
2006	0.123*** (0.012)	0.118*** (0.011)	-0.111*** (0.039)	-0.119*** (0.037)
2007	0.07*** (0.013)	0.067*** (0.013)	0.04 (0.041)	0.03 (0.039)
2008	0.158*** (0.014)	0.16*** (0.013)	0.099** (0.041)	0.113** (0.04)
2009	0.314*** (0.184)	0.312*** (0.014)	0.071 (0.041)	0.076 (0.041)
Constant	9.150*** (0.184)	8.983*** (0.173)	6.525*** (0.301)	6.727*** (0.314)
No. of observations	5936	6354	5814	6228
Log likelihood	-2859.880	-3013.003	-8518.933	-9130.032

Notes: Robust standard errors are between brackets. * Statistical significance at 10%, ** Statistical significance at 5%, *** Statistical significance at 1%.

Although the results of ML estimation (Table 2) show the existence of strategic behaviors between Moroccan municipalities, we conduct several robustness checks.

First, we estimate the Equation (2) by reducing control variables one by one to test the significance of interest variable. Second, we follow the empirical strategy commonly used in the relevant literature by using the GMM-System estimator in addition to the Instrumental Variable estimator of the spatial coefficient (see, for instance, Foucault, Madies, and Paty, 2008). Thus, we include the lagged dependent variable, because municipality expenditures are likely to change only slowly over time (Veiga and Veiga, 2007). As for the neighbors spending decisions, we use the weighted average of neighbors' control variables (their socio-economic characteristics), as instruments (Devereux et al., 2002; Redoano, 2007). This approach allows us to control for potential endogeneity of the explanatory variables. Indeed, regression (2) raises some important econometric issues like endogeneity. Blundell and Bond (1998) show that the GMM-System estimator is preferable to that of Arellano and Bond (1991) when the dependent variable, the independent variables, or both are persistent.

Overall, the robust regression results (see Table A1, A2 and A3 in Appendices) confirm the results of the baseline model. Almost all coefficients remain of the same sign and maintain their qualitative level of significance.

The results (Table 2) of the geographical matrix reveal the existence of strategic interactions between municipalities in terms of expenditure. Indeed, the coefficient on the lagged dependent variable is significant at 1% and positive for current and capital expenditures. Thus, *ceteris paribus*, an increase of 1% in the neighboring municipalities' expenditures per capita induces an increase of 0.056% in local current expenditure and 0.054% in local capital expenditures.

Regarding the political weight matrix, the coefficient on the lagged dependent variable is significant at the 5% only for current expenditures. Thus, this result confirms that current municipality expenditures are affected by political interactions instead of capital expenditure. Indeed, current expenditure has often been linked to the performance criteria formally used by Moroccan political parties to assess' local elected representatives.

The analysis of neighboring interactions versus political interactions reveals the intensification of strategic behaviors between neighboring municipalities than municipalities that have the same political party in the Municipal Council. Indeed, the coefficient of the W^d matrix is significant for both types of expenditure and takes a higher value than the W^{pol} matrix¹⁰.

Thus, we can conclude that the strategic interactions between the Moroccan municipalities in terms of expenditure are mainly geographical. This result shows that Morocco has not yet taken the step towards political competition based on ideological currents (socialist, democratic, liberal...) but competition remains between neighboring municipalities. Indeed, Morocco is a country where the illiteracy rate is 32% (HCP,

¹⁰ The coefficient becomes a more powerful value between neighbouring municipalities (0.056*** and 0.054***) than between municipalities that have the same political party in the Municipal Council (0.016** and 0.008).

2014) and the proportion of senior managers and technicians in the municipal staff does not exceed 10%. In addition, some of the local elected representatives, particularly in rural areas, are illiterate. This conclusion is comparable to those demonstrated by Akin, Hutchinson, and Strumpf (2005) and Arze, Martinez-Vasquez and Puwanti (2008). These authors analyze respectively the decentralization of health services in Uganda, local public spending and level of taxes in Indonesia. They conclude the existence of coordination among neighboring local governments. In addition, Caldeira et al. (2012) show that the interactions between municipalities that are ethnically close is less important than neighboring municipalities in Benin.

Moreover, strategic interactions in other countries remain more intense compared to Morocco. Our coefficient on the lagged dependent variable is less intense than coefficient results of other empirical studies in developing and developed countries. This found is evident because Morocco is a unitary country and it is in an ongoing regionalization reform. Indeed, municipalities' own fiscal resources only cover on average a 54% of operation expenditures; the remainder is fixed by the transfers from the Central State¹¹. Moroccan government must provide more responsibility to allow municipalities to manage their resources and then will be autonomous.

However, our results are not comparable to those found by Foucault, Madies, and Paty (2008) in France. On one hand, these authors found that spending interactions exist between municipalities that have the same political affiliation for all categories of expenditures. On another hand, they confirm that local public finance is strongly affected by political interactions than geographic interactions. The authors conclude that French municipalities are supposed to be autonomous and less dependent from the center since the inception of decentralization laws. The difference between the results found in Morocco and those of France can be explained by the level of development of the both countries, and by extension of their decentralization level. Indeed, these results show that Moroccan local decision-makers do not have a high degree of freedom when determining the level of investment expenditure compared to local decision-makers in France.

Concerning the control variables, two results pay our attention. First, we found that poverty acts negatively on expenditures and the coefficient is significant at 1% for current expenditures. This result is counter-intuitive since the expenditures must increase when poverty is high and can be explained by Moroccan specific context. In fact, poverty reduction projects are planned at national level and not at the local one. Second, the results show the existence of Local Political Business Cycle (Blais and Nadeau, 1992) for current expenditures. Indeed, the coefficient is significant at least at 1% and it becomes a more powerful value in election year than other years. Thus, local public decisions in terms of current expenditures are influenced by the political agenda in Morocco. Urban dummy is playing an important role in municipal expenditures. Indeed, the coefficient of urban dummy for current expenditures as well as for capital

¹¹ Court of Audit report on local taxation, May 2015.

expenditures is significant at least at 1%. This result revealed that urban municipalities generate more expenditures than rural ones even if urban municipalities only represent 12% of Moroccan municipalities. This highlights the critical inequalities between urban and rural areas in terms of expenditures. Furthermore, this variable becomes a more powerful value for current expenditures (1.378 and 1.403) than for capital expenditures (0.661 and 0.634). This conclusion is evident because urban municipalities are equipped with powerful administrative resources and better infrastructure. Thus, they need more current expenditures (staff salary, equipment, etc.) than capital expenditures.

6. CONCLUSION

Empirical study conducted in Morocco highlighted the existence of strategic interactions between municipalities in terms of expenditures. The tests conducted with Moroccan data results in a comparable conclusion as those conducted in developed countries. In these countries, the principle of competition has been widely studied. Our results contradict the literature on decentralization in developing countries that has largely focused on the principle of proximity. Indeed, Bardhan (2002) and Daflon and Madiès (2008) consider that the institutional context in developing countries is very different from that of developed countries. They showed that the principle of competition does not seem to be applicable because of the lack of transparency in the administrations, the reduced mobility of the population and the limited resources of the local jurisdictions in the developing countries. Thus, we can conclude that in developing countries, especially in Morocco, strategic behaviors exist between local governments belonging to the same range.

Our results confirmed that there are some interactions between neighboring municipalities with respect to current and capital expenditures. Moreover, the estimation results show that these interdependencies also exist between municipalities whose Municipal Council have the same political affiliation in terms of current expenditures. However, the results reveal the intensification of strategic behaviors between neighboring municipalities than municipalities that have the same political party in the Municipal Council. Thus, we can conclude that the strategic interactions between Moroccan local governments are more geographical than political. This result shows that Morocco has not yet taken the step towards political competition based on ideological currents but competition remains between neighboring municipalities. Caldeira et al. (2012) finds the same result insofar as the interactions among Beninese municipalities which are close in terms of ethnic composition are less important than neighboring municipalities.

Finally, our results show the weakness of strategic behaviors in Morocco than developed countries as well as developing countries like Benin. Thus, the Moroccan municipalities must be more autonomous because this should lead to increased competition between them. This behavior should improve the match between demand

and supply of public goods and services. It should also favor a greater efficiency of local public expenditures.

APPENDIX

Table A1. Estimation Results of Municipal Current Expenditures per Capita (ML Estimator)

Weighting scheme	(1)	(2)	(3)	(4)	(5)	(6)
		W^{pol}			W^d	
Spending in municipality j	0.021***	0.012	0.016**	0.063***	0.060***	0.058***
Poverty rate	-0.094***	-0.022		-0.098***	-0.022***	
Inhabitants municipalities'	-0.213***		-0.418***	-0.290***		-0.451***
Urban dummy		1.046***	1.441***		1.042***	1.418***
Time dummies:						
2006	0.117***	0.118***	0.119***	0.122***	0.122***	0.124***
2007	0.052***	0.085***	0.094***	0.054***	0.088***	0.098***
2008	0.144***	0.179***	0.188***	0.140***	0.176***	0.186***
2009	0.294***	0.333***	0.339***	0.295***	0.331***	0.341***
Constant	7.261***	5.037***	8.737***	7.817***	4.833***	8.897***
No. of observation	6354	6354	6354	5936	5936	5936

Notes: * Statistical significance at 10%, ** Statistical significance at 5%, *** Statistical significance at 1%.

Table A2. Estimation Results of Municipal Capital Expenditures per Capita (ML Estimator)

Equation	(1)	(2)	(3)	(4)	(5)	(6)
Weighting scheme		W^{pol}			W^d	
Spending in municipality j	0.014***	0.003***	0.008**	0.057***	0.056***	0.054***
Poverty rate	-0.126***	-0.006		-0.101***	0.109	
Inhabitants municipalities	-0.182***		-0.258***	-0.197***		-0.264***
Urban dummy		0.424***	0.661***		0.474***	0.676***
Time dummies:						
2006	-0.120***	-0.121***	-0.118***	-0.112***	-0.112***	-0.111***
2007	-0.006***	0.046***	0.049***	0.006	0.054	0.051
2008	0.074***	0.132***	0.133***	0.163	0.116***	0.110***
2009	0.032***	0.095***	0.095***	0.034	0.085**	0.081**
Constant	6.235***	3.257***	6.545***	6.172***	3.983***	6.432***
No. of observation	6228	6228	6228	5814	5814	5814

Notes: * Statistical significance at 10%, ** Statistical significance at 5%, *** Statistical significance at 1%.

Table A3. Estimation Results of Municipal Expenditures per Capita (GMM-System Estimator)

Dependent variable Weighting scheme	(1)	(2)	(3)	(4)
	Current expenditures		Capital expenditures	
	W^d	W^{pol}	W^d	W^{pol}
Spending in municipality j	0.605*** (0.052)	0.094** (0.009)	0.316** (0.129)	0.016*** (0.037)
Poverty rate	0.265*** (0.054)	0.359*** (0.029)	-0.483*** (0.113)	-0.397*** (0.104)
Population	-0.460*** (0.103)	-1.773*** (0.121)	-0.039 (0.217)	0.747*** (0.259)
Sargan test: p-value	0.000	0.000	0.000	0.000
Wald test: p-value	0.000	0.000	0.000	0.000
No. of instruments	16	17	16	16
No. of groups	1153	1232	1118	1197
No. of observation	2889	3078	2717	2902

Notes: Robust standard errors are between brackets. * Statistical significance at 10%, ** Statistical significance at 5%, *** Statistical significance at 1%.

REFERENCES

- Akin, J., P. Hutchinson and K. Strumpf (2005), "Decentralization and Government Provision of Public Goods: The Public Health Sector in Uganda," *Journal of Development Studies*, 41(8), 1417-1443.
- Anselin, L. (1988), *Spatial Econometrics: Methods and Models*, Kluwer Academic, Netherlands: Dordrecht.
- Arellano, M., and S. Bond (1991), "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations," *Review of Economic Studies*, 58(2), 277-297.
- Arze, J., J. Martinez-Vasquez and R. Puwanti (2008), "Local Government Fiscal Competition in Developing Countries: The Case of Indonesia," *Urban Public Economics Review*, 8, 13-45.
- Bardhan, P. (2002), "Decentralization of Governance and Development," *Journal of Economic Perspectives*, 16(4), 185-205.
- Besley, T. and A. Case, (1995), "Incumbent Behavior: Vote Seeking, Tax Setting and Yardstick Competition," *American Economic Review*, 85(1), 25-45.
- Bhattacharyya, D.K. and R.W. Wassmer (1995), "Fiscal Dynamics of Local Elected Officials," *Public Choice*, 83, 221-249.

- Blais, A. and R. Nadeau (1992), "The Electoral Budget Cycle," *Public Choice*, 74(4), 389-403.
- Blundell, R., and S. Bond (1998), "Initial Conditions and Moment Restrictions in Dynamic Panel Data Models," *Journal of Econometrics*, 87(1), 115-143.
- Brett, C. and J. Pinsky (2000), "The Determinants of Municipal Tax Rates in British Columbia," *Canadian Journal of Economics*, 33, 695-714.
- Brueckner, J.K. (2003), "Strategic Interaction among Governments: An Overview of Empirical Studies," *International Regional Science Review*, 26(2), 175-188.
- Brueckner, J.K. and L. Saavedra (2001), "Do Local Governments Engage in Strategic Property-Tax Competition?" *National Tax Journal*, 54, 203-229.
- Buettner, T. (2001), "Local Capital Income Taxation and Competition for Capital: The Choice of the Tax Rate," *Regional Science and Urban Economics*, 31, 215-245.
- Burn, N., L. Jaidi and H. Zirari (2005), "Local Budgets and Gender in Morocco," UN Women Working Paper.
- Caldeira, E., M. Foucault and G. Rota-Graziosi, (2012), "Decentralization in Africa and the Nature of Local Governments' Competition: Evidence from Benin," NBER Working Papers 18126, National Bureau of Economic Research, Inc.
- Caldeira, E. and G. Rota-Graziosi (2014), "La décentralisation dans les pays en développement: une revue de la littérature," *Revue d'économie du développement*, 22(4), 5-37.
- Caldeira, E. (2012), "Yardstick Competition in a Federation: Theory and Evidence from China," *China Economic Review*, 23(4), 878-897.
- Case, A.C., H.S. Rosen and J.R. Hines (1993), "Budget Spillovers and Fiscal Policy Interdependence: Evidence from the States," *Journal of Public Economics*, 52, 285-307.
- Chambas, G. (2010), *Mobiliser des Ressources Locales en Afrique Subsaharienne*, Economica, France: Paris.
- Cour des comptes (2015), "Rapport sur l'évaluation de la fiscalité locale: synthèse," *Publications des Juridictions Financières*, Cours des comptes du Maroc.
- Dafflon and Madies (2008), "Décentralisation dans les pays en développement: quelques principes issus de la théorie du fédéralisme financier," Notes et Documents No.42, AFD, Paris.
- Devereux, M.P., B. Lockwood and M. Redoano (2002), "Do Countries Compete over Corporate Tax Rates?" CEPR Discussion Papers 3400.
- Elkhdari, M. (2018), "Deconcentration, Political and Fiscal Decentralization, in Morocco," Série Études et Documents No.4, CERDI.
- Feld, L.P. and G. Kirchgässner (2001) "Income Tax Competition at the State and Local Level in Switzerland," *Regional Science and Urban Economics*, 31, 181-213.
- Feld, L.P., J.M. Josselin and Y. Rocaboy (2002), "Le mimétisme fiscal: une application aux régions françaises," *Economie et Prévision*, 156(5), 43-49.

- Foucault, M., T. Madies and S. Paty (2008), "Public Spending Interactions and Local Politics. Empirical Evidence from French Municipalities," *Public Choice*, 137(1), 57-80.
- Franzsen, R. and M. Elkhadari (2017), "Morocco," in Franzsen, R. and W. McCluskey, *Property Tax in Africa: Status, Challenges, and Prospects*, 283-301, Lincoln Institute of Land Policy, USA: Cambridge.
- Hayek, F.A. (1948), *Individualism and Economic Order*, Chicago University Press, USA: Chicago.
- Jayet, H., S. Paty and A. Pentel (2002), "Existe-t-il des interactions fiscales stratégiques entre les collectivités locales," *Économie et Prévision*, 154(3), 95-105.
- Jayet, H. (1993), *Analyse Spatiale Quantitative: une Introduction*, Bibliothèque de Science régionale Series, Economica, France: Paris.
- Ladd, H.F. (1992), "Mimicking of Local Tax Burdens among Neighboring Countries," *Public Finance Quarterly*, 20(4), 450-467.
- Oates, W.E. (1972), *Fiscal Federalism*, Harcourt Brace Jovanovich, USA: New-York.
- Redoano, M. (2007), "Fiscal Interactions among European Countries. Does the EU Matter?" CESifo Working Paper Series No.1952.
- Salmon, P. (1987), "Decentralization as an Incentive Scheme", *Oxford Review of Economic Policy*, 3, 24-43.
- Sole-Olle, A. (2006), "Expenditure Spillovers and Fiscal Interactions: Empirical Evidence from Local Governments in Spain," *Journal of Urban Economics*, 59(1), 32-53.
- Tiebout, C. (1956), "A Pure Theory of Local Expenditures," *Journal of Political Economy*, 64, 416-424.
- Tsui, K. and Y. Wang (2008), "Decentralization with Political Trump: Vertical Control, Local Accountability and Regional Disparities in China," *China Economic Review*, 19(1), 18-31.
- Veiga, L.G. and F.J. Veiga, (2007), "Political Business Cycles at the Municipal Level", *Public Choice*, 131(1-2), 45-64.
- Wildasin, D.E. (1988), "Nash Equilibria in Models of Fiscal Competition", *Journal of Public Economics*, 35, 229-240.
- World Bank (2009), "Decentralization and Deconcentration in Morocco: Cross-Sectoral Status Review," Washington, D.C.
- _____ (2016), "Morocco - Report on the Performance Management of Public Finances," World Bank Country Review Report, Washington, D.C.
- _____ (2019), "Leveraging Urbanization to Promote a New Growth Model While Reducing Territorial Disparities in Morocco: Urban and Regional Development Policy Note". Washington, D.C.
- Zine El Alaoui, S. (2017), "Does Decentralization Lead to Strategic Behaviours between Local Governments in Morocco?" *Revue d'économie du développement*, 25(2), 95-114.

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