### **Some Effects of Voting Systems**

Given a broader subject and more space, I would argue that the effects of campaign contributions, advertising, and reporting out-weigh those of a voting rule in influencing the results of elections. Nevertheless a dysfunctional voting rule will hurt a polity in many ways. The rule influences everything from campaign styles to the elected representatives' ideological rigidity or flexibility to negotiate. We will look at stability, legitimacy, alienation, and questions of diversity.

#### **Ballots and information costs**

"Any multi-candidate voting procedure has two aspects: (1) a balloting method (specifying the nature of preferences that the voter is permitted to express), and (2) a decision rule (specifying how voter preferences are to be aggregated to determine the election result)." (Merrill, page xv)

"In devising alternative procedures, one must be careful not to complicate unduly the job of the electorate. The simplicity of the balloting method helps ensure that voters are capable of voting as they intend with a minimum of mistakes. Relative freedom from opportunities to manipulate the outcome by misrepresenting preferences is one factor that helps in achieving simplicity and fairness to voters. Simplicity of the decision rule aids public understanding and acceptance of the outcome, and thus, the legitimacy of the process." (Merrill, page 8)

Voters often feel burdened and stressed by the work of decision making. If voters cannot manipulate the system, then they need not worry about strategies. This minimizes their "information cost" or effort in voting. The easier voting is, the greater the turnout and the percentage of properly completed ballots. That in turn leads to socially optimal decisions and a sense of legitimacy in government. So we must keep the voter's job simple. This allows only one ballot and to that end no primary and no runoff elections because those double the costs to the voters (and the length of the campaigns). It also requires simple ballots. Single-vote plurality ballots appear easier at first than any type of multi-candidate ballot. But that system's many opportunities for manipulation often force voters to worry about strategies. Singlevote plurality has many other inherent flaws for multi-candidate elections as shown in the tables above. These make it dangerous to the legitimacy and stability of government.

Neimi showed that approval voting has many strategies which may confuse voters.<sup>1</sup> I would add that this may lead to errors by voters and gives less weight to people who do not understand the possible strategies. It also gives less weight to those who choose not to vote strategically. The information costs of C-STV are less then those of other systems because voters have less worry over strategies. This

<sup>&</sup>lt;sup>1</sup> Even unsophisticated voters must choose among several common strategies for approval voting: 1) Vote for the candidates you honestly approve of. 2) Vote for about half of the candidates. 3) Vote for one and only one of the top two candidates and as many minor candidates as you like better than that one. 4) Vote for just one of the top two candidates and don't bother with the rest. 5) Calculate your utility for each candidate's victory. Add all of these scores and divide by the number of candidates to find the average utility score. Vote for all of the candidates who you score above that average. 6) For a change in by laws or constitution, vote for all options you prefer over the status quo. The status quo stands as is if no option gets the required minimum of 50, 60, or 66%.

leads to more completed ballots; that is, more complete information for making better social choices.

Limiting the number of candidates makes every type of ballot easier.

### Utility ballots versus rank-order ballots

All utility ballots are difficult. Most ask a voter to rate each candidate on a scale of 0 to 100. Approval asks a voter to cast 1 vote for each candidate whom he feels has a higher utility value than most of the candidates. Utility ballots require that a voter who wants to optimize his influence must calculate his utility for each candidate's victory. That is, how much the voter expects to gain or lose if a candidate wins.<sup>2</sup> Also he must estimate the chance (probability) of each candidate's tieing for the win – to make the voter's ballot the one which decides the election. These numbers must be processed through a statistical formula.<sup>3</sup> We can automate the calculation but each voter must find or sense the numbers to enter for his vote. This presents a major burden to all voters and a source of inequality to voters who lack high-quality information and facility with statistics. Ranking candidates is easier.

The information and calculations required for accurate voting on utility ballots will lead to errors by some voters. Such errors will lead to outcomes with less than 100% utility efficiency. So Borda and Black, both of which score higher than approval voting, might in some electorates surpass even Merrill's standard-score system.

From rank-order ballots we can estimate approval ballots – perhaps better than many voters can because we know who the front runners are and how to divide each ballot to vote for one and only one front runner.<sup>4</sup> Rank numbers are the most convenient data for calculating the winner under Condorcet's rule.

#### **Condorcet efficiency's effects**

Condorcet efficiency, the ability to choose the Condorcet winners in elections which have them, has great importance because these median candidates are a happy result for the greatest *number of voters*. Consistently centrist politicians try to produce consistently moderate policies; moving only as voters' concerns do. Corporate leaders say this pattern helps them develop solid business plans. It also suggests greater legitimacy in those policies and governments – in contrast to the wide policy changes which sometimes occur when one major plurality party takes control of government away from the other major party. C-STV elects centrists better than any other voting system.<sup>5</sup>

<sup>&</sup>lt;sup>2</sup> The measure of gain is sometimes money but most often is not specified. Money is not appropriate for moral, ideological, and altruistic matters.

<sup>&</sup>lt;sup>3</sup> The formulas take the basic form  $1/n \sum u_i(k)$  where k is a candidate, n is the number of candidates, and u is the voter's utility for a candidate. (Merrill : Appendix)

<sup>&</sup>lt;sup>4</sup> Chamberlin, 1984 page 490, and Merrill page 67 used this technique to simulate approval votes from nondichotomous data.

<sup>&</sup>lt;sup>5</sup> C-STV can not represent the breadth of opinion, interests and needs in a community. That function of governance requires Proportional Representation (PR) in which each party receives a percentage of the legislature's seats equal to that party's percentage of the popular vote. The constitution for such a legislature should call for 3 or 5 seats in each voting district. It can use "list PR" if the organization has political parties and many seats to fill from the parties' "lists" of leaders. If the organization does not have parties or has few seats then it should use either PR with each representative's voting power weighted to equal her share of the popular vote, above some minimum, or the single transferable vote (STV). I suggest modifying STV – which Australian's now use for multi-seat electoral districts. STV should never eliminate a Condorcet candidate. Skip her and eliminate the candidate with the next fewest first-place votes. (I do not have space for a full description of STV. I

All voters influence which centrist candidate will represent their district. So a centrist with a broad view will pick up fringe voters to help beat narrow-minded centrists. Then again, a narrow-minded centrist might be ranked higher by the majority of voters: those near the center. Plurality voting, in contrast, gives no influence to voters outside of the two major parties.

## Manipulation's effects

"Such manipulation may perniciously undermine the selection of the candidate with the strongest support and call into question the legitimacy of the winner." (Merrill, page 7) A perceived lack of legitimacy may have dire consequences for a government.

If a voting system rewards manipulative voters, then over time such people win more than their share of public decisions. Other voters see them as shrewd. People imitate the manipulative behavior and it seeps into everyday life. Even without this manipulative aspect, any adversary democratic process such as voting is a poor model for daily life. Jane Mansbridge notes that "The subversive effect of adversary procedure on unitary feeling makes it essential that the necessary dominance of adversary democracy in national politics not set the pattern of behavior for the nation as a whole." (Mansbridge, page 298) Eventually most people see the benefits of manipulating a group decision-making system as an unfortunate fact of nature – few realize that the phenomenon results from flaws in poorlydesigned social-choice tools.

recommend the discussion of its pro's anc con's in \_\_\_\_\_. by \_\_\_\_\_.) Under PR, tax revenues and public expenditures may be set through a (semi-) Proportional Appropriation (PA) system. This would give minority parties a say in where the government spends a small percentage of their supporters' taxes.

# Effects of C-STV

How does it effect a community? It picks centrists from multi-party slates. The strong centrist tendency reduces incentives for extremism by politicians. Its multi-party qualities help start-up and splinter parties which keep major parties open to change from below. It effectively combines the primary and general elections into one – so more people vote in the primary – which increases popular control of parties. C-STV has little chance of creating a stable multi-party system like those in European nations with proportional representation and multi-seat districts. That seems to require more than one winner from each voting district.

# <u>Summary</u>

# Summary and Recommendations

C-STV's winners beat M-STV's whenever the two rules elect different winners. In the absence of voting cycles, at least as many voters support C-STV's winners as those elected by any other voting rule.

When both C-STV and M-STV are manipulable, C-STV often is harder to manipulate because a larger number of voters must coordinate their strategies. C-STV is more often impossible to manipulate than any other voting system except M-STV. M-STV resists better only when it inherently errs by failing to elect the one candidate whom a majority of voters support over every other one.

With 100% Condorcet efficiency and strong resistance to manipulation, C-STV is the most reliable way to elect the candidate with the broadest support among voters. By electing only such widely supported candidates, C-STV would create a poor legislature, one which would not represent the voices of minorities. But this new system's characteristics make it one of the best for electing a president. I used rank-order ballots because they are less demanding of information and more equitable than utility ballots or single-vote plurality's rules of order. I used Condorcet efficiency because it is less riddled with ambiguity and controversy than utility measures are. I used Hare to resolve voting cycles because it is the least manipulable voting system.

### Conclusions

C-STV may be the best decision rule for large electorates. It is quick: all candidates are voted at once. It is simple and clear: voters don't need to consider which strategy to use or what each candidate's chances are. It is fair, 100%-Condorcet efficient, and decisive.

#### Recommendations

The United States Supreme Court has set "one man, one vote" as the standard of fairness. Approval voting does not comply with this standard. Neither do the other utility voting systems such as standard score, Clark Tax, plus Kemeny and Borda. C-STV does fit this standard. So do Coombs, Copeland, Dodgson, and the max-min rules. Each voter is counted once in each pairwise comparison by Condorcet's rule. For a decision on which candidate to eliminate, if any, each voter gets 1 vote of first choice. In each step 1 person is represented by 1 vote. Given its strengths (effectively strategy-free, simple voting that always picks a moderate) and weaknesses (rare chances for manipulation and non-monotonicity) what are appropriate uses of C-STV? I intended it mainly for voting on initiatives, with and without amendments, or on candidates for solitary positions such as judges, attorneys general, treasurers, and chief executives. It would be an excellent choice for electorates where no one has much chance to know most others' preference orderings. It would improve democracy anywhere Hare's M-STV is now used.