Data, Measures and Methods

The influence of the legislative redistricting of 2009: Methodological issues and first insights

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Abstract   In 2009, following a legislative redistricting lead by the right, 18.1 per cent of the French cities moved from one constituency to another. The aim of this note is to provide some methodological issues about this redistricting and some insights about its influence on the electoral results. The main result goes in the sense of a partisan manipulation: due to the redistricting, the left lost 14 constituencies. Whereas it actually gained 333 constituencies in 2012, it would have gained 347 constituencies if the redistricting had remained unchanged between 2007 and 2012. However, the difference between these two proportions is not statistically significant. Consequently, even if it appears as if the left lost out from the 2009 redistricting, we conclude that it did not have a significant effect on the extent of the left's victory.

When one looks at electoral results for France in newspapers and data files, the Ain is the first department that appears. This department is divided into five legislative constituencies, each of them sending one deputy to the National Assembly. In the legislative election of 2012, four elected candidates were returned from the left and one from the right. What is striking is that the right-wing deputy was elected in a new constituency, which was created in 2009 under a right-wing government.[1] Is it a simple coincidence?[2] Of course, redistricting is driven by the idea of offering a greater representative equality, but nothing in the law prevents partisan considerations from being at work; partisanship and representativeness are not mutually exclusive.

To the best of my knowledge, no other article has been published on the consequences of the 2009 redistricting and an assessment has not been done on what would have happened in 2012 if the districting had remained unchanged.[3] This is

quite surprising for at least three reasons. First, a large body of literature exists in other countries, in particular in the United States, related to districting with numerous articles and books on gerrymandering or malapportionment (see, among many others, Martis, 2008; Tasnádi, 2011). Second, in France, the redistricting of 2009 gave rise to controversy in the media (see articles in *Le Figaro*, 13 October 2009; *Le Monde*, 13 April 2009; *Libération*, 26 January 2009). Finally, the opportunities for studying redistricting in France are scarce. Indeed, since the beginning of the Fifth Republic, legislative constituencies have been redistricted only five times,[4] the last time being almost 30 years ago (1986). One interesting question is why this important event in French politics has not interested scholars.[5] First, the fact that the left won the elections in 2012, with the districting made by the right means the controversy has tended to be forgotten. However, the study holds an intrinsic interest since the left may have won a larger majority without the redistricting. This argument is still topical since the group of the main left party, the *Parti Socialiste*, has only a very small majority in the National Assembly (291 seats out of 577 – 50.4 per cent – in April 2014). The 2009 redistricting may also be unstudied because, by definition, its consequences are purely speculative since no elections had been held with the new districting before 2012. It does not explain, however, why there have not been any studies since 2012.

The 2009 redistricting was not a minor event. Indeed, 18.1 per cent of cities were moved from one constituency to another (6626 from 36 661 cities[6]). A total of 33 constituencies were created, and, since the total number of constituencies remained the same,[7] 33 constituencies were removed. For the removed (respectively, created) constituencies, the relevant colour is what it was in 2007 (respectively, 2012). We note that since the right, which had undertaken the 2009 redistricting, won the 2007 election and lost the 2012 election, we obtain a kind of *ceteris paribus* figure (if the right had won the election in 2012, it would have been difficult to separate the effects of the redistricting from the effects of the *vague bleue*).

The reading of Table 1 indicates that a partisan redistricting can be rejected, at least for new and removed constituencies.

We have directly examined the legislative results because the constituencies themselves have not been affected by the redistricting, *per se*: the constituency has been totally created or totally removed. However, redistricting generally means

Table 1: New and removed constituencies after the 2009 redistricting

	Colour of the constituency		Total
	Left	Right	
Created constituencies (1)	23	10	33
Removed constituencies (2)	21	12	33
Net gain (1)–(2)	+2	−2	0

moving a city from one constituency to another. Therefore, to study the consequences of the 2009 redistricting, one has to compare the results of the legislative election at the city level in 2007 and 2012.[8] For our example of the fifth constituency of Ain, we have to take the results of 2012 in the 117 cities that constituted this new constituency, and input these results to the constituencies as they were in 2007. We immediately encounter one serious problem. Among these 117 cities, 48 belonged to the second constituency in 2007. Therefore, the results in 2012 in the second constituency have to be summed with the results in 2012 in the 48 cities that now belong to the fifth constituency. The problem is that this is not possible without making some strong assumptions. Why? Simply because the configurations in the second round were not the same in the second and in the fifth constituencies. In the fifth constituency, it was a classical duel: a moderate left candidate was opposed to a moderate right candidate. Whereas in the second constituency, a triangular contest took place with a moderate left candidate, a moderate right candidate and an extreme-right candidate. The problem is clear: which candidate in the second constituency should the moderate right candidate vote for in the fifth constituency? This is not the only problem. In the department of Charente, one constituency was removed in 2009. The 43 cities that constituted the fourth constituency in 2007 are now distributed among the three still existing constituencies. Therefore, the results in the second round of 2012 in these 43 cities have to be aggregated to reconstitute the removed fourth constituency. However, once again, it is not possible. Why? Simply because in the first and in the third constituencies, there was no second round in 2012.

Considering these two serious problems, and since, in this article, we want to give first insights only, we have chosen to concentrate on the presidential election of 2012. This allows us to avoid both the problems mentioned above; in presidential elections, the political supply is the same everywhere and there is a second round everywhere. Now, what can studying presidential elections tell us about legislative elections? To illustrate, let us compare the colour of each constituency in 2012 in the presidential election and in the legislative election.[9]

In 295 constituencies, François Hollande was ranked first at the presidential election and the left obtained a majority of votes at the legislative election (Table 2). In 87.3 per cent of constituencies, the colours in the presidential and legislative

Table 2: Colour of the constituencies in the presidential and legislative elections in 2012

		Candidate ranked first at the presidential election	
		Left	Right
Candidate ranked first at the legislative election	Left	295	35
	Right	38	209

elections were identical. In view of this very high percentage, one can consider that a legislative study would be likely to yield similar conclusions. Focusing on presidential elections is, therefore, relevant for our purpose.

Now, two statistical files, both provided by the Ministère de l'Intérieur (www .interieur.gouv.fr/Elections/Les-resultats), must be merged. The first file contains the results of the 2007 presidential election by city. The results themselves are useless, but what is important is the list of the cities and the constituency to which they belonged under the previous districting in 2007. The second file contains the results of the 2012 presidential election by city. Here the results, the list of the cities and the constituency to which they belonged under the new districting in 2012 are important. When we try to merge these files, they do not match in 80 cases. These problematic cases can be summarized in six categories: (i) cities that were in a single constituency in 2007 and that are now on several constituencies (18 cases); (ii) cities that were in several constituencies in 2007 and that are now in a single constituency (15 cases); (iii) cities in several constituencies in 2007 and 2012 – but the number of constituencies is different (9 cases); (iv) cities that no longer exist in 2012 (12 cases); (v) new cities in 2012 (15 cases); and (vi) constituencies created *ex nihilo* (11 cases).

With the exception of the last category, we have to check each case and make treatments if needed. An example is when two cities are gathered together to form a new one. Since, in 2012, we have the result of the new city only, we have to check if the two former cities belonged to the same constituency in 2007. If this is the case, no treatment has to be made; but if this is not the case, we have to split the vote of the new city in two by looking at the vote at the polling station level. After a close examination of new cities and removed cities, such a treatment does not have to be made.[10] Case (i) is easy to tackle: we have just to aggregate the vote in the new constituencies and attribute the sum to the former (single) constituency.[11] Cases (ii) and (iii) are the most difficult to deal with. For these 24 cases, we have to look the vote at the polling station level.[12] For 15 cities, we used the work of the association *Regards Citoyens*, which was mentioned earlier. Unfortunately, this work rests on the polling station distribution as it was in 2007, but, in eight cities, the redistricting also created and/or removed polling stations in 2012. Therefore, we have directly contacted the city halls of these cities. Finally, one city was in two constituencies in 2007, and in one constituency in 2012, but there was only one polling station in 2012. It was, therefore, impossible to split the vote to distribute it over the two constituencies in 2007. Since, in 2007, there were 20 registered voters in one constituency and 225 in the other, we chose to affect the vote in 2012 to the latter. To be complete, we have to note that there exists a slight possibility that even if the constituencies remained unchanged some polling stations were moved from one constituency to another. Sixty-two cities were concerned and we randomly contacted six of them (roughly 10 per cent of the sample) and none of them reported such a change.[13]

Table 3: Partisan consequences of the 2009 redistricting on the 2012 elections

	Colour of the constituency		Total
	Left	Right	
Districting of 2012 (1)	333	244	577
Districting of 2007 (2)	347	230	577
Net gain (1)–(2)	−14	+14	0

Now, we can assess the partisan consequences of the 2009 redistricting by examining the results of the 2012 presidential election before and after the redistricting.

The result suggests a partisan manipulation. Because of the redistricting, the left lost 14 constituencies (Table 3). Whereas it actually gained 333 constituencies in 2012, it would have gained 347 constituencies if the redistricting had remained unchanged between 2007 and 2012. This can be viewed as non-negligible, since the *Parti Socialiste* majority in the National Assembly is very small. If we eliminate new and removed constituencies, 23 constituencies swing: 12 from left to right (that is, left under the 2007 districting, and right under the 2012 districting),[14] and 11 from right to left (that is, right under the 2007 districting, and left under the 2012 districting).[15]

In order to investigate if the proportions of constituencies gained by the left are different under the two instances of districting, we performed a z-test. The test is one-tailed since the hypothesis is clearly directional: the right is expected to increase its own partisanship. The z-statistics, which equals to −0.838, is not significant at 5 per cent (critical value: 1.65). This leads us to accept the null or absence of difference between both proportions. Consequently, even if it appears as if the left lost out from the 2009 redistricting, we conclude that it did not have a significant effect on the extent of the left's victory.

Acknowledgement

Notes

1 Orders 2009-935 and 2009-936 of 29 July 2009. The work on the redistricting is summarized in a report of the National Assembly (de la Verpillière, 2009).

2 Besides a possible partisan bias, the suspicion is reinforced by the fact that the person in charge of the redistricting was also, in the past, in charge of the electoral map in its (right) party.

3 The redistricting is, nevertheless, tackled in Ehrhard (2013). The association *Regards Citoyens* has performed a retrospective study of the partisan consequences of the redistricting (what would have been the results in 2007 with the districting of 2009), which is available at www.regardscitoyens.org. A similar simulation has been undertaken by Frédéric Salmon (geoelections.free.fr/France/decoupage/simulation.htm).

4 Among them, some were minor, as in 1972 (three constituencies created) or in 1975 (one constituency created).

5 Same observation applies for the previous redistrictings. We can think that the key explanation is here the lack of data. Indeed, as we will see in much more details later, electoral results at the city level are needed to study the consequences of the redistricting. Such data, provided in an electronic file with all the French cities, are available in France since 2002 only.

6 To obtain this total, we have to remove 142 cities. There are 36 661 cities that exist both in 2007 and 2012 and that do not straddle several constituencies. These points will be developed later.

7 Following the Article 24 of the Constitution.

8 In addition, preferably, the results in the second round in order to avoid aggregation problems since, in the first round, the polarization of the candidates at the left or at the right is not always straightforward.

9 Two assumptions were necessary. First, in case of a triangular contest with two left and one right candidates, the colour of the constituency is lefted if the vote share of the left is larger than that of the right, even if the right candidate is elected (two cases). The same assumption applies to a triangular contest with two right and one left candidates (1 case), and to a triangular contest with one left, one right and one extreme-right candidates (14 cases). Second, regionalist candidates have been considered to be left candidates (in Corsica and in Martinique).

10 New and removed cities represent 27 cases that can be grouped into 4 categories. First, cities separated and the original city continues to exist (six cases representing seven new cities and no removed cities: Avrecourt and Saulxures from Val-de-Meuse, Verquigneul from Béthune, Lavilleneuve-au-Roi from Autreville-sur-la-Renne, Liéoux from Saint-Gaudens, Rosoy from Sens and Saint-Symphorien from Hédé). Second, cities separated and the original city ceases to exist (two cases representing four new cities and two removed cities: Chézeaux and Varennes-sur-Amance from Terre-Natale, and Robert-Magny and Laneuville-à-Rémy from Robert-Magny-Laneuville-à-Rémy). Third, cities group together (four cases representing four new cities and eight removed cities: Bihorel and Bois-Guillaume become Bois-Guillaume-Bihorel, Saint-Germain-Source-Seine and Blessey become Source-Seine, Bleury and Saint-Symphorien-le-Château become Bleury-Saint-Symphorien, and Guitalens and Lalbarède become Guitalens-L'Albarède). Fourth, one city joins another one and the former ceases to exist (two cases representing no new cities and two removed cities: Fort-Mardyck and Saint-Pol-sur-Mer joined Dunkerque).

11 Avesnes-sur-Helpe, Bondy, Bourg-en-Bresse, Carcassonne, Carpentras, Castres, Cergy, Courbevoie, Grasse, Istres, Mamoudzou, Rouen, Saint-André, Saint-Denis, Saint-Louis, Saint-Paul, Saint-Priest, Vallauris.

12 Adelans-et-le-Val-de-Bithaine, Angoulême, Arras, Boulogne-sur-Mer, Calais, Chambéry, Chamrousse, Fort-de-France, Jullouville, Le Havre, Marseille, Meaux, Melun, Monéteau, Montpellier, Nice, Paris, Reims, Saint-Etienne, Saint-Maur-des-Fossés, Toulouse, Tours, Vesly, Wattrelos.

13 To be complete on the merging operations, we have to note that six cities had been renamed between 2007 and 2012 (Géovreissiat/Beard-Géovreissiat, Bréville/Bréville-les-Monts, Hédé/Hédé-Bazouges, Rieux/Rieux-Volvestre, Vieux-Pont/Vieux-Pont-en-Auge, Wallers-Trélon/Wallers-en-Fagne) and that one city, Han-devant-Pierrepont, moved from one department to another (Meuse in 2007, and Meurthe-et-Moselle in 2012).

14 3505, 4205, 4801, 5604, 5907, 5915, 6201, 7501, 7502, 7701, 7703, 7707 (the first two digits are the number of the department and last two are the number of the constituency).

15 3403, 5004, 6203, 7503, 7515, 7516, 8101, 9103, 9405, 9408, ZM01 ('ZM' stands for 'Mayotte').

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