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THE 2002 FRENCH PRESIDENTIAL ELECTION: INSTANT RUNOFF VOTING, MONOTONICITY FAILURE, AND SPOILER EFFECTS

Obviously the 2002 French Presidential election was interesting on its own terms, but it is also helpful in thinking about possible reforms in the U.S. Presidential election system.

On its own terms, the most important point to note is that the decisive change between the 2002 French election and previous ones was not that the Le Pen vote went up by much (14.4% in 1988, 15.0% in 1995, and 16.86% in 2002) but that the distribution of the remaining votes among the other candidates became much more dispersed. In particular, there were 15 other candidates on the ballot, 12 of whom received more than 2% of the vote. The three leading candidates (Chirac, Le Pen, and Jospin) together received barely more than half the vote.

With respect to proposals to abolish the U. S. Electoral College system, most reformers advocate a direct popular vote in the French manner and most also advocate a runoff (also like the French system) in the event that no candidate receives majority support (or some lower quota such as 40%) in a first round election. (Absent a runoff requirement — and also absent Duverger's "psychological effects" — Chirac would have been re-elected in 2002 with the support of less than 20% of the electorate.) But there are killjoys among us who thinks that *two* presidential elections within a period of a few weeks (or perhaps *six* — a Democratic and a Republican national presidential primary, each with its own runoff — within a period of several months) would be too much of a good thing, and who therefore advocate what has been called an "instant runoff" system for direct popular U.S. Presidential elections. The 2002 French election provides food for thought concerning such proposals.

1.   Some Voting Systems

I presented a paper at the March 2002 Public Choice Society meeting called "Monotonicity Failure under STV and Related Voting Systems." The leading and especially indigestible phrase in that mouthful [also called "negative responsiveness"] refers to the anomalous feature of some voting systems that a shift in electoral support that unambiguously favors a candidate can lead to that candidate's defeat (or, conversely, that reduced support can lead to the candidate's victory).

The abbreviation STV in the title does not refer to a new cable network but to the *Single Transferable Vote*, a complicated method for electing candidates in multi-member districts that has for 150 years been passionately advocated by the British Electoral Reform Society and is actually used to elect members of the Irish Dáil (parliament), members of the Cambridge (MA) city council, and in a few other elections.

STV can also be employed in single-member districts or other single-winner (e.g., Presidential) elections. In this special case, it is called the *Alternative Vote* and works in this way:

(i)   voters rank all candidates on the ballot in their order of preference;

(ii)   the ballots are sorted by first preferences;

(iii)   if one candidate has the first-preference support of a majority of voters, that candidate is elected;

(iv)   otherwise the candidate with the fewest first preferences is eliminated and the ballots that ranked the eliminated candidate first are transferred to other candidates on the basis of expressed second preferences; and

(v)   this process continues until some candidate is supported by a majority of (first preference and transferred) ballots.

(This simplified description ignores some practical problems, such as ties, ballots that record incomplete preference rankings, etc.)

A simplified version of AV, commonly called *Instant Runoff Voting*, has recently been advocated by activist groups in the U.S. (However, it should be noted that many groups that advocate what they call IRV are actually advocating AV.) Under IRV, in the event that no candidate has majority support with respect to first preferences, all candidates other than the leader and runner-up are eliminated all at once, and ballots that ranked such candidates first are transferred to one of the two leading candidates based on lower preferences expressed on those ballots. The name "instant runoff voting" is easy to understand — IRV essentially simulates a runoff election between the two leading candidates but without the delay and extra burdens on both candidates and voters entailed by holding an actual runoff a week or so later. Actual ("non-instant") runoff elections are used for primaries in most U.S. southern states, for some U.S. non-partisan local elections, and (as noted) for French Presidential elections. There are two practical differences between IRV and actual runoffs. First, in ordinary runoff elections the composition of the participating electorate may change between the first and second rounds of voting. (In U.S. runoff elections, turnout usually declines in the runoff.) Second, in ordinary runoff elections, voters who voted in the first round for eliminated candidates can (sincerely or strategically) revise their preferences between the two leading candidates (which in any case they have not yet been called upon to express) prior to the runoff (perhaps taking account of new information, including the vote totals from the first round).

The 2002 French Presidential election illustrates several problems with runoff elections and thus also with IRV.

2.   *Monotonicity Failure*

The fact that STV and other runoff types of systems (including AV and IRV) are subject to monotonicity failure has been known to voting and social choice theorists for some time. What has been in dispute is whether such monotonicity failure is merely a logical possibility of little or no practical significance or whether it is a problem that is quite likely to arise in practice. My Public Choice paper argued on theoretical grounds that it is likely to occur with enough frequency to be a

practical concern. The general character of the 2002 French election provides nice and relatively clear support for this claim.

It is important to emphasize that instances of monotonicity failure do not become manifest in the manner of, for example, the "reversal of winners" anomaly to which districted electoral systems are subject (exemplified by the 2000 U.S. Presidential election or the 1951 U.K. general election). In particular, any claim that monotonicity failure is a practical problem, and that the 2002 French election provides an empirical example of it, rests by necessity on data that is both unobserved and counterfactual.

First, the results of the first-round election provide information only about distribution of (expressed) first preferences within the French electorate and no information about the distribution of lower preferences. Thus we must make assumptions about (factual but) unobserved data. But we can make fairly plausible assumptions about these lower preferences, e.g., that most voters who voted for left-wing splinter candidates preferred Jospin to Chirac and in turn preferred Chirac to Le Pen (i.e., that their preferences were "single-peaked," at least with respect to the major candidates).

Second, the definition of monotonicity failure ("enhanced support for a candidate can cost that candidate electoral victory") rests on a hypothesis (i.e., if electoral support were to shift in some fashion, the consequence would be thus and so) that refers to data which are not merely unobserved but counterfactual.

In any case, a plausible (though certainly not conclusive) case can be made that the 2002 French election illustrates the problem of monotonicity failure (under either the actual runoff system or the proposed IRV system).

The actual election. It seems clear (comparing the first and second round results) that, among all voters who ranked a candidate other than either Le Pen or Chirac first, an overwhelming majority would have ranked Chirac over Le Pen on an IRV ballot and thus Chirac would win under IRV. Likewise, it was essentially certain that Chirac would win the [non-instant] runoff with Le Pen (as leftist French voters revived the bumper sticker slogan that was popular in the Louisiana gubernatorial election between Edwin Edwards and David Duke some years ago: *Vote for the Crook — It's Important!*).

The counterfactual election. Suppose that the distribution of candidate support in the French electorate partially revealed by the first-round vote had shifted in a way that unambiguously favored Chirac — specifically so that (i) some voters moved Chirac up in their preferences, (ii) no voters moved Chirac down in their preferences, and (iii) no voters changed their preferences between any other pair of candidates. The condition of monotonicity requires that, given that Chirac won the actual election, he should also win the counterfactual election in which his support is unambiguously enhanced. But in fact this voting system (in either its actual runoff or IRV variants) is subject to monotonicity failure, so Chirac might have lost even though his support had increased.

Clearly Chirac would have won a runoff against Le Pen in the counterfactual election (if he did not win outright in the first round), as he did in the actual election. (In general, he would have done at least as well in a straight fight against every candidate in the counterfactual election as he

did in the actual election.) And clearly Chirac would have gotten into the runoff in the counter-factual electorate, as well as the actual one. Thus the hypothesized shift in preferences could have changed the outcome *only by changing the candidate against whom Chirac ran in the*   (actual or instant) *runoff*. And this change might have resulted in a runoff against a candidate that Chirac could not beat (or, in any case, would have a harder time beating), namely Jospin. No candidate other than Chirac, including Jospin, could have had more first preference ballots in the counterfactual election than in the actual election, and indeed some, including Jospin, could have had fewer. But never-theless Jospin could have gotten into the runoff in the counterfactual election, even though he failed to do so in the actual election.

Here is a plausible "story" that would have shifted support unambiguously in Chirac's favor but would also have produced a counterfactual election in which Chirac is defeated. Consider the group of fairly right-wing voters who were more or less on the borderline between most preferring the respectable rightwing candidate (Chirac) and the unrespectable rightwing candidate (Le Pen). In the actual election, many of these voters supported Le Pen. In the counterfactual election, suppose some of these voters had switched to Chirac, i.e., had pushed Chirac up to their first preference and dropped Le Pen down to second. As a result, Le Pen's first-preference support would have fallen by a percentage point or so. But this would have put Le Pen's vote below Jospin's, so Jospin rather than Le Pen would have gone into the runoff. In this runoff, the center-left vote would have consolidated behind Jospin and (plausibly, if not certainly) Jospin would have won (so, plausibly if not certainly, we have monotonicity failure).

2.   *Wasted Votes and Spoiler Effects*

Because in simple plurality elections votes cast for trailing candidates (expected to place third or lower) are almost certainly "wasted," voters who sincerely prefer such candidates have an incentive to vote "tactically" for whichever of the two leading candidates they relatively prefer. Thus the trailing candidates do not get even their (small) "fair share" of vote (or, anticipating this penalty, are deterred from entering the contest at all). However (it is claimed), under IRV such voters can sincerely rank their most preferred candidate first and be confident that, in the event that this candidate is not elected, their votes will transfer to other candidates in way that reflects their preferences (and, anticipating these sincere votes, prospective minor candidates are encouraged to enter and remain in the field).

Furthermore, in simple plurality elections, in so far as supporters of a trailing candidate who actually have a preference between the two leading candidates do resist the temptation to vote tactically, the trailing candidate is deemed to be a potential "spoiler" — that is, while the candidate cannot win in any event, his entry into the field of candidates may determine which of the leading candidates actually wins the election — and moreover does so in the way that is contrary to the preferences of the trailing candidate's supporters. For example, it seems evident that, if Nader had not been on the ballot in Florida, much of his support would have gone to Gore and almost none would have gone to Bush, with the result that Gore would have won Florida (and the White House) cleanly (an outcome that presumably most Nader voters preferred to a Bush victory). Eliminating this "spoiler problem" is one of the main claimed advantages of IRV in the U.S. Thus it is said that,

under IRV, Nader enthusiasts could have ranked him first knowing that their ballots would transfer to Gore if needed.

In fact, voting and social choice theorists know that no voting system can be immune to spoiler effects. (This is essentially a consequence Arrow's General Impossibility Theorem). While IRV certainly mitigates spoiler effects (as in the Nader example), it really does this only if there is a single "third candidate" *and* that candidate has relatively little first preference support.

If a "third candidate" has considerable first preference support, entry into (or exit from) the contest by that candidate can swing the outcome of the election under IRV (or an actual runoff) in much the same way as under simple plurality voting. For example, polls conducted during the May-June 1992 period showed something close to a three-way tie with respect to first preferences among Bush, Clinton, and Perot. At least one poll put Bush in first place and Clinton in third place (but with a total spread of only four or five percentage points). But when Perot pulled out, Clinton's support jumped well ahead of Bush's. So up to that point Perot had "spoiler" with respect to Clinton (splitting anti-incumbent disgruntlement) under simple plurality voting. But, given an (actual or instant) runoff system, if Perot had stayed in the race and (as that one poll suggested) edged out Clinton for second place with respect to first preferences, the runoff would not have been between Bush and Clinton (leading to a Clinton victory) but between Bush and Perot, leading (presumably) to a Bush victory. So IRV would not have removed the spoiler problem. (Note that this example also suggests monotonicity failure: if Bush were to gain some first-preference votes at Perot's expense, he would go into a runoff with Clinton and lose, rather than go into a runoff with Perot and win. In general, the monotonicity and spoiler problems are interrelated, though they certainly are not equivalent, since most voting systems are monotonic while none is spoiler-proof.)

The 2002 French Presidential election obviously does not raise the problem of a near three-way tie problem so much as the problem of a multiplicity of "third" candidates. The many leftwing splinter candidates were clear spoilers with respect to Jospin.

Had the election been conducted under (single round) simple plurality (and in the absence of Duverger "psychological effects"), these spoiler candidates would have pulled down Jospin's vote and led to a Chirac victory, even though Jospin might well have won a straight fight with Chirac (as assumed in the discussion of monotonicity failure) or (even more clearly) would have won a three-way contest with both Chirac and Le Pen. (Of course, by the Duvergerian psychological effects argument, the splinter candidates should have been deterred from entering the race and/or their supporters should have been induced to vote for Jospin to avoid "wasting" their votes.)

But in essentially the same way, given the French runoff system (or IRV), the spoiler candidates pulled down the Jospin vote, not only below Chirac's vote but (by a fraction of a percent) below Le Pen's as well, resulting in a Chirac vs. Le Pen runoff and a Chirac victory (as under simple plurality without Duverger effects). It can be argued, of course, that the leftwing splinter candidates and their supporters should have anticipated this outcome and acted accordingly, in which case (as in the Duvergerian argument above) the splinter candidates would have been deterred from entering and/or their supporters would have been induced to rank Jospin first to avoid "wasting" their ballots. But, as noted, a principal argument for IRV (or a non-instant runoff) is that it "lets a thousand [or

at least multiple] candidacies bloom" and allows voters who most prefer minor candidates to rank them first without "wasting" their votes. The French election nicely demonstrates that this argument simply does not hold in the general case.

4.   *Concluding Comments*

It might be said that the French Presidential election has little relevance to the question of possible changes in the method of holding U. S. Presidential elections, because the U.S. has never experienced such an extensive field of candidates (16 names on the ballot) as the French election did in 2002. This is not literally true; many U.S. Presidential elections have had more than 16 declared candidates and also more than 16 candidates appearing on the ballot in at least some states. The important difference between the French candidate field in 2002 and the typical U. S. candidate field, is the relatively wide dispersion of votes over all candidates. This can be summarized by the Taagepera measure of the *effective number of electoral parties* or, in this case, of candidates. (This is calculated by taking the fraction of the vote won by each party or candidate and squaring it, summing these squared fractions, and then taking the reciprocal of the sum. A numerical result of, say, 5 may be interpreted as meaning that the candidate field is in some sense equivalent to one in which exactly five candidates each gets 20% of the vote.) The effective number of candidates in France this year was 8.7; the comparable effective numbers in the most fractionalized U. S. Presidential elections are 2.76 in 1992, 2.63 in 1968, 3.21 in 1912, 3.39 in 1860, and 3.38 in 1824. But of course the main point of Duvergerian analysis is that the number of parties or candidates is "endogenous" to the voting system. We must expect that, if IRV were adopted for U.S. Presidential elections, the effective number of candidates would jump up from a typical 2.0 and an atypical 2.5 to 3.5 (as in 1992 etc.) to a considerably larger number, and then the number might well increase further from one election to the next, as voters and potential candidates learn the strategic implications of the new system. (The effective number of candidates in successive French elections has substantially increased over time: 3.06 in 1965, 3.20 in 1969, 3.15 in 1974, 4.86 in 1981, 4.74 in 1988, 5.95 in 1995, and 8.68 in 2002.) Then we could expect problems similar to those that have been noted here with respect to the French election.

I will wind up these comments on a constructive note by observing that the difference between AV (as described at the outset) and IRV (or an actual runoff system) can be very important when there are four or more candidates. In particular, it is reasonably clear that AV applied to the French 2002 election would have produced a victory by either Jospin or Chirac, with no monotonicity failure and no spoiler effects. Ballots expressing first-preference support for the leftwing splinter candidates would have almost all (presumably) transferred in due course to Jospin. Most other ballots would have transferred in due course to Chirac. Almost no ballots would have transferred to Le Pen, so Le Pen would be eliminated before either Chirac or Jospin. Certainly for elections with many candidates, AV is more appealing than IRV. But we have seen that in elections with three candidates, IRV can exhibit both monotonicity failure and spoiler effects. Since in elections with three candidates, the two systems are logically equivalent, we know that AV can exhibit these problems also.