The Paradox of Coalition Trading

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THE PARADOX OF COALITION TRADING

Josep M. Colomer and Florencio Martínez

ABSTRACT

We present a model of coalition formation in a multiparty and multiparliament system in which several parties can agree on simultaneously exchanging their votes in a set of parliaments. Given this possibility, a party, acting rationally in its own self-interest, could accept sharing oversized majority coalitions in some parliaments with numerically superfluous partners. We present a formal argument in instances with diverse numbers of parties and parliaments. We propose a newly invented and refined parliamentary power index in order to measure and compare the benefits of different coalition strategies. We also present empirical evidence of situations prone and adverse to this paradoxical but rationally self-interested behaviour by parties acting in local parliaments in Spain.

KEY WORDS • coalitions • local government • power indices • rational choice • vote trading

1. Presentation

This article proposes a model of coalition formation in a multiparty and multiparliament system, such as that of some federal countries, in which several disciplined parties can agree on simultaneously exchanging their votes in a set of parliaments. Given this possibility, a party, acting rationally in its own self-interest, could accept sharing oversized majority coalitions in some parliaments with numerically superfluous partners. The condition of this acceptance would be receiving the side-payment of being accepted in some majority coalition in another parliament into which the party would not have been accepted by parties acting in their local self-interest.

Standard theoretical models of coalition formation, such as those based on criteria of size, number of parties, ideological connection or policy distance, focus on single parliaments. But a general pact between several parties to coordinate their behaviour in several parliaments may produce

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winning coalitions that would not fit any of these models. In the present model, however, it is not necessary to assume that parties use different criteria of coalition formation in different settings, or that they act irrationally to accept the formation of some oversized coalitions.

In the following pages we present a formal argument in instances with diverse numbers of parties and parliaments. In order to measure and compare the benefits of the general pact and the different coalition alternatives for each party, we use standard power indices and a newly invented and refined parliamentary power index. Also discussed are the externalities of a general pact between parties on the levels of representation of the institutional outcomes. We also present empirical evidence of this paradoxical, but rationally self-interested, behaviour by parties acting in local parliaments in Spain from 1979 to 1991. The basic model could be applied to other real situations in which one set of actors acts simultaneously in different settings.

2. Agreeing on Vote Trading

The coalition formation process has been simplified in coalition theory by concentration on single parliaments, taken separately and one at a time (for an updated exposition of the theory and its applications, see Laver and Schofield, 1990). Coalition theory has only ceased to treat each formation as a separate episode when time considerations related to former or future coalition formations have been introduced, that is, when the process has been modelled as a supergame of successive formations (Bueno de Mesquita, 1975). However, when dealing with a multiparliament system, coalition theory should also consider the possibility of coalition-trading in different settings. In other words, our model does not deal with several moments in the same setting, but with several settings at the same moment. In particular, it must be taken into account that, in a decentralized system with central and local or regional parliaments, disciplined and not merely local parties are able to exchange votes in separate parliaments.

According to the standard statements of formal coalition theory, we assume that parties are self-interested and maximizers, the benefits of being a member of a winning coalition (WC) are measurable and side-payments are allowed in bargaining. As usual, it is also assumed that parties adopt a consistent criterion of WC formation, such as that, for instance, which leads to forming minimum winning coalitions (MWC), or minimum connected winning coalitions (MCWC), or winning coalitions with a minimum number of parties, or some specific combination of these and other criteria (for the original expositions of criteria of size, ideological connection and ideological distance in coalition formation, see Riker, 1962; Leiserson, 1968; Axelrod, 1970; De Swaan, 1973; and for combinations of these criteria, Taylor, 1972).
Usually one party faces several possibilities of forming WCs in a single parliament. Therefore, we distinguish between the set of viable winning coalitions according to the specific criteria used by the parties and the coalition actually formed, that is, a majority coalition, presumably belonging to that set.

To form a WC, parties have to choose among the set of viable WCs in each parliament and, sometimes, they find themselves faced with a distribution of seats in the several parliaments which, if they acted in their local self-interest, would lead them to choose diverse coalitions in the different parliaments. When a party adopts this coalitional strategy we say that it retains its freedom to coalesce.

Assume, for instance, that a party system is formed by four parties, A, B, C, D, and that they act simultaneously at three parliaments X, Y and Z (corresponding, for example, to three regions of a country). One party, let us call it B, could form, for example, a viable WC with C, called BC, in parliament X, but at the same time it could refuse to coalesce again with C in parliament Y to form a viable winning coalition of three parties BCD, preferring to form the also viable, but perhaps more office-rewarding, coalition of two parties AB, whereas in parliament Z, party C could govern alone with a single-party absolute majority. So, parties B and C would be partners in one parliament, even supporting one government together, and opponents in other parliaments, in which one of them would be in government and the other in opposition. Something similar would happen between A and B.

These different choices of local partners by one non-local party might produce confusion on its specific ideological position and its relative distance from the other parties and this confusion might be distasteful to some of its voters and cause that party loss of votes at successive elections. These extra-coalition considerations can lead one party to adopt a different coalitional strategy and to sign a general pact with another party or subset of parties always to coalesce together in all parliaments, even if that pact brings about losses of power in some local parliaments as compared with alternative opportunities for local coalition formation.

Nevertheless, realistic though these ideological and electoral considerations may be in some cases, we further maintain the argument that, in certain circumstances of the distribution of seats, choosing the same partners in different parliaments may be globally rewarding for one party in terms of its power, that is, its membership in winning coalitions, even if this pact leads it to form less rewarding coalitions than some alternative viable winning coalitions in some of these parliaments. So, our model would not deal with the dilemma of accepting oversized coalitions, which would be less rewarding in terms of power, in order to maintain a more ideologically consistent image of the party for electoral or other purposes. We will simply
explain this paradox: how some parties may form oversized coalitions in order to achieve more power from the very process of coalition formation.

If the favourable circumstances were those of the above mentioned example, parties B and C, for instance, acting in self-interest in terms of power, would commit themselves to exchanging their votes in all the parliaments of the country in which they are present. In other words, they would undertake not to accept belonging to any winning coalition in any parliament without their agreed partner. Specifically, B would be committed to coalesce with C not only in parliament X, as previously stated, but also in parliament Y, forming the less-rewarding winning coalition BCD, whereas C would accept sharing power with B in parliament Z, forming the oversized coalition BC (remember that C alone would have been a winning coalition). In comparison with the first coalitional strategy, which led it to form diverse pacts in different parliaments, through this pact between B and C, party C would gain partnership in the formed WC in parliament Y, while party B would gain partnership in the oversized winning coalition formed in parliament Z. Although forming one oversized coalition, both agreeing parties would gain partnership positions in the winning coalitions formed.

At the same time, this strategy would lead some power-oriented parties to act in an ideologically consistent way when it came to choosing their coalition partners and forming governments, presenting a clear ideological position to the voters during the post-electoral process. This consistency may be electorally rewarding in subsequent elections, particularly for parties with strongly defined electoral bases of support. However, for centrist or other parties with a wider support recruitment, this uniform behaviour in several parliaments might be regarded as an ideological bias and it could be electorally damaging at the next elections. This ambiguity in the foreseeable consequences both of opportunistic and of ideologically consistent coalition-formation behaviours by parties, further motivates us to interpret the formation and the absence of a general pact to exchange votes in several parliaments as simply expressions of the different rewarding opportunities for the parties to achieve power positions in those parliaments, without taking into consideration in this model the electoral and ideological motives.

3. The Formal Model

The main elements of our model are then the following:

We have a set of three or more parties, call them \( i = A, B, C \ldots \), and a set of two or more parliaments, call them \( k = X, Y, Z, \ldots, N \).

In order to be able to compare the relative expected benefits for one party from the strategy of forming diverse local coalitions, that is coalescing
with different parties in different parliaments, and the strategy of signing a general pact with a party or parties, we need a measurement of those benefits. Given that a party can face a situation in which it is possible to choose between several winning coalitions in one parliament, this measurement must be done in terms of the average of the expected benefits in the set of parliaments and must be compared with the benefits that the party would derive from signing the general pact. Therefore, assuming that parties are power-oriented, we use power indices to compare the relative expected benefits they can achieve in each situation, since the power indices of a party are calculated from its opportunities to be a pivotal partner in a viable winning coalition.

We will then refer to $\Phi(i)x$ as the power index of party $i$ in parliament $X$ when it faces all viable WCs, being $0 \leq \Phi(i)x \leq 100$, and to $\Pi(i)x$ as the power of party $i$ in parliament $X$ that can be expected as a result of a general pact, being also $0 \leq \Pi(i)x \leq 100$. For a set of parliaments, we will add together the power indices of the $i$ party in each parliament, weighted for its relative size (that is, the proportion of seats in each parliament out of the total seats of all the parliaments), referring to them as $\Phi(i)n$ and $\Pi(i)n$.

Our model states that, in some circumstances of distribution of seats, a party can achieve relative gains in terms of power if it restrains its freedom to choose diverse local partners in the different parliaments and signs a general pact always to coalesce with the same party. These gains will come from becoming a certain partner in a formed WC and/or being added as a superfluous partner to a WC to which it would otherwise not have been included. Relative losses for a party will come from accepting sharing a formed WC with a number of partners which exceeds its average expected partners and/or from accepting a superfluous partner to a WC to which it surely belongs. In other circumstances, the most beneficial strategy may be to retain its freedom to choose diverse coalitional partners in different parliaments.

The formal conditions for the existence of relative gains coming from a general pact between parties are the following:

1. The party agreeing to exchange its votes in diverse parliaments must be a pivotal partner in a viable winning coalition in any parliament.

   If, for example, the system is composed of two parliaments, $X$ and $Y$,

   $$\Phi(i)x > 0 \quad \text{or} \quad \Phi(i)y > 0$$

are necessary conditions for the party $i$ to sign a pact. In other words, $i$ must be able to offer a coalition-sharing to a potential partner.

2. The agreeing parties must be uncertain of being partners in the formed winning coalitions in all the parliaments submitted to the pact.
Table 1. Coalitional Power Indices of Four Parties in Three Parliaments

<table>
<thead>
<tr>
<th>Parties</th>
<th>X % of seats</th>
<th>Y % of seats</th>
<th>Z % of seats</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>10</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>B</td>
<td>60</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>C</td>
<td>15</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>D</td>
<td>15</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

**Coalition**

MWC: B AB A
ACD
BCD

MCWC: B AB A
BCD

Not-connected pacts

Pact AC: B ACD AC (oversized)

Pact AD: B ACD AD (oversized)

Pact BD: BD BCD A (oversized)

Connected pacts

Pact AB: AB AB AB (oversized)

Pact BC: BC BCD A (oversized)

**Power indices**

\(\Phi(A) = (0 + 2/8 + 1)/3 = 41.6\%\)
\(\Phi(B) = (1 + 2/8 + 0)/3 = 41.6\%\)
\(\Phi(C) = (0 + 2/8 + 0)/3 = 8.3\%\)
\(\Phi(D) = (0 + 2/8 + 0)/3 = 8.3\%\)

\(\Pi(A) = (0 + 1/3 + 1/2)/3 = 27.7\%\)
\(\Pi(B) = (1 + 0 + 0)/3 = 33.3\%\)
\(\Pi(C) = (0 + 1/3 + 1/2)/3 = 27.7\%\)
\(\Pi(D) = (0 + 1/3 + 0)/3 = 11.1\%\)

\(\Pi(A) = (0 + 1/3 + 1/2)/3 = 27.7\%\)
\(\Pi(B) = (1 + 0 + 0)/3 = 33.3\%\)
\(\Pi(C) = (0 + 1/3 + 0)/3 = 11.1\%\)
\(\Pi(D) = (0 + 1/3 + 1/2)/3 = 27.7\%\)

\(\Pi(A) = (0 + 0 + 1)/3 = 33.3\%\)
\(\Pi(B) = (1/2 + 1/3 + 0)/3 = 27.7\%\)
\(\Pi(C) = (0 + 1/3 + 0)/3 = 11.1\%\)
\(\Pi(D) = (1/2 + 1/3 + 0)/3 = 27.7\%\)

Notes.

Pact CD would not be able to form a majority in any parliament.
MWC: minimum winning coalitions
MCWC: minimum connected winning coalitions
Look at the situation in Table 1. A general pact between parties A and B, which is a connected pact and produces two oversized coalitions, gives the agreeing parties more power than they could expect without such a pact, whether they were willing to form an MWC or an MCWC (through the pact they get 50%–50% in comparison with the 41.6%–41.6% and 40%–46.6% they would expect in the other assumptions, respectively).

Certainly, A and B could also achieve a distribution of 50%–50% if the winning coalitions B in parliament X, AB in parliament Y and A in parliament Z were formed. However, this would be the highest payoff that they could obtain in a free process of coalition formation and neither A nor B can be sure of achieving this. Although both can form a rewarding single-party WC in parliaments X and Z respectively, neither one can be sure of belonging to the formed WC in parliament Y and, therefore, that half-and-half distribution cannot be taken for granted by either one of them. In other words, agreeing to coalesce with a specific party in this situation is more rewarding for a party than retaining its freedom to choose a partner in each parliament and taking the risk of not being accepted in some formed WC. No other pact besides AB gives such a clear advantage to the agreeing parties.

Similar reasonings are valid for other situations with different numbers of parliaments and parties, including cases in which several general pacts are possible. Understandably, great disparities in the number of seats of the different parties in the various parliaments, that is, different local concentrations of each party’s strength, and large numbers of parties are among the favourable factors that allow beneficial general pacts.

As an illustration of the contrary trends, a situation in which no pact is rationally acceptable is presented in Table 2. In it, party B would be interested in agreeing to form coalitions with party A in the two parliaments, but A would prefer to govern alone in one parliament and to retain its relatively good chances of belonging to a winning coalition in the other parliament. In this case, the previously stated formal conditions (1) and (2) hold for all the parties, but the condition (3) does not hold for any one. Neither of the other two formal conditions holds in situations in which the distribution of seats of each party is similar in all the parliaments or, in the extreme case, when one party has an absolute majority of seats in most or all of the parliaments. In these specific situations, the standard coalition theory, which concentrates on single parliaments, maintains its explanatory capability without our needing to add new assumptions on longitudinal pacts.
\( \Psi(i)n = \) percentage of \( i \)-party's members of the \( i \) pivotal partnership in the total membership of pivotal partners for all the viable winning coalitions

(1)

where:

\( \Psi(i)n \): executive power index of party \( i \)
\( i \): parties A, B, C \ldots
\( n \): number of parliaments

In the particular cases of criteria of coalition formation in which all the partners are pivotal, such as those oriented to forming only MWCs or only MCWCs, the general formula just presented becomes simpler:

\( \Psi(i)n = \) percentage of \( i \)-party's members in the total membership of all the viable winning coalitions

(2)

where again:

\( \Psi(i)n \): executive power index of party \( i \)
\( i \): parties A, B, C \ldots
\( n \): number of parliaments

We have found a viable formula, in spite of dealing with a process, such as that of majority coalition and cabinet formation, in which there are usually no legal rules allowing us mechanically to calculate the expected distributions of power between actors in hypothetical situations. This formula allows us to estimate the relative benefits that each actor can foreseeably expect in each situation and it can very easily be calculated with available data.

Now we can measure the expected benefits of the various coalitional strategies in a more subtle way. Let us look again at the simple example in Table 2. The executive power index of party A equals the sum of its proportional contributions to the viable WCs divided by the number of parliaments. Given that A's relative contributions are rather high, and correspondingly its concessions to superfluous partners would be rather small, the value of this index shows an opportunity to gain more power through a general pact than was expected when only unweighted partnership in winning coalitions was taken into account. In other words, measuring power in a more refined way, we find that, even in this simple situation of three parties and two parliaments, it would be beneficial in terms of executive power for the largest party A to agree to exchange its votes with B in all the parliaments. As shown in Table 3, this pact would be rewarding for the two agreeing parties, even if B chose the largest possible partner in parliament X and A had to accept forming an oversized coalition in parlia-
Table 3. Parliamentary Power Indices of Three Parties in Two Parliaments

<table>
<thead>
<tr>
<th>Parties</th>
<th>% of seats</th>
<th>% of seats</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>30</td>
<td>80</td>
</tr>
<tr>
<td>B</td>
<td>50</td>
<td>10</td>
</tr>
<tr>
<td>C</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

**Coalition**

<table>
<thead>
<tr>
<th>MWC/MCWC</th>
<th>AB</th>
<th>A</th>
<th>Executive power indices</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB BC</td>
<td></td>
<td></td>
<td>$\Phi(A) = \frac{\left(\frac{30/80}{2} + \frac{80/80}{2}\right)}{2} = 59.3%$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$\Phi(B) = \frac{\left(\frac{50/80 + 50/70}{2} + 0\right)}{2} = 33.5%$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$\Phi(C) = \frac{\left(\frac{20/70}{2} + 0\right)}{2} = 7.2%$</td>
</tr>
</tbody>
</table>

**Pact AB:**

<table>
<thead>
<tr>
<th>AB (oversized)</th>
<th>AB</th>
<th>AB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$\Pi(A) = \frac{(30/80 + 80/90)}{2} = 63.2%$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$\Pi(B) = \frac{(50/80 + 10/90)}{2} = 36.8%$</td>
</tr>
</tbody>
</table>

**Notes.**
Pacts AC and BC would be merely local pacts.
MWC: minimum winning coalitions
MCWC: minimum connected winning coalitions

ment Y in which it has a comfortable majority of 80 per cent. No other pact is able to achieve majorities in both parliaments.

For power-oriented parties, such as those modelled here, the relative weight of their shares in government, expressed in the offices they enjoy, seems important enough to be included in their supposed calculations and our executive power index gives us a way to evaluate these shares. The usual power indices, which do not include any evaluation of each party's contribution, could be rightly called coalition-partnership power indices, whereas our proposal is more in keeping with the concept of a coalition-share power index. According to the above-mentioned observed tendencies in the distribution of executive power in parliamentary systems, it can also be called a parliamentary power index.

5. Externalities of a General Pact

We have mentioned that a general pact between parties on exchanging their votes in several parliaments necessarily produces other unintended effects,
particularly more unpredictability of the formed winning coalition when looking separately at each single parliament, and a new redistribution of power beyond the expectations based on the sets of viable winning coalitions.

It is necessary to remember that all the reasoning presented so far does not require parties to have different intensities of preference for being members of winning coalitions in the various parliaments. However, these different intensities can exist, for instance for electoral or ideological motives. We can easily imagine a situation in which, for example, a party in a regional government or an ideologically regionalist party could be strongly interested in gaining an office in the local government of that region's chief town, while a party in the national government might not care greatly about it, being ready to accept concessions in that regional capital in exchange for better payoffs in other cities. In other cases, a trade-off, not between differently located local governments of similar size, but between the national government and some local governments, can be interesting for parties differently established in the territory. In general, a party's power can be increased if it accepts a low rewarding coalition in a parliament where its preferences are weak, in exchange for a decision on partnership or office-sharing in its favour in a parliament where its interests are stronger. This possibility would probably increase the opportunities for parties to accept sharing some oversized majorities, some partnerships in apparently unfavourable coalitions and distributions of offices not proportional to the relative contributions of each party in forming majorities.

With this added factor, it would be possible to present a formally parallel reasoning between the general pact modelled here and the well-known model of vote trading in a parliament based on the assumption of different intensity of preferences between traders on the diverse issues (Buchanan and Tullock, 1962: ch. 10; Riker and Brams, 1973).

Introducing different intensities of preference in the diverse parliaments, logical equivalences between vote paradox and vote trading could be extended to coalition formation in a multiparliament system as presented here: in this latter field, actors would be parties; issues would be coalitions in each parliament; a coalition in a parliament in vote trading would be equivalent to a general pact in a set of parliaments in coalition trading; voting or trading alternatives on different issues in a parliament would be equivalent to choosing coalitions in different parliaments; a cycle of shifting winning coalitions in one parliament would be equivalent to a cycle between diverse general pacts; and a coalition in one parliament, as a way of repeating the same vote trading on different issues, would be equivalent to a general pact to avoid choosing various coalitions in different parliaments. In future work, the discussion on instability could also be extended to the present model (for a reference, see discussion on instability of logrolling from Park, 1967, to Enelow, 1986, and its revision by Brams, 1990: ch. 7).
For the moment, we would like to draw the reader’s attention to the evanescence of equilibrium in a single parliament – usually a central piece concept in coalition theory in a game-theoretical approach – if the possibility of globally trading with vote trading in each parliament, as here presented, is allowed. In a multiparliament system in which a general pact between parties on simultaneously exchanging their votes in several parliaments may be signed, we can say that a coalition will be dominant in a parliament only if it is dominant as a general pact for the set of parliaments in which the agreeing parties can achieve a winning position. Otherwise, that single-parliament dominant coalition could be defeated by another coalition that would give lesser payoffs to its members in that parliament, but would be more globally rewarding for these parties in the whole set of parliaments.

For the general political welfare of the citizens, all these processes of reshaping coalitions and redistributing power among parties are very important, at least if we measure political comfort in terms of an appropriate representation of citizen preferences in political institutions. It would be possible to use several measurements of representation to evaluate the effects of agreements between parties to which we are referring, such as the inclusion of the most voted party in each parliament in the formed winning coalitions, the closeness of the winning coalition median to the parliament median, or the social utility of the winning coalition (as the sum of voters’ utilities for agreed parties that would decrease linearly with policy-distance). To put it simply, it is possible to advance that the existence of national disciplined parties, able to agree on exchanging their votes in several parliaments, allows total-utility maximizer parties to sign general pacts, while the alternative situation of local parties acting in their own self-interest and refusing any general exchange of votes that could be locally damaging, such as those leading to the formation of oversized coalitions, would only allow Pareto-superior agreements.

6. Coalition Trading in Spain

Finally, we present empirical evidence of the behaviour modelled here, referring to local elections held in Spain from 1979 to 1991. This empirical test lends added interest because, in contrast to studies on coalition formation in national legislatures, ‘the study of coalitions in local government is very much in its infancy. Local government coalitions, however, generate many more cases within a simple political system, allowing variables such as political culture and party system to be controlled much more rigorously and above all, providing a large, fresh database on which to test new theories. As yet, little has been done along these lines, but the potential
of local coalitions studies is clearly enormous' (Laver and Schofield, 1990: 8-9).

Local elections in Spain are ruled by a proportional system (with the D'Hondt formula) to elect the aldermen of each city, who indirectly elect the mayor, within a period no longer than 20 days after the popular elections, choosing among the top names on the party lists put forward at the elections. The procedure to elect a mayor involves two steps: first, an absolute majority of aldermen is required; otherwise, the most voted candidate is automatically appointed. So, majority coalitions can be formed in the first round, but it is also possible for a candidate to be elected with a plurality in the second round. Usually, most local councils elect mayors on the same day.

There have been four democratic local elections in Spain: in 1979, 1983, 1987 and 1991. We deal with a sample of the 70 most important cities (provincial capitals and other towns with more than 100,000 inhabitants), which gives a total of 280 cases. In 99.3 percent of these (all except two), minimum connected winning coalitions have been formed on the city councils to elect mayors, including in this criterion the cases of mayors elected with the votes of a single-party absolute majority and those of viable minorities. We call viable minorities those in which parties other than the most voted party cannot form a connected winning coalition. Given the rules of the game and the criterion of ideological connection rigidly followed by the parties, this situation gives the mayorship to the party with a plurality of seats; we can interpret that in these cases the most voted party is neither a winning coalition nor a losing coalition, but a blocking coalition able to prevent the formation of an alternative majority coalition (for the concept of viable minorities, see Strom, 1990).

In 1979, the first local elections after the approval of a democratic constitution were held in Spain. The Centrist party, Union of the Democratic Centre (UCD), was then in national government and also won a plurality of votes in the local elections, although in the biggest cities it nearly tied with the Socialist Party (PSOE), then in the opposition. The Communist Party (PCE) came third, with most of its votes placed in a small number of industrial cities, and the Conservative party, then presented as Democratic Coalition (CD), was fourth. Some nationalist or regionalist parties, such as Convergence and Union (CiU) in Catalonia, the Nationalist Basque Party (PNV) and the Andalusian Socialist Party (PSA), also obtained a high proportion of votes in their communities.

The second democratic local elections were held in 1983, a few months after the national elections in which the Socialist party won an absolute majority of seats and the incumbent Centrist party, unable to prevent military plots and finally destroyed by internal struggles, almost disappeared. Consequently, the Conservatives became the second party in votes
Table 4. Votes, Seats and Power in Local Elections in Spain (%)

<table>
<thead>
<tr>
<th>Total Spain</th>
<th>PCE</th>
<th>PSOE</th>
<th>UCD</th>
<th>CD</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1979</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Votes</td>
<td>12.7</td>
<td>27.9</td>
<td>31.3</td>
<td>3.0</td>
<td>25.1</td>
<td>100.0</td>
</tr>
<tr>
<td>70 biggest cities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Votes</td>
<td>14.0</td>
<td>29.1</td>
<td>31.0</td>
<td>3.7</td>
<td>22.2</td>
<td>100.0</td>
</tr>
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(at that time using the name of Popular Coalition, CP; four years later, that of Popular Alliance, AP, and later changing their name to Popular Party, PP). The Communists declined, losing many of their votes to the Socialists (and later shifted to act as a United Left, IU); a small Liberal-centrist party was rebuilt as the Democratic and Social Centre (CDS) and the regionalists consolidated their positions. Similar trends of a new party-system remained in the subsequent local elections of 1987 and 1991. (See the results of local elections in Spain in terms of votes, seats, executive power and mayors in Table 4; for more details, see Batlle and Martínez, 1991).

We can easily present the ideological connections of the two party-systems here abstracted ordering the above-mentioned parties as follows:
The coalition-formation processes in local governments in Spain can be characterized by two different postelectoral party strategies.

A few days after the elections of 1979, the national leaders of the Socialist and the Communist parties signed a general agreement to elect mayors together wherever their parties could, always in favour of the most voted of the two agreeing parties, and to form joint local governments. They also called upon other parties in opposition to the Centrists to join them in various cities and towns, forming the so-called 'progressive pacts'. So two, and in some cases, three or even more parties formed homogeneous winning coalitions in many local parliaments against the Centrist party which was then in national government. The real process of enforcement of the pact between the Socialists and the Communists followed the basic features of our model. The written text of the agreement between the two parties was explicit on several important points: both parties committed themselves 'to supporting the first of the most voted among the two parties to the mayorship' (which in many cases was not the most voted party in the local council) and to distribute offices 'according to the proportion of aldermen from each party'. The discipline of local parliamentary groups, which was required to make mutual concessions and particularly to accept superfluous partners in some WCs, was guaranteed with the commitment that 'every alderman will show his ballot to a comrade of the other party before voting' (Diario 16, 1984: 588). In brief, we can say that the Socialists and the Communists formed 'proto-coalitions' and sought other regional partners to form winning coalitions wherever possible.

However, in 1983, 1987 and 1991, the Socialists being the clear winners in the local elections and already ruling in national government, this postelectoral general agreement with the Communists, not to be a partner in any local coalition without the other party, was not repeated. In those years, the Socialists formed various majority coalitions in different cities in which they did not have absolute majorities, often with the former Communists, but on other occasions with the Centrists or the regionalists, without the Communists.

These different behaviours by parties do not seem merely electoral or policy-ideologically oriented. Admittedly, after the first local elections, the Socialists tried to use their pact with the Communists as an opposition tool at the national level against the Centrists, whom they soundly went on to defeat in the general elections, while they did not repeat this general agreement when they were already in national government and these local strategies were not so useful for national purposes. However, it is interesting to note that the Communists' moderation of their ideological label, by
Table 5. Parliamentary Power Indices with Different Coalition Strategies

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renouncing this name, did not produce a closer collaboration with the Socialists, but rather a weakening of their links at the local level. Even taking into account the parallel ideological moderation of the Socialists when in national government as a possible explanation of this lack of collaboration with the former Communists, it could also be argued that their relative distance was not so great because the main party in opposition turned out to be the Conservative PP, which seems to be farther from the Socialists than is the United Left. In any event, it would be difficult to explain the shifting strategies of these parties in the processes of forming majority local coalitions without accounting for their foreseeable payoffs in terms of power after the different numerical results obtained in successive elections.

To understand the advantages of the diverse coalitional strategies in terms of power, we have calculated the expected payoffs for each party of a viable general pact that could have been signed after each election, and compared these results with the power expected as a result of forming various local coalitions. The new parliamentary power index has been used for this purpose, and the results are shown in Table 5.

As was to be expected, the pact between the Socialist party and the Communist party in 1979 produced a very high number of oversized coalitions: 22 out of 70 cases, that is, around 30 percent of all formed winning coalitions. As a result, the Communists were highly favoured in terms of local power, while the Socialists achieved a proportion of power close to what they could have expected without general pacts (it must be remembered that our calculations are only based on a sample of local governments and, therefore, figures merely suggest the general trend of each strategy). It is
interesting to observe that the joint power of the Communists and the Socialists after signing a general pact was much higher than the sum of the expected power of these two parties without such a pact. In the real world, adding the regionalist parties CiU in Catalonia and PSA in Andalusia to this general pact in 1979 was by far the best option for all the agreeing parties in terms of their share of the formed majority coalitions in those communities, while the Centrists in national government were the most damaged by this coalitional behaviour at the local level of the above-mentioned opposition parties. The advantages of the pact can be even better measured if we take into account the weighted number of mayors: while the Socialists could have expected 43.9 percent of mayors if they had kept their freedom to form diverse coalitions on different local councils, they obtained 51.4 percent of the elected mayors as a result of that general pact; the Communists, who could have expected 3.8 percent of mayors without a general pact, finally obtained 5.7 percent.

On the contrary, after the elections of 1983, 1987 and 1991, although the Communist party publicly regretted that the Socialists did not repeat a general agreement with them, neither the pact between the Socialists and the Communists, nor the same pact with the addition of some Regionalists, nor any other of all the realistically viable combinations between any subset of parties, would have been clearly rewarding for the agreeing parties.

In fact, a non-extreme party, such as the Socialists in this case, often has possible partners on two sides, such as the Communists to its left and the Centrists and regionalists to its right. A commitment always to coalesce to one side requires that the non-extreme party receive enough side-payments from that side, like those that the Communists could give in 1979 in cities in which they had absolute majorities, by accepting Socialists as superfluous partners, but not later, when they were considerably weakened.

It is then possible to be a little more precise in stating conditions for a rewarding general pact when ideological connection matters. An extreme party can propose a beneficial agreement to a non-extreme party if the former has its strength so highly concentrated in a relatively low number of parliaments that it offers the latter enough superfluous partnerships in winning coalitions and receives other partnerships in parliaments in which the non-extreme party could choose alternative partners. When the disparities in the proportion of seats that each party obtains in the diverse parliaments decrease and different local concentrations of the strength of each party are replaced by a more homogeneous distribution of each party’s seats in the territory, opportunities for such mutually beneficial general pacts tend to vanish.

Other factors might have helped the Socialists to decide in favour of a general pact in 1979 and against it later: first, the possibility of causing serious damage to the local power of the Centrist party in the national
government in 1979; later, the danger of presenting an electorally damaging ideological bias towards the left, when the Socialists were in government, if they had again made an agreement with the Communists; and, finally, the higher appreciation of the benefits of power by the members of the Socialist party’s local organizations after first gaining power in local governments, which probably made them more reluctant to accept a national pact contrary to their local self-interests.

However, our formal analysis allows us to interpret that both the existence and the absence of a general pact between parties on simultaneously exchanging their votes in different local parliaments to form winning coalitions can be widely explained as decisions derived from calculations in terms of expected power payoffs and mainly depending on the number of seats obtained by the parties. Electoral, policy and ideological considerations, although undoubtedly present in the deliberations leading to that decision and in a more general evaluation of their probable consequences, do not necessarily always play a determinant role.

7. Concluding Comments

The model of a general pact between parties to exchange simultaneously their votes in different parliaments allows us to enlarge the scope of the positive theory of coalition formation. In a multiparty and multiparliament system, the possibility of longitudinal coalition trading is a strategy by which parties restrain their freedom to choose the best rewarding partner in every parliament and undertake not to coalesce without their agreed partner. By measuring the expected payoffs for each party after the elections and before the coalition formation, we can compare the expected benefits of a general pact between parties with the expected benefits of retaining the freedom to form diverse coalitions in different parliaments. Thus, using the same rational choice assumptions employed by the standard models (that is, self-interested parties seeking to maximize their sharing power), we can explain surprising results, such as the acceptance of oversized coalitions. Adding this model to the theory, we find a rational explanation for the choice of different coalitional strategies by parties which, although choosing coalition partners according to a stable criterion, encounter situations with a varying distribution of seats and different opportunities for pacts. In particular, the rational acceptance of oversized coalitions would appear to be the by-product of a rewarding general pact between self-interested and power-oriented parties in a multiparliament system. The externalities of the diverse coalitional strategies are ambiguous: a general pact may produce either better or worse levels of representation than remaining free to coalesce.
This model can be tested and applied to other multiparty and multi-parliament countries, such as Germany, France and Italy. It may also be useful in the analysis of other situations, such as those in which private investors hold stocks in different companies; several international parties, such as those recently formed in the European Union, coordinate their votes in a set of national parliaments; or several diplomatic delegations act at the same time in various forums, forming international coalitions.

REFERENCES


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