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Introduction

Early in the 1984 presidential primary season in the United States, it was clear that the sitting President, Ronald Reagan, would easily win the Republican nomination and that former Vice President Walter F. Mondale was the front-runner for the Democratic nod. Democratic voters who knew that they disliked Mondale faced a coordination problem: If all of them could agree on a single alternative to Mondale, from among the half-dozen or so candidates languishing in single digits in the opinion polls, they could conceivably deny Mondale the nomination; but if they failed to agree on a single alternative, then Mondale would almost surely win. Although anti-Mondale Democrats shared a dislike of Mondale, they differed substantially in their preferred alternative. Thus, even putting aside the complexities of the American primary process, it was by no means clear *ex ante* that anti-Mondale Democrats could coordinate on an alternative. In the event, although Gary Hart emerged as the focal alternative to Mondale and enjoyed a large and rapid run-up in the polls, his candidacy faltered and Mondale secured the nomination.

Early in the 1990 presidential campaign in Peru, it was clear that Nobel Prize-winning novelist Mario Vargas Llosa was the front-runner. Peruvian voters who knew that they disliked Vargas Llosa faced a coordination problem: If all of them could agree on a single alternative to Vargas Llosa from among the half-dozen or so candidates trailing in the polls, they could conceivably deny Vargas Llosa the presidency; but if they failed to agree on a single alternative, then Vargas Llosa would almost surely win. Although anti-Vargas Llosa voters shared a dislike of Vargas Llosa, they differed substantially in their preferred alternative. Thus, it was by no means clear *ex ante* that anti-Vargas Llosa Peruvians could coordinate on an alternative. In the event, Alberto Fujimori rocketed from obscurity late in the campaign to become the focal anti-Vargas Llosa candidate, securing a strong second-place finish in the first round of voting, then defeating Vargas Llosa in the runoff (Schmidt N.d.).

These two examples illustrate several general features of electoral coordination: the mixture of common and opposed interests; the possibility of success or failure; and the rapidity with which vote intentions change when coordination takes off. The examples' focus on strategic voting in presidential elections is too limited, however. Modern representative democracy presents at its core a *series* of coordination problems that arise as natural consequences of electoral competition for governmental offices. A group with enough votes to elect some number of candidates in a given (legislative or executive) race will in fact elect that number only if it can make its votes count by concentrating them appropriately. One way to avoid spreading votes too thinly is to limit the number of candidates. But which potential candidates, representing what shades of opinion, will withdraw in favor of which others? If attempts to limit the number of candidates fail, another chance to make votes count arises on polling day, when voters can concentrate their votes on a subset of the available candidates. But which candidates will bear the brunt of strategic voting and which will be its beneficiaries?

This is a book about strategic coordination broadly conceived, covering both legislative and executive elections, both strategic entry and strategic voting. It investigates the consequences of strategic coordination and those structural features that determine the nature of the coordination problems that political actors face in differing polities.

The consequences of strategic coordination. Successful electoral coordination reduces the number of electoral competitors. When leftist elites agree to join together into a single leftist party, rather than continuing with some larger number, there are fewer parties nominating fewer legislative candidates. If leftist elites do not coordinate their endorsements sufficiently, leftist voters may complete the coalition that the elites tried but failed to form, by deserting one of the leftist candidates for the other(s). In the process they decrease the effective or vote-weighted number of candidates.[1] Duverger's famous Law – the proposition that "the plurality rule [employed in single-member districts] tends to produce a two-party system" (Duverger 1954:113) – is a claim about how far the processes of reduction can be expected to go in the case of one particular set of electoral rules.

Electoral coordination is not just a matter of reducing the number of parties competing in elections, however, any more than coordination on

[1]Just as an industry with 100 firms, one of which makes 95% of all sales, is essentially a monopoly despite its 100 firms, so one might say that an election with 100 candidates, one of whom garners 95% of the vote, has not much more than one "real" candidate. The notion of an "effective number of parties," due to Laakso and Taagepera (1979), is one attempt to count "real" candidates. If v_j is the vote share of the jth party, then the effective number of parties is $(\sum v_j^2)^{-1}$, the reciprocal of the Hirschman-Herfindahl concentration index.

technical standards is just a matter of reducing the number of such standards. When writers of software programs agree on standards compatible with Microsoft's operating system, this does reduce the sales-weighted number of operating systems, and may even lead to the withdrawal of some operating systems from the market. But, in addition, there are some winners (Microsoft; those who like PCs) and some losers (Apple; those who like Macintoshes). Similarly, when leftist opinion leaders agree to rally around Socialist Party A's candidates, rather than around Socialist Party B's, this does reduce the vote-weighted number of parties, and it may even lead to the disappearance of B from political competition. But, in addition to any gain of seats that the unified socialists may accrue as a whole, there are some relative winners (party A; those who prefer its policies) and losers (party B; those who prefer its policies). To put the point more starkly: Successful electoral coordination necessarily involves a reduction in the number of competitors; but such a reduction just as necessarily entails a selection of which competitors will survive, and this selection potentially has important policy effects.

In this book, I shall consider both the reductive and the redistributive effects of electoral coordination. The reductive effect of strategic coordination is most evident when it succeeds, the redistributive effect most evident when it fails – as will be seen.

The nature of the electoral coordination problem. As regards what determines the nature of the coordination problem that arises in any given system, I shall be principally concerned with three main independent variables: electoral institutions, political motivations, and public expectations. The importance of the first of these factors – electoral institutions – has been alternately asserted and dismissed since Duverger's seminal work in the 1950s (Duverger 1954). Here, electoral institutions – which determine the available opportunities for trading votes in order to win more seats – are taken as largely defining the coordination game that elites and voters must play.

Electoral institutions are not the whole story, however. A second part of the strategic situation is defined by the preferences of the elite and mass actors who must coordinate. If leftists care mostly about policy, and hate each other's policies almost as much as they hate the current government's, then there is little incentive for them to coordinate their actions, even if by so doing they could win more seats. If leftists care substantially about future elections, then it may be a good strategy to play tough in the early rounds, enduring a series of coordination failures in the hopes of emerging eventually as *the* leftist party.

Finally, expectations are crucial in any game of coordination, and electoral coordination is no different. If Socialist Party A believes that B's

supporters will vote strategically (for A), in the event that both enter, then A has little incentive to acquiesce in any demands that B might make. If B has opposite beliefs, there is no room for the elites to resolve the coordination problem on the Left. As for the voters, if poll results clearly reveal that A's candidates are ahead, then B's supporters will more likely desert to A than the reverse. If polls are absent, noncredible, or ambiguous, however, then the informational prerequisites of strategic voting may not be satisfied, in which case one again expects a failure of coordination.

Of the three independent variables just mentioned, the first – the nature of the electoral institutions in a polity – is obviously central to comparative electoral studies. The second – the nature of political actors' preferences – is a standard concern, especially of rational choice scholars. The third variable, however, concerning the nature of actors' expectations, may be less obviously relevant to some readers. Before proceeding further, let me say something more about the role that expectations play in elections.

1.1 ELECTORAL SYSTEMS AS SYSTEMS OF EXCHANGE: THE ROLE OF EXPECTATIONS

It is conventional, but no less compelling for that, to express wonder at the vast array of activities that are coordinated by the market and its attendant price system. Somehow, without any central planner dictating that it be so, about the right amount of food descends on New York City, about the right number of flashlights make their way to Omaha, and about the right number of video cassette recorders arrive at Gila Bend.

The key to the process by which consumer demands are anticipated and fulfilled with such enviable accuracy (at least by central planning standards) is the system of prices. Clearly known prices for intermediate and final goods and services allow a vast decentralization of planning and productive activities. *Market-clearing* prices, attained in the hypothetical equilibria of economic models, equate demand and supply. At those prices, the number of widgets that consumers in the aggregate seek to purchase turns out to equal the number of widgets that businesses in the aggregate seek to sell (ignoring inventories and other subtleties).

Political scientists do not usually think of elections as systems of exchange subject to equilibrating mechanisms. But there are some analogies between the exchange of voting support among citizens within the electoral system and the exchange of consumer goods among citizens within the market. Relative to the imaginable extreme in which everyone runs for president and votes for him- or herself, real-world presidential

elections are highly concentrated and coordinated affairs. In the United States, everyone expects that only a handful of Republican or Democratic politicians are viable candidates for their parties' nominations, and they act accordingly. Contributors do not contribute to, activists do not volunteer for, and citizens do not vote for hopeless candidates, ensuring that those expected to do poorly, do poorly in fact. Somehow lots of people, with diverse preferences, are willing to contribute in various ways to Bob Dole's candidacy but not to Pete Wilson's. Bob Dole accordingly is willing to continue as a candidate; Pete Wilson is not.

The key to the process by which voter demands are anticipated and fulfilled is the system of expectations. Clearly known common expectations about who is and is not viable are self-fulfilling, and allow a considerable decentralization of planning and vote-productive activities. *Market-clearing* expectations, attained in the hypothetical equilibria of political models, equate demand and supply. At those expectations, the number and type of candidates that voters are willing to vote for turns out to equal the number and type of candidates that are willing and able to stand for election.

Equilibrium, whether economic or political, may of course be a rare bird. Too many entrepreneurs may set up fast-food restaurants in a given (geographical) location, leading to poor (expected or realized) profits and a shake-out in the industry. Too many politicians may set up candidacies at a given (ideological) location, leading to poor (expected or realized) vote totals and a contraction in the field. Developers anticipating a large influx of population may play Chicken against one another in building housing tracts to fulfill the anticipated demand.[2] Groups anticipating a large anticommunist vote in a post-communist eastern European election may play Chicken against one another in launching campaigns to attract the anticipated votes. All of these examples illustrate dynamic adjustment on the supply side, or what happens to the supply of goods or candidacies when prices or expectations are not sufficiently clear.

One could also adduce examples of demand-side informational failures. Consumers are unaware of a spiffy new product that is cheaper and better than a well-advertised alternative that everyone currently uses; it takes some time before word of mouth moves market demand toward the new product. Leftist voters are unclear as to which of two leftist candi-

[2]The original game of Chicken pits two teenagers in hotrods against one another. Both head down the center of the road toward each other, the first to swerve being "chicken." If neither swerves, a very bad outcome results. If one swerves, then the swerver is humiliated while the other is covered with glory. If both swerve, an intermediate payoff results.

dates is ahead (or behind) in a three-way race also including a right-wing candidate. As a result, the leftist vote is split and the rightist wins the seat.

Such evident and important nonequilibrium examples notwithstanding, equilibrium analysis has been fundamental to market economics for some two hundred years. One of the premises of this book is that equilibrium analysis ought also to be fundamental to the understanding of elections. Although there is some work that fits the broad description of equilibrium analysis outlined above, in which expectations play a central role in coordinating electoral activity and choice, there is no book-length treatment of the subject that attempts to explain how different electoral laws affect the nature of market-clearing expectations and electoral coordination. The present work seeks to begin filling that gap.[3]

1.2 PLAN OF THE BOOK

A brief outline of the book can now be given in terms of the three independent variables introduced above – electoral institutions, political motivations, and public expectations. Electoral institutions determine how votes translate into seats. If political actors care mostly about winning seats in the current election, then the influence of electoral institutions on their goals is direct. If, in addition, actors' expectations about each other's vote shares are precise and consensual, then a well-structured coordination game emerges in which the prospects for successful coordination are good. This model corresponds to the standard Duvergerian approach to legislative elections in the electoral studies literature.

Parts II and III of the book formally generalize the Duvergerian model of strategic coordination – both at the level of citizens coordinating votes and elites coordinating endorsements and entry – to legislative electoral systems other than the single-member simple plurality case for which the logic is best developed in the extant literature. Using a formal model forces one to state assumptions explicitly. This leads almost immediately to fairly substantial changes in the way that one understands even so well-known a result as Duverger's Law. For example, although Duverger and the subsequent literature have been quite clear in saying that plurality rule leads to bipartism, the only valid conclusion from the arguments they explicitly advance is that the number of viable parties cannot exceed two. *More generally, in any electoral system the necessity of electoral coordination only implies an upper bound on the number of competitors.*

[3]Perhaps the clearest examples of the kind of equilibrium analysis suggested above are the complete information models of Osborne and Silvinski (1995), Besley and Coate (1995), and Feddersen (1992). In this book, I shall focus more on incomplete information models.

Recognizing this simple fact leads to a number of changes in the way that one thinks about the impact of electoral laws on party systems. For example, I argue in Chapters 7 and 10 that the correct understanding of the institutionalist model implies that the number of parties in a system ought to be an interactive function of electoral and social structure. Many have viewed Duvergerian institutional analysis as reading social cleavages out of the analysis (a point upon which I expand in Chapter 2). But a closer look at what the institutional analysis really entails reads them back in.

Beyond clarifying the general nature of the impact that electoral institutions have – they impose upper bounds, rather than pushing systems toward some specific equilibrium number of parties – this book also identifies what the appropriate upper bounds are. Part II derives the bounds imposed by strategic voting in a range of different electoral systems: single-member simple plurality (SMSP), single nontransferable vote (SNTV), proportional representation (PR), and others. Part III brings strategic entry into view, again focusing on the restraining effect of the electoral system.

Part IV turns to aspects of electoral coordination that hinge on the executive choice procedure, again assuming for the most part that agents are interested primarily in winning office in the current election and that expectations are consistent. Duverger argued that the desire of voters in single-member simple plurality elections to avoid wasting their votes meant only that there would be pressure toward local bipartism in each legislative district. He had an additional argument, developed later by Sartori (1968; 1976), as to why a congeries of potentially unrelated local bipartisms might cumulate into national bipartism. Part IV deals with this systemic part of the institutionalist argument – putting the stress not on the formation of national parties (as did Duverger and Sartori) but instead on competition for executive office.

Part V turns away from the model in which agents are assumed to care primarily about winning seats in the current election and to have aligned expectations about who is best positioned to do so. When other motivations and expectations are entertained – agents that care about current and future policy outcomes, rather than just current seats, for example – the probability of coordination failure increases. The most obvious consequence of coordination failure is not so much that the number, or effective number, of competitors goes up (as it does) but that whichever side of the political spectrum has failed more egregiously to coordinate pays a penalty in seats. If the Left splits in a single-member district, the Right wins the seat. In Part V, I investigate coordination failures and how they affect the quality of representation, the maintenance of dominant parties, and the politics of realignment.

Having briefly sketched the sequence of topics to be dealt with, let me next say something about methodology. This study differs from previous works in comparative electoral studies both in its reliance on formal game theoretic analysis of the incentives set in train by different electoral institutions and in its use of primarily district-level data to test the hypotheses that the theory entails. In Section 1.3, I discuss the use of formal theory in electoral studies, with particular reference to strategic voting. Then, in Section 1.4, I comment briefly on the data that I use in this book.

1.3 THEORIES, FORMAL THEORIES, AND ELECTORAL STUDIES

The study of mass voting systems has been carried on in two distinct theoretical traditions. One tradition, originally a part of mathematical economics and philosophy, can itself be broken down into work in *social choice theory* (e.g., Arrow 1951; Sen 1970; Fishburn 1973; Gibbard 1973; Schwartz 1986), *public choice theory* (e.g., Buchanan and Tullock 1962; Mueller 1989), and *spatial theory* (e.g., Downs 1957; Hinich, Davis, and Ordeshook 1970; Romer and Rosenthal 1979; Palfrey 1984; Cox 1990a; Enelow and Hinich 1990) – to mention only some of the better-known categories. This work uses the tools of formal symbolic logic, mathematical welfare economics, microeconomics, or game theory to get where it is going. A second tradition, the domain of political scientists and sociologists, is characterized by the work of such scholars as Duverger (1954), Rae (1971), Sartori (1976), Lijphart (1984, 1994), and Taagepera and Shugart (1989). It is less formal, more engaged with real-world data, and more interested in concrete political problems – while still being theoretical for all that.

These two traditions seldom speak to one another, as Dummett (1984) and Reeve and Ware (1992) have observed. Research into strategic voting provides an illustrative case of parallel (nonintersecting) development.

Within the electoral studies tradition, concern with strategic voting arose because it was believed to reduce the number of political parties competing in some systems. Duverger's original formulation (1954) seemed to be that strategic voting was *present* in simple plurality systems, acting to push them toward bipartism, whereas it was *absent* in PR and majority runoff elections, which in part explained their tendency toward multipartism. Reacting to Duverger's apparent belief that his "psychological factor" was inoperative under PR systems, Leys (1959:139) and Sartori (1968:278) argued that strategic voting under PR was no different in kind from that found under plurality, differing only in the degree to which it came into play – and, hence, in the degree to which it tended to reduce the number of viable parties in the system.

Sartori's notion of a continuum of systems, from *strong* (in which strategic voting and elite coalitional activity act forcefully to depress the number of parties) to *weak* (in which strategic voting and incentives to form coalitions are largely absent and thus put little downward pressure on the number of competitors), is now standard in the literature.

Within the formal theoretic tradition, concern with strategic voting was sparked by Arrow's theorem, which presumed that social choice processes could operate on the true preferences of the citizenry. The work of Gibbard (1973) and Satterthwaite (1975) demonstrated formally that incentives to vote strategically could arise in any minimally democratic voting system, and the Gibbard-Satterthwaite theorem has since become a benchmark result in the literature.[4]

It is clear that the Leys-Sartori conjecture (they offered no proof of their assertions) and the Gibbard-Satterthwaite theorem are similar: Both assert the general existence of strategic voting incentives across a wide range of voting systems. Nonetheless, neither side cites the other. Gibbard and Satterthwaite were undoubtedly completely unaware of the Leys-Sartori conjecture. No other formal theorists have since recognized Leys and Sartori as precursors. Returning the compliment, one can read the post-Gibbard/Satterthwaite classics of electoral theory, even those which give substantial attention to strategic voting – such as Taagepera and Shugart (1989) or Lijphart (1994) – without finding any mention of Messrs. Gibbard and Satterthwaite.

One might say that this does not matter. After all, if one asks whether Taagepera and Shugart (or Lijphart) exhibit some fundamental flaw in their approach to strategic voting, due to their not using formal theory in their books, the answer is that they do not. If one asks whether Gibbard and Satterthwaite suffered from not having the kind of detailed knowledge upon which Leys and Sartori based their assertions, the answer is that they did not.

Nonetheless, as I am peddling formal theory in this book, and also using the insights of the electoral theory tradition, let me say something about what each has to offer. If one compares the Gibbard-Satterthwaite theorem to the Leys-Sartori conjecture, the theorem wins hands down in terms of rigor and precision. But it is not as useful to political scientists as it might be, because its conclusion is politically ambiguous. The theorem merely alerts one to the possibility that there may be strategic voting under any democratic electoral system, while saying nothing about either the political consequences of that strategic voting, or about how much strategic voting one should expect. In contrast, the Leys-Sartori

[4]I have stated the result loosely. A careful discussion of the Gibbard-Satterthwaite theorem at an elementary level can be found in Ordeshook (1986:82-86).

conjecture focuses on a particular kind of politically relevant strategic voting – the kind that acts to reduce the vote-weighted number of parties – and says something specific about which systems will have a lot and which a little. This greater relevance presumably explains why political scientists who study electoral systems are more likely to use Sartori's distinction between strong and weak systems than they are to cite the Gibbard-Satterthwaite theorem.[5]

In this book, I hope there will be a fruitful combination of traditions. My *interest* is largely in the questions raised by the electoral theorists; my *methods* are largely those of the formal theorist. Thus, although the formal models that I shall use look at strategic voting broadly conceived, including both strategic voting that does and does not depress the number of parties, it is on the former kind that I focus. Moreover, in each model I seek to say something about the equilibrium level of strategic voting. The result, in that part of the book dealing with strategic voting, is a series of formal theorems each of which looks like a version of either Duverger's Law or the Leys-Sartori conjecture, restricted to a specified range of electoral systems.

1.4 DISTRICT-LEVEL DATA

Another gap that the present work seeks to begin filling is that between our electoral theories (mostly district-level) and data (mostly national-level). As Taagepera and Shugart (1989:117) note, "most studies of electoral systems ... have dealt with the whole system rather than with the district level." This book departs from that tradition, in that most of the data employed are district-level rather than national.

A substantial impediment to conducting electoral research with district-level data is, of course, finding the data in a machine-readable form. As part of the research for this work, I have directed an effort to expand and computerize the Lijphart Elections Archive at my home institution, the University of California at San Diego. The result of that effort, along with most of the data used in this book, can be found on the World Wide Web at http://dodgson.ucsd.edu/lij.

[5]Formal theorists have not entirely ignored the issues in which electoral theorists are interested. There is, for example, a large formal literature that investigates how much strategic voting one should expect under different systems. One approach, due to Nurmi (1987), ranks voting systems in terms of the amount of information about preferences that a voter needs in order to cast an intelligent strategic vote. Under simple plurality, one needs to know the vote intentions of the other voters. Under a majority runoff system, one needs to know a bit more: others' vote intentions both in the first and in the second round. Under the single transferable vote system, one needs to know yet more: Bartholdi and Orlin (1991) show that it is "NP-complete" to determine how to vote strategically; colloquially, this means that it is horrendously difficult except in a few special cases.