

**The space of the rhythm:
Latecomer advantage vs. innovator premium in the adoption of
school reforms by French municipalities**

Aurélie Cassette¹

Etienne Farvaque²

This version: April 2014

(Preliminary – Do not quote without permission)

Abstract

This research looks at the determinants and spatial interactions in the decisions leading to the adoption of the school-rhythm reform by French municipalities. The possibility opened to mayors to adopt the reform sooner (2013) or later (2014) offers the opportunity to measure how much the neighbors' actions have weighted on the local decision. Our results reveal strong spatial interactions. We also study the feedback effect from the (non-)adoption on the subsequent electoral results.

Keywords: Reforms, Spillovers, Yardstick Competition, Elections, Municipalities.

JEL Classification: D72, H70, H73

¹ EQUIPPE-Universités de Lille (France). Contact : aurelie.cassette@univ-lille1.fr

² EDEHN, Université du Havre and Skema Business School (France). Contact : etienne.farvaque@univ-lehavre.fr

1. Introduction

From Oates' (1972) decentralization theorem, it is widely recognized that decentralization generates welfare gains in allowing local governments to tailor the local public policies to the particular tastes and other characteristics of the local population. Another advantage from decentralization is that it encourages experimentation and generates learning about which policies are the right ones. Known as "laboratory federalism" (Oates, 1999), this second advantage has recently spurred a literature dedicated to policy innovation at the local level and diffusion of best practices inside decentralized countries (see, for example, Strumpf, 2002 ; Volden, 2006 ; Kotsogiannis and Schwager, 2006 ; Gilardi Fuglister, 2008 ; Cai and Treisman, 2009).

These arguments may be particularly true for education, a domain in which local preferences may vary and experimentation and learning are critical (Peterson, 1995). Evaluations of the impact of decentralization on the performance of pupils are scarce but their conclusions are optimistic, especially for rich areas. Increased local autonomy over academic content, personnel, and budgets has been shown to exert positive effects on pupils achievements in industrialized countries although negative effects have been exhibited in some developing and low-performing countries (Hanushek et al., 2014). The same mixed results have been obtained at the local level in Argentina: decentralization has an overall positive impact on student test scores in wealthier municipalities, while the impact is less favorable in poor municipalities (Galiani et al., 2008).

However, the "laboratory" dimension is reinforced when political decentralization, is also present as according to its backers, it endorses local authorities with the full responsibility of the implementation of local policies. This delivers an edge to politicians (especially incumbents), as they may use the policy as a signal of competence to their electorate. However, they may care more about the political gain than about the policy success (Gilardi, 2010). In such a case, they will tend to imitate policy experimentations undertaken by neighbors and strategically use local public policies in order to get reelected, whatever the actual impact of the policy.

Also, if elections work as a disciplining device, yardstick competition will have a role, and good policies will get diffused as a result. Decentralization is thus a double-edged sword for local politicians, who receive more power but find themselves subjected to higher scrutiny. Unfortunately, the two effects tend to favor the diffusion of policy experiments, whatever the (positive or negative) effects of the policies.

Quite weirdly, there have been only few attempts to study the diffusion of educational experiments across local jurisdictions. Studies mainly deal with policy diffusion between US school districts with regard to inter-district open enrollment policy (Rincke, 2006) and diffusion of charter schools among California school districts (Rincke, 2007 ; Zhang and Yang, 2008). Logically, there have been even fewer studies on more centralized countries. This is in particular the case for France, where issues related to education have traditionally been managed at the national level, with few margins of maneuver – and even suspicion - for experiments by the local authorities. Hence, there has been no study dealing with diffusion of educational policy variations between French local jurisdictions. Recently, however, the adoption of the (nationally-promoted, locally-implemented) school rhythm reform offers an unprecedented opportunity to understand how municipalities seize a chance to adapt the terms and conditions of a reform to their specific contexts.

Since the institution of universal public education in the late 19th century in France, schoolchildren have benefited from a weekly day off (for a long time on Thursdays, for religious reasons, then on Wednesdays - since 1972). To make up for the lost teaching times, schools opened their doors on Saturday mornings but, in 2008, under Conservative President Nicolas Sarkozy, it was decided to compress the school week into a four day schedule and Saturday has become a no-school day. Shortly after the 2012 Presidential and legislative elections, the Socialist-led government announced reforms to the academic calendar and week structure. It was first proposed to shorten the school day for primary school pupils, which is currently deemed as too long to allow for effective learning. Teaching hours would be spread out over the week to make up the hours by extending the current system of 4 days of classes per week to 4.5 days.

This reform presents several interesting characteristics. First, the measure went into effect in September 2013 but municipalities (and their elected mayors) had the option to delay the implementation of the reform for one year, upon decision of the city council. The adoption of the reform will thus come into full effect over the whole of France in September 2014 at the latest. Second, municipalities are supposed to add the fifth day of classes on Wednesday but they can also choose to make the additional half-day a Saturday morning (upon derogation), in effect returning back to the situation as it was before 2008. This choice is further complicated by varying views between chronobiologists, by the opinion of (often warring) parents and by powerful influence of the national tourism lobby. Third, class-days should finish 45 minutes earlier but municipalities can choose another school schedule for

organizational concerns (more time for lunch, or 2-3 slightly shortened teaching days, among many other possibilities). Fourth, class time being shortened, kids will be kept on school grounds until at least 4:30 p.m. to facilitate after-school child care. Municipalities have to organize these new city-funded extracurricular activities (cultural or sporting activities, or in some cases, just free play in schoolyards). In the absence of a statewide organization, mayors face numerous options among which they have to find the ones that are the most appropriate to local needs (and funds). There is thus considerable scope for experimentation and, potentially, imitation.

These elements combine to make the French reform a case study in “laboratory federalism”. Mayors are not only free to take into account the specificities and the preferences of the local population in the implementation of the reform, but they also can choose to postpone the implementation to 2014, giving them an opportunity to learn from school schedule choices of their neighbors and mimic successful policies (in order to get reelected).

In this paper, we highlight the determinants of an early adoption (i.e., in 2013) of the reform, instead of 2014, and evaluate the consequences of this choice on the incumbent mayor reelection, in March 2014. We thus bring two contributions to the literature. First, combining the popularity of the incumbent mayor and the adoption of the school rhythm reform permits to determine the source of horizontal diffusion of the reform and provides a comprehensive test of the yardstick competition hypothesis. Second, we measure the voters’ taste for experimentation by looking at the consequences of the policy-maker’s choices, in terms of electoral fortunes of the mayors: do the ones that postpone the application of the reform benefit from higher vote shares in municipal elections than those who decide to implement the reform as soon as 2013. In other words, does the latecomer advantage compensate the innovator premium in voters’ mind?

A closely related study is Cassette and Farvaque (2014), who focus on the internal determinants that explain the choice to implement the reform quickly, such as social, economic and political characteristics of the municipality. The approach here is to concentrate on the diffusion of the reform, i.e., analyzing if the probability of a municipality adopting the reform is higher/lower if neighboring municipalities have already chosen to adopt it. On the one hand, different sources of mimetic behavior may explain horizontal diffusion of a reform. First, municipalities ruled by the same party can be expected to mimic in their decision to adopt the reform in 2013 or to postpone it. This political trend may operate because politicians belonging to the same party have similar preferences and follow party discipline (Geys and Vermeir, 2008, Santolini, 2009).

Second, voters may update their electoral preference with the information on the adoption of the school rhythm reform in the domestic and in the nearby municipalities. The less competent incumbents are incentivized to mimic neighbors to signal a good competence level on educational grounds to the voters and to increase their probability of reelection. Yardstick competition is not only an explanation of mimetism in national income tax rates (Redoano, 2007) or departmental expenditures on welfare services (Elhorst and Fréret, 2009) but also a source of policy diffusion (Schnyder, 2011). By observing the adoption of the reform in nearby municipalities, a voter can increase the information at his disposal on the difficulty to implement the reform. Third, mimetism in the adoption (i.e., of the year) of the reform could be the consequence of interstate competition for mobile production factors (Besley, 2000; Feld, 1997; Heyndels and Vuchelen, 1998; Ladd, 1992). On the other hand, municipalities can choose to learn from their neighbors' mistakes. Compared to a uniform national application of school policy, decisions taken at the municipal level act as a laboratory, with trial-and-error learning. Municipalities that choose to postpone the adoption of the reform seek to benefit from former experimentations undertaken by their neighbors and plan to follow the most successful arrangements. In that case, negative spillovers are expected: if municipality j implements the reform, the municipality i chooses to postpone it in order to learn from municipality j 's experimentation.

The remainder of the paper is structured as follows. The next section offers theoretical insights on which our empirical strategy, exposed in section 3 (with some details on the French educational system and the adoption of the reform), is based. Section 4 discusses the results, while section 5 concludes.

2. Theoretical background

[To be completed]

3. Institutional context and empirical strategy

3.1. Key features of the French education system and of the reform

In France, the organization and functioning of education is traditionally under the jurisdiction of the central government except in the domains where jurisdiction is conferred to local governments. However, in the 1980s, a general trend of decentralization has operated in

France, including on education, and some competences have been devolved to municipalities, departments and regions.

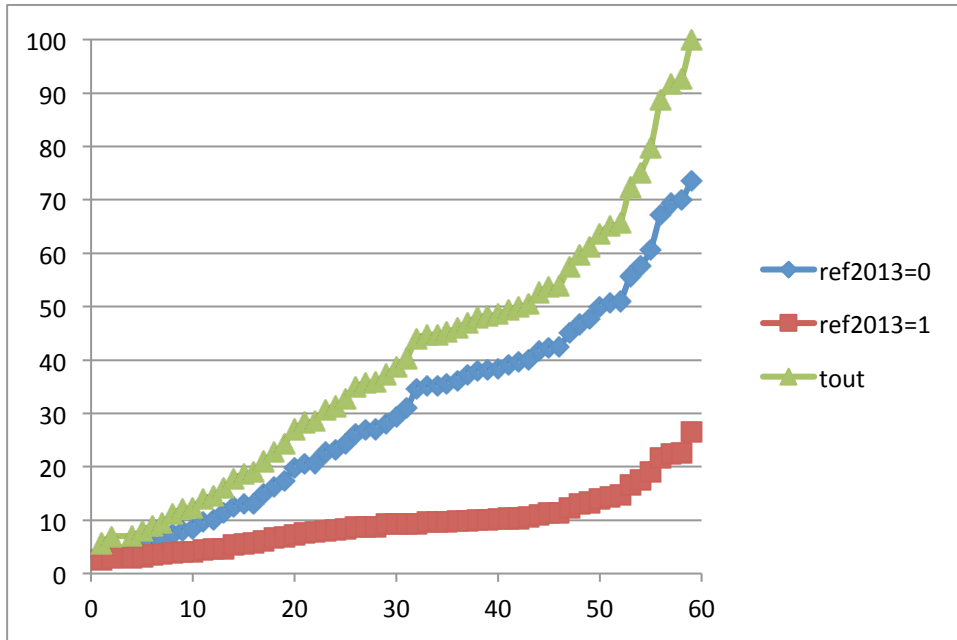
Actually, municipalities are in charge of building, renovating and maintaining the public schools that are located in their territory, and they manage all related expenditures, whatever they concern (investment or functioning). If several schools are present, the municipal council decides upon the rules of allocation of children to schools (zoning). Municipalities can (but are not obliged to) organize any complementary activity (educational or cultural as well as sports) they consider relevant, and they decide upon the opening hours. For the kindergarten and elementary schools, they also manage and organize the canteens, taking care of everything, from prices to menus to staff recruitment (outsourcing is of course allowed, although it is quite customary to have municipal staff in charge of the provision). Parents contribute financially to the feeding of their children, with contributions depending on their revenues. Municipalities also are in charge of the non-teaching staff, especially in kindergartens.

The school rhythm reform essentially concerns kindergartens and elementary schools, hence directly impacting the municipalities, in the following ways. First, given the reduced school time, municipalities may have to organize more extracurricular activities, which has a direct financial impact (if only for petty stuff – paper, pens, balls, etc.) Second, if they ask (or request) from the teachers to take care of the extracurricular activities, the extra-hours will have to be paid by municipalities (although the teachers are civil servants paid by the Ministry of Education for the normal time spent in class). Of course, municipalities could choose to rely on extra staff, which they will nevertheless have to pay. The transition period can also be costly, as they have to recruit and (potentially learn to) manage new workers (in particular, specialized helpers in pre-school and after-school activities and extra canteen staff). Third, and important, the school transportation system will have to adapt, with an extra day of transport to be organized. The municipality may nevertheless share this last impact with its neighbors, if it belongs to a union of cities, or if the transportation system is managed by the upper-level of government (the “département”). The presence of such vertical links with the departmental council in turn may affect the diffusion of the reform.

More precisely, the official launch of the reform is a decree (dated 26th, January 2013) stating that municipalities had to decide upon the adoption of the reform before the 31st, March 2013 (i.e., a “decision window” of more or less 60 days). If the mayor refuses to answer or to ask the council to take a formal vote (as they have done in a majority of cases), the Ministry would consider the refusal as an obligation to implement the reform in 2013.

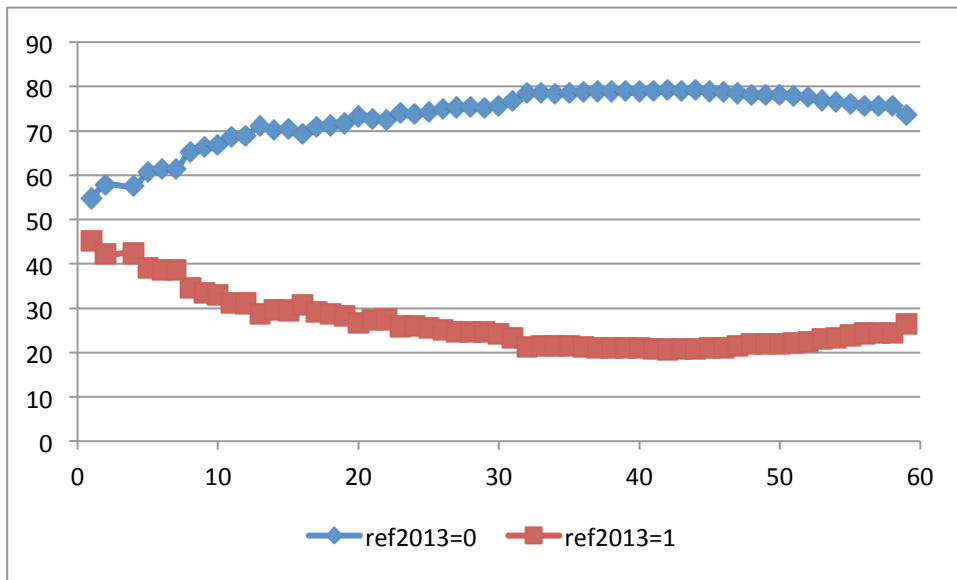
Figures 1 and 2 show the dynamics of the adoption of the reform. Figure 1 reveals that many municipalities have decided quite late, at the end of the decision window, even though this is even truer for the ones that have decided to adopt the reform early (in 2013). This can notably be explained by the fact that, for those who had a positive bias towards the reform, lots of discussions (with parents' delegates, music schools, etc.) took place before the formal vote. It also happened that some votes were suspended until the upper-level of government itself decided upon the reform (as they had to adapt transportation networks and schedules, in particular). Interestingly, as figure 1 exhibits, some municipalities apparently decided even before the formal decree was published, which can signal either hostility or, on the contrary, a strong endorsement of the reform. This is confirmed by the data displayed in figure 2, which reveals that the gap between the municipalities that have adopted the reform in 2013 and the ones that have pushed it back to 2014 increases over time (during the decision window).

Figure 1. Chronology of Reform Adoption



Source : Authors

Figure 2. Chronology of Reform Adoption



Source : Authors

3.2. Method

The conventional wisdom suggests that governments should not introduce reforms close to elections as reforms lead to electoral losses (Dewatripont and Roland, 1992, 1995, Padovano and Petrarca, 2013). The French government has apparently followed this conventional path, implementing the reform quickly, maybe anticipating that the costs will be borne by the local politicians, and that they will be gone by the next Presidential election. But then the question of why about 20% of the municipalities have embraced quickly the reform rises even more strongly.

To ensure that voters hold the incumbent accountable of the implementation of the reform, we follow the comprehensive approach developed by Padovano and Petrarca (forthcoming) which consists in estimating both a vote popularity equation and a local tax setting equation. Their empirical strategy also provides a useful way to check the source of policy diffusion and especially the existence of yardstick competition.

3.2.1. Early implementation of the reform

The choice of early implementation ($Reform2013_i$) is our binary dependent variable in this first part of the model. This observed decision takes the value 1 if the municipality decided to implement the reform in 2013 and 0 otherwise. This choice depends on the difference in utilities between the two alternatives (early reform and postponed reform): $U_{1,i} - U_{0,i}$. The probit model assumes this difference $U^* = U_{1,i} - U_{0,i}$ follows a normal distribution. U^* is not observable, only the choices made can be, which are reflected in:

$$Reform2013_i = 1 \text{ if } U^*_i \geq 0$$

$$Reform2013_i = 0 \text{ if } U^*_i < 0$$

In the baseline model, we focus on the internal characteristics of the municipality ($INTERNAL_i$) and the vertical links with higher level administrative tiers ($VERTICAL_i$) over the net utility of the municipal council and thus on the probability to implement the reform in 2013. The probit decision model used in this study is thus (Model 1):

$$Reform2013_i = 1 \text{ if } U^*_i = \alpha INTERNAL_i + \beta VERTICAL_i + c + e_i > 0$$

$$Reform2013_i = 0 \text{ otherwise}$$

where U^*_i is the inobservable latent dependent variable, $Budget_i$ are budget data at the municipal level, Pol_i are political variables, $Socioeco_i$ are socio-economic characteristics of the municipality, c is the intercept and $e_i \sim N(0,1)$ is a disturbance term. In addition to the standard White correction for heteroskedasticity, we correct for clustering using the Froot's correction (Froot, 1989). We therefore correct for the correlation of errors between municipalities within a specific department.

To account for the horizontal diffusion of the reform, we need to take into account the timing of municipal councils' choice to (potentially) postpone the implementation of the reform. We have cross-sectional data on municipalities. Even if we know decision dates, our data set is not bi-dimensional (as the decision is taken once and for all). When municipality i takes her decision at time t , she only knows decisions taken previously by neighbor municipalities (at time $t-x$). As a consequence, some of the municipalities did not have decided at the time municipality i voted her decision. We take this absence of information on municipality j preference and choice into account ($WDONTKNOW_{j;t}$)³ to know if it influenced municipality i 's choice (Model 2), or:

$$Reform2013_{i,t} = 1$$

$$\begin{aligned} \text{if } U^*_i &= \alpha INTERNAL_i + \beta VERTICAL_i + WReform_{j;t-x} + WDONTKNOW_{j;t} + c + e_i > 0 \\ &= 0 \text{ otherwise} \end{aligned}$$

Past decisions of neighboring municipalities exert an impact on present net utility of municipality i ⁴. Using time-lagged spatial effects instead of contemporary ones we can assume that neighbor's lagged choices are exogenous to municipality i 's current decision. As a consequence, this second model can also be estimated as a standard probit model.

We further need to make assumptions on the potential sources of diffusion across municipalities and to compute the relevant weight matrix.

First, we consider a case with uniform weights among municipalities, i.e. $w_{i,j}^{UNIFORM} = 1$ if municipality $i \neq j$ and 0 otherwise. This tests the hypothesis proposed by Manski (1993) of a

³ $Reform_{j;t-x} = Reform_{j;\forall t} * Already\ decided_t$ and $DONTKNOW_{j;t} = 1 - Already\ decided_t$

⁴ The model is thus close to the variant of the spatial probit model proposed by Qu and Lee (2012) and Soetevent and Kooreman (2007) where the latent dependent variable Y^* depends on observed choices represented by WY rather than unobserved ones.

common intellectual trend that steers countries' choices in the same direction, without strategic consideration. In this case, there is no need to define any criterion for proximity. Even if this hypothesis is not at the core of the paper, it is useful to describe and build this weight matrix, if only to contrast its explanatory power with other hypotheses tested below.

Second, we assume that a municipality is more likely to emulate its geographic neighbors than to emulate other municipalities and we consider a definition of neighborhood based on a geographical definition. Empirical studies testing both for yardstick competition or learning effects traditionally use weight matrices based on geographical distance. Here, we build a first weight matrix W^{Dist} that includes as neighbors all municipalities which are less than 100 km distant and we give equal weights to all these neighbors whatever their distance to municipality i :

$$w_{i,j}^{Dist} = 1 \text{ if } Distance_{i,j} < 100km$$

$$w_{i,j}^{Dist} = 0 \text{ otherwise}$$

The drawback of this definition is that some municipalities have more than 200 neighbors while others have just 10. We thus propose a second weight matrix based on the Euclidian distance in which we treat the 10 nearby jurisdictions of municipality i as neighbors. These two weighting schemes can give a first clue to distinguish between yardstick competition and learning externality, although the assumption of yardstick competition should be confirmed by the estimation of the vote popularity equation.

Third, to account for the possibility that a municipality is more likely to emulate other municipalities controlled by the same political party or with the same ideological leanings (i.e., a political trend hypothesis), and in order to distinguish the influence of municipalities that belong to the same party from the effect of competing municipalities that do not belong to the same party, we use a decomposition of the uniform weight matrix. We now consider a linear combination of partial weights. Starting from the uniform weight matrix $W^{UNIFORM}$, we define four partial interaction matrices such that $W^{UNIFORM} = W^{LL} + W^{RR} + W^{LR} + W^{RL}$. All elements in the weighting matrices W^{LL} and W^{RR} are equal to zero if the i and j municipalities are from different political parties:

$$w_{i,j}^{LL} = 1 \text{ if municipality } i \text{ and } j \text{ belong to party on the left and } w_{i,j}^{LL} = 0 \text{ otherwise ;}$$

$$w_{i,j}^{RR} = 1 \text{ if municipality } i \text{ and } j \text{ belong to party on the right and } w_{i,j}^{RR} = 0 \text{ otherwise ;}$$

$w_{i,j}^{LR}$ if municipality i belongs to a party on the left while municipality j belong to a party on the right and $w_{i,j}^{LR} = 0$ otherwise ;

$w_{i,j}^{RL} = 1$ if municipality i belongs to a party on the right while municipality j belongs to party on the left and $w_{i,j}^{RL} = 0$ otherwise.

As the influence of ideology is not likely to spread to every municipalities in the country, we alternatively use a decomposition of the distance matrix such that: $W^{DIST} = W^{LL_DIST} + W^{RR_DIST} + W^{LR_DIST} + W^{RL_DIST}$ ⁵.

Fourth, we allow a municipality to be more likely to emulate neighbors defined in terms of the similarity of demographic characteristics. We consider three strata of municipal population: less than 20,000 inhabitants (S1), between 20,000 and 50,000 inhabitants (S2), more than 50,000 inhabitants (S3). As previously done, we define five partial interaction matrices such that $W^{UNIFORM} = W^{S1S1} + W^{S2S2} + W^{S3S3} + W^{top} + W^{bottom}$ where all elements in the weighting matrix W^{S1S1} , W^{S2S2} and W^{S3S3} are equal to zero if the i and j municipalities are from different strata. Moreover, $w_{i,j}^{top} = 1$ if municipality j belongs to a upper stratum than municipality i and 0 otherwise:

$w_{i,j}^{bottom} = 1$ if municipality j belongs to a lower stratum than municipality i and 0 otherwise.

3.2.2. Vote popularity estimation

Here, we study the incumbent's share of votes in the first round of the 2014 municipal election ($INC2014_i$) by standard linear equation (Cassette et al., 2013). First, we just test whether the implementation of the reform in 2013 affects the incumbent's result in municipal elections held in March 2014. A large set of political variables (POL_i) is introduced:

$$INC2014_i = \delta REFORM2013_i + \theta POL_i + \varepsilon_i$$

The expected share of votes for the incumbent in the first round clearly influences the probability of adopting an electorally risky reform in 2013. Endogeneity concerns in a dummy

⁵ For example, $w_{i,j}^{LL_DIST} = w_{i,j}^{LL} * w_{i,j}^{Dist} = 1$ if municipality i and j belong to a party on the left and are less than 100km distant and $w_{i,j}^{LL} = 0$ otherwise.

variable should be controlled for by estimating a treatment effect model based on Heckman control function. Endogeneity arises in this case because the treatment (*REFORM2013*) is correlated with the error term in the outcome (vote function) equation. The treatment effect model simultaneously estimates equations for the likelihood of treatment (*REFORM2013*) and the outcome of the treatment (share of votes received by the incumbent). This simultaneous estimation allows the elimination of endogeneity, although with the trade-off of making the assumption that the error terms are jointly normally distributed. Maximum likelihood techniques were used to estimate the model.

Second, we consider if the decision of implementing the reform in 2013 taken by neighbors has an impact on the incumbent's result in municipality *i*:

$$INC2014_i = \delta REFORM2013_i + \rho WREFORM2013_j + \theta POL_i + \varepsilon_i$$

Contrary to the first estimated equation, the definition of neighborhood extends to all neighbors (and not only the ones that had chosen before municipality *i*).

3.3. Data

Our sample includes all the municipalities with more than 3,500 inhabitants. This threshold is related to the fact that two different voting rules exist, depending upon the size of the municipality, with the two rounds list system applying above 3,500 inhabitants. 2608 French municipalities (Corsica excluded) are subjected to this two-round electoral rule in 2008, i.e., 7% of French municipalities, but 60% of the French metropolitan population. The threshold is also induced by the absence of school in many of the smaller municipalities, meaning that they often share the school with several other municipalities (often belonging to the same inter-communal structure). In such a case, municipalities must cooperate to determine if they wish to implement the school rhythm reform in 2013, which makes it more difficult to identify the determinants of the choice. Applying the threshold induced by electoral legal rules permits to avoid a selection bias in the estimations.

When horizontal diffusion is at stake, a subsample of 929 municipalities above 9,000 inhabitants is used. Generally, it is hard to identify the effect of neighbors' decisions on municipality *i*'s choice as effects in both directions intervene simultaneously. Here, we collect the dates on which municipal councils vote the decision to apply the reform in 2013 or to

postpone it to 2014. The advantage is that we know the exact timing of municipal decisions across the whole national territory. The drawback is that smallest municipalities, those that do not have a website incorporating records of decisions of the Council or whose decisions are not fully reported by the local media, have to be omitted from the sample.

3.4. Factors contributing to the adoption of the reform

The dependent variable we consider is the probability of choosing to implement the reform in September 2013. $REFORM_{i,t}$ is defined as follows: it takes the value 1 if municipality i has chosen to implement the reform in 2013 and 0 if a derogation has been requested to delay its implementation to 2014. Nearly 24% of the municipalities from the sample chose to implement the reform from the first year. Table 1 summarizes the data sources, the definitions of our variables and the expected signs of the related parameters.

--- Insert Table 1 about here ---

Following Cassette and Farvaque (2014), we include three sets of internal determinants. A first series of independent variables includes budget data, at the city level. As municipalities are endowed with competence over primary school, they must finance the after school activities generated by the reform. Municipalities and their representative bodies provide various estimates of the per-pupil cost of the reform, which suggests that budgetary concerns are an important determinant of the willingness to implement the reform. Even though it has created the "fonds d'amorçage" to incentivize municipalities to adopt the reform fast, the central government is globally reducing the amount of general grants to local governments. Hence, municipalities may have to raise local taxes to finance the reform, and they may be reluctant to increase these taxes, especially right before the next election. By the same reasoning, the level of municipal debt should also affect mayors' choices. We thus assume that local choices by mayors are constrained by the structure of their municipal budget.

The "*Local taxes*" and "*Debt*" variables are expressed in thousands of euros per capita in the basic set of estimates. 2012 data are used as the choice to implement the reform has been taken between January and March 2013.

A second set of data is related to the mayor. Two subgroups of variables are available to depict her characteristics: personal characteristics and political ones. Even if the municipal council is the decision-making body, power is centralized in the hands of the mayor who has

authority over the municipality's civil servants and takes all decisions relative to the implementation of its budget. As a consequence, personal characteristics of the mayor could affect the probability of an early implementation of the reform.

Detailed information on personal characteristics of mayors is provided through the national directory of elected officials (French interior ministry). Age (*AGE*) is included as to reflect potential nostalgia for school weeks that run on four and a half days as it was the norm up to 2008. The proportion of women mayors is still extremely low. A dummy variable accounts for the fact that the mayor is a woman (*WOMAN*). Four dummy variables are built to describe the socio-professional categories of the mayors: *TEACHER*, *CIVIL SERVANT*, *PUBLIC ENTERPRISES* and *PHYSICIAN*. These specific socio-professional categories are used as proxies of the sense of public service and of the capacity to focus on the children's best interests. The dummy *TEACHER* equals 1 if the mayor is a teacher (from preschool teachers to higher-education teaching personnel). On the one hand, with a significant knowledge of how schoolchildren and students learn best, they should be the best motivated to an early implementation of the reform. On the other hand, they could be unfavorable to a reform that increases the weekly working hours of their fellows without pay compensation. Civil servants (other than teachers) and workers in public enterprises should bear in mind –to some extent– the public service values and the will to ensure quality education to children. Physicians should be responsive to the impact of the school time schedule on children's health. They are in a position to promote a reform directed towards the interests of children, not their parents'.

The second subgroup of variables accounts for the links between the local and national political contexts. The dummy variable *COALGOV* equals 1 if the mayor is from the governmental coalition, and 0 otherwise. Mayors from the governmental coalition should be more prone to support the reform and to undertake it without delay. Mayors from other leftist parties (*OTHER LEFT*) should also favor the reform. A positive sign is thus expected for these variables. To account for the “cumul des mandats” that characterizes France's political personnel², we include two dummy variables that are equal to one if the mayor is a deputy (*DEPUTY*), or a senator (*SENATOR*), and 0 otherwise³. We also take into account the score locally obtained by the elected (socialist) President at the preceding (2012) election, as this may reflect a partisan bias (left-leaning) in the municipality.

Finally, a weak electoral support should restrict the available policy space the mayor needs to implement an highly controversial reform, while strong past electoral results should provide more leeway for local public choices. Electoral support can be expressed either by a dummy variable equal to 1 if the mayor was elected in the first round in the last election (*IST*

ROUND), or by the absolute margin between the mayor and her main challenger at the final round (*MARGIN*). The number of consecutive mandates won by the mayor also deals with the past electoral support. We build three dummy variables to account for the number of terms of office and the ability of the mayor to be reelected: “*2nd term*”, “*3rd term*” and “*more than 3 terms*”. The expected sign for all these variables is positive: implementing a controversial reform should not prevent the reelection of the mayor, which could increase the probability of starting the new school schedule in 2013.

The third set of variables relates to the local school context itself. First, it has to be acknowledged that practical and budgetary difficulties may arise when applying the reform to larger numbers of school-age children and public schools. The larger the proportion of school-age children in the municipal population (*Share of school-age children*) is, the larger the global cost of extracurricular activities to be financed by the municipality. 80% of municipalities have 10 public schools at most. We thus introduce a dummy variable “*Less than 10 schools*” (equal to 1 if there are less than 10 public schools in the municipality). The large number of schools can create problems to hire and manage group leaders able to organize games, cultural and sporting activities during extracurricular activities. Also, school directors and parents could have conflicting preferences on the new organization of the school week between educational institutions, which may complicate the municipal choice and delay the implementation of the reform.

According to various reports and studies (see, e.g., Hugonnier, 2010, Suchaut, 2009, Davila and Delvolvé, 1994), if the low performance of French pupils can result from too long school days, the worst performances are experienced by children in deprived urban areas. Schools in those areas belong to a Priority Education Network whose objective is to attenuate the impact of socio-economic inequalities on school performance. We introduce a dummy variable that takes the value 1 if some schools in the municipality belong to a priority education network, and 0 otherwise. Children in these municipalities would greatly benefit from a reform whose aims are to improve learning and to foster educational success and we can expect mayors to be more inclined to quickly implement the reform. Besides, poorer municipalities receive additional grants from the State to implement the reform (atop from the “*fonds d'amorçage*”, a lump-sum grant which amounts to 50€ per pupil and an additional grant of 40€ per pupil if the municipality is located in a poor surrounding). This additional grant is designed to encourage mayors of poor municipalities to implement the reform quickly. The additional State aid is dedicated to the poorest municipalities, the ones that receive the targeted urban solidarity grant (“*DSU-cible*”) or the targeted rural solidarity grant (“*DSR-cible*”)⁴. To analyze if the

additional State aid has an incentive effect on the probability to implement the reform in 2013, we introduce two dummy variables: the first one (“aid to poor urban municipalities”) is equal to 1 if the municipality receives the targeted urban solidarity grant and 0 otherwise, the second one (“aid to poor rural municipalities”) is equal to 1 if the municipality receives the targeted rural solidarity grant.

Besides horizontal diffusion of the decisions made by neighbors, we take account of vertical links between layers of government that come from their respective competencies relative to pre-schools and primary schools. As explained above, departments and city unions can be endowed with competencies over extracurricular activities and school transportation. Thus, not only do we take into account this sharing in responsibilities (through two variables that capture, respectively, if competences on extracurricular activities and school transport, have been devolved to the city union - *Extraact_cityunion* and *Transport_cityunion*), but also consider if the upper-level government is from the Left (*GENERAL_COUNCIL_LEFT*).

3.5. Factors of the vote popularity

The adoption of the reform will not influence the incumbent’s probability of reelection but may affect her vote share in both rounds. We choose to focus on the effect of the reform in the first round incumbent vote share (as the election ends at the first round in many cities). Two sets of explanatory variables are gathered.

Impact of the school rhythm reform

To evaluate how voters value mayors that experiment risky and costly reforms, we introduce two dummy variables. Besides the *REFORM2013* variable we presented above, we introduce a dummy variable *BOYCOTT2014* which takes the value 1 if the municipality has decided to break the law and refused to implement the reform in 2014. If there is a latecomer advantage (an innovator premium, reciprocally), *BOYCOTT2014* should have a positive (negative) effect on incumbent’s vote share while *REFORM2013* should have a negative (positive) one.

[To be completed]

Political variables

As in Cassette et al. (2013) we include a large set of political variables, which fall into three subgroups. First, as in the set of variables used to explain the adoption of the reform, we consider variables related to the incumbent mayor's past electoral results. We include the incumbent party's share of the vote in the last municipal election as an expression of long-term strength or voter inertia. Another method for examining past electoral results is to introduce a dummy equal to 1 if the mayor was elected in the first round in the last election and 0 otherwise. Finally, we take into account the number of consecutive mandates won by the incumbent mayor. These variables might be a proxy for experience (positive) but could also be a measure of voter fatigue (negative). During her first term, the current mayor could profit from a "honeymoon"

effect, favoring easier reelection than in the case of a candidate from the same party who lacks experience. During subsequent terms, voter fatigue, erosion of power and more familiarity with the mayor's preferences may be harmful to reelection prospects.

The second subgroup of political variables (α_i) addresses the intensity of electoral competition. As French political arena is multi-partisan, we include the number of competing candidates from the same or the opposite political wing.

The third subgroup of political variables (χ_i) accounts for the links between the local and national political contexts. We include a dummy equal to 1 if the incumbent mayor and the majority in Parliament are from the same political party and 0 if not. This variable controls for the potential influence of the national government's popularity on local elections. French voters commonly consider municipal elections as mid-terms and use them to penalize government and the parliamentary majority for poor performance. We use a variable to control for the vote share received by presidential candidate from the incumbent mayor's party in the second round of the last presidential election. Dummies for the incumbent's national standing are included and are equal to 1 if she is a deputy or a senator, and 0 otherwise.

4. Results

[To be completed]

Table 1: Summary statistics and expected effects

Variables		Sources	Obs.	Summary statistics				Expected signs	
				Mean	Std Dev	Min	Max	REFORM 2013; _{i,t}	INCVOTE 2014
MAYOR'S POLICY									
REFORM2013	1 if the school rhythm reform has been implemented in the municipality as soon as September 2013	Departmental services of the Ministry of National Education.	2608 929	0,24 0,26	0,427 0,441	0	1	/	+/-
BOYCOTT2014	1 if the municipality refuses to implement the reform in 2014	http://www.clrdrs.fr/	2608 929	0,06	0,243	0	1	/	+/-
BUDGET DATA									
LOCAL TAXES	Local taxes in thousands of euros per capita	Census of the Ministry of Finance	2608 929	0,5043 0,5615	0,2430 0,2014	0,042 0,141	3,898 2,043	-	-
LOCAL DEBT	Municipal Debt (thousands of euros per capita)		2608 929	0,9487 1,0366	0,6990 0,7023	0 0	11,447 11,447	+/-	-
MAYOR'S PERSONAL CHARACTERISTICS									
AGE	Age of the mayor	Ministry of Internal Affairs	2608 929	61,3 60,4	9,2 9,44	29 30	89 88		?
WOMAN	1 if the mayor is a woman, 0 otherwise		2608 929	0,108 0,108	0,311 0,311	0	1		?
TEACHER	1 if the mayor if a teacher, 0 otherwise		2608 929	0,153 0,157	0,359 0,364	0	0	+	?
CIVIL SERVANT	1 if the mayor is a civil servant, 0 otherwise		2608 929	0,149 0,172	0,356 0,377	0	1	+	?
PUBLIC ENTERPRISES	1 if the mayor works in a public enterprise, 0 otherwise		2608 929	0,049 0,046	0,216 0,210	0	1	+	?
PHYSICIANS	1 if the mayor if a physician, 0 otherwise		2608 929	0,038 0,044	0,193 0,205	0	1	+	?
links between the local and national political contexts									
COALGOV	1 if the mayor and the majority in Parliament belong to the same political party, 0 otherwise	Ministry of Internal Affairs	2608 929	0,329 0,386	0,047 0,487	0	1	+	-
OTHER_LEFT	1 if the mayor is from other leftist		2608	0,18	0,384	0	1	+	-

	parties, 0 otherwise		929	0,151	0,357				
DEPUTY	1 if the mayor is a deputy, 0 otherwise		2608 929	0,063 0,125	0,243 0,331	0	1	?	+
SENATOR	1 if the mayor is a senator, 0 otherwise		2608 929	0,028 0,053	0,164 0,223	0	1	?	+
PRESID	Incumbent party share of votes at the presidential election		2608 929					/	+
Mayors' past electoral results									
<i>1ST ROUND</i>	1 if the mayor was elected in the first round of the preceding election, 0 otherwise	Ministry of Internal Affairs	2608 929	0,673 0,572	0,469 0,484	0	1	+	+
<i>INCPREV</i>	incumbent party's share of the vote in the last municipal election		2608 929					+	+
<i>MARGIN</i>	1 if the mayor was elected in the first round of the preceding election, 0 otherwise		2608 929	0,713	0,598	0	6,98	+	/
2 nd term	1 if the mayor spends her 2nd term in office, 0 otherwise		2608 929	0,378 0,375	0,485 0,483	0	1	+	?
3 rd term	1 if the mayor spends her 3rd term in office, 0 otherwise		2608 929	0,156 0,185	0,363 0,388	0	1	+	?
More than 3 terms	1 if the mayor already spent more than 3 terms in office, 0 otherwise		2608 929	0,147 0,155	0,354 0,362	0	1	+	?
local school context									
POP2-14	Share of school-age children	INSEE	2608 929	0,16 0,16	0,025 0,025	0,076 0,076	0,263 0,261	-	/
Less than 10 schools	1 if there are less than 10 schools in the municipality		2608 929	0,814 0,501	0,388 0,500	0	1	+	/
Priority Education Network	1 if some schools in the municipality belong to a priority education network, 0 otherwise		2608 929	0,206 0,404	0,405 0,491	0	1	+	/
Aid to poor urban municipalities	1 if municipality received the targeted urban solidarity grant, 0 otherwise	Census of the Ministry of Finance	2608 929	0,111 0,249	0,314 0,433	0	1	+	/
Aid to poor rural	1 if municipality received the targeted rural solidarity grant, 0 otherwise		2608 929	0,156 0,012	0,363 0,112	0	1		

municipalities									
Vertical links									
General Council Left	1 if General Council belongs to Left	Ministry of Internal Affairs	2608 929	0,631 0,619	0,482 0,486	0	1	+	/
Extraact _cityunion	1 if competences on extracurricular activities have been devolved to the city union	BANATIC, Ministry of Internal Affairs	2608 929	0,211 0,178	0,408 0,388	0	1		/
Transport _cityunion	1 if competences on school transportation have been devolved to the city union		2608 929	0,306 0,319	0,461 0,466	0	1		
intensity of electoral competition in 2014									
NB1_same	Number of candidates at the first round, same wing	Ministry of Internal Affairs	2608 929					/	-
NB1_opp	Number of candidates at the first round, opposite wing		2608 929					/	-

References

[To be completed]

- DELVOLVE N, JEUNIER B., 1999, « Effets de la durée du week-end sur l'état cognitif de l'élève en classe au cours du lundi », *Revue Française de Pédagogie*, 126, 111-120.
- Dewatripont, M., Roland, G., 1992, « Economic reform and dynamic political constraints », *Review of Economic Studies*, 59, 703–730.
- Dewatripont, M., Roland, G., 1995, « The design of reform packages under uncertainty », *American Economic Review*, 85, 1207–1223.
- INSERM, 2001, *Rythmes de l'enfant. De l'horloge interne aux rythmes scolaires. Rapport pour la Caisse Nationale d'Assurance Maladie des professions indépendantes (CANAM)*, Paris, Les éditions INSERM.
- Ward H., John P., 2013, "Competitive Learning in Yardstick Competition: Testing Models of Policy Diffusion With Performance Data", *Political Science Research and Methods*, 1, 3-25. doi:10.1017/psrm.2013.1.
- Leconte C., 2012, « Refondation de l'école : Réorganisation des temps de vie des enfants et des jeunes. Propositions », Contributions Refondons l'école de la République, Ministère de l'Education Nationale.
- Padovano F., Petrarca I., 2013, "When and how politicians take 'scandalous' decisions?," *Constitutional Political Economy*, 24(4), 336-351.
- Touitou Y., Bégué P., 2010, *Aménagement du temps scolaire et santé de l'enfant : Vers un nouvel horaire scolaire*. Académie nationale de Médecine.
- Volden C., 2006, "States as Policy Laboratories: Emulating Success in the Children's Health Insurance Program", *American Journal of Political Science*, 50(2), 294-312.