

Bandwagons and Momentum in Sequential Voting

*(Or Big Mo'and Why DB doesn't
but KT does.)*

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- **US presidential primaries:** Voting tends to be sequential rather than simultaneous → Dynamic Effects: *Bandwagons* and *Momentum*
- **Other places:** Dynamic effects observed in Congressional roll-call votes, Supreme Court rulings, and corporate decision making.
- **In this model:** Votes cast in exogenously fixed order and bandwagons and momentum are observed.
- **Bandwagon:** people ignore private information and vote for the leader once the support for him exceeds a certain threshold.
- Bandwagon \neq Economic (Informational) Cascades: economic models are of individual action and not collective choice. Now people care about the choices of those who come after them. Brian Arthur?

- **Desires of Voters:**

- Vote for the 'better' candidate

- Vote for the winner or conform with the majority

- **Why vote for the winner?:**

- Simple uncritical desire to 'go with the winner' (Bartels, 1988)

- The Paradox of Turnout:* voters derive intrinsic benefit from casting a ballot.

- Dual constituency hypothesis:* the winner can reward supporters (Fiorina, 1974)

- Psycho lit.: people like to win, back winning teams and go with the flow.

- Maybe people don't care much either ways (and the winner has more supporters.

Sequential Voting under Incomplete Information: A Model

- Countably infinite number of voters: $1, 2, 3, \dots, i, \dots$ cast votes in the same order $(v_1, v_2, \dots, v_i, \dots)$.
- Two candidates: A and B
- **Signals** (s_i) : Each voter gets a signal α or β
- The signal conveys the preferences of the individual if a given candidate were to win for sure.
- Majority Rule: person who retains a lead in the limit wins.
- **Utility**: Preferences of voter i :

$$u_i = 1_{\{(W=A|A), (W=B|B)\}} + k \cdot 1_{\{v_i=W\}} \quad (1)$$

where k is the degree of conformism

- The two terms conform to two different degrees of incentives
- **Common Prior** (π) : that the true state is A .
- **History**: $h_i = (v_1, v_2, \dots, v_{i-1})$
- **Strategy**: $\sigma_i : (h_i, s_i) \rightarrow [0, 1]$
- **Beliefs** μ : $\mu_j^k(s_k|h_l, s_j)$ is voter j 's belief/conditional probability about voter k 's signal being s_k . Beliefs are updated via Bayes' Rule. Beliefs are *sensible*/sequentially rational.
- **Voting Equilibrium** (σ, μ) : It is a profile of beliefs (μ) and voting strategy (σ) such that

$$u_i(\sigma|\mu, h_i, s_i) \geq u_i(\sigma', \sigma_{-i}|\mu, h_i, s_i) \forall i, \sigma'_i, h_i, s_i \quad (2)$$

- **Basic Problem:** Other people's private signals don't affect my voting. I know who I'm gonna vote for. Better to have some stubborn people and others who might be bandwagoners.

3 person example, $\pi = 1/2$

- **Voting Informatively:** vote A if signal is α , vote B if signal is β . Uninformative voting: $\sigma_i(h_i, \alpha) = \sigma_i(h_i, \beta)$
- **Bandwagon:** when people ignore private information and vote uninformatively and just follow the leader.
- **May the best man win ($k = 0$):** Only bandwagon opportunity is 2's decision: follow 1 or own signal? Informative voting is an equilibrium.
- **Backing a Winner ($k > 0$):** If 2 follows 1's lead then 2's choice would win for sure
- The informational incentive (II) opposes the conformity incentive (CI). For small k , $II > CI$. For larger k , $CI > II \rightarrow$ Bandwagon Equilibrium.
- Bandwagon behaviour tends to dominate incentives for information aggregation.
- In a BW eqbm., since 2 will start a BW for sure, 1 has a greater incentive now to vote informatively since his vote will determine the outcome. So increasing number of bandwagoners can raise the incentive of earlier voters to vote informatively.
- see table

5-person example, $\pi = 1/2$

- 3 bandwagon opportunities: voters 2 and 4 when faced with a one vote lead and voter 3 when faced with a two vote lead.
- A bandwagon that can begin once a candidate has a lead of g votes forms a g -step equilibrium.

Symmetric Equilibria

- Voters weigh the informational advantage of selecting the better candidate versus the payoff from joining the majority.
- A voter *jumps on the bandwagon* once her belief that the better candidate is leading exceeds a certain threshold, otherwise she votes informatively.
- **Cut Point Voting (CPV) Strategy: CPV (C_B, C_A)**

$$v_i = \begin{pmatrix} B \text{ if } \pi(h_i) < C_B \\ A \text{ if } \pi(h_i) > C_A \\ s_i \text{ otherwise} \end{pmatrix}$$

Where $C_A, C_B \in [0, 1]$ and $C_A \geq C_B$

$\pi(h_i)$ is the updated prior.

For CPV (0,1) voting is always informative.

For CPV (0,0) and CPV (1,1) voting is uninformative

- The behaviour of voters varies with C_A and C_B
- **Band Wagon Voting (BWV (C_B, C_A)):** If at least one of C_A or C_B is not extreme (0 or 1), then each voter votes informatively until beliefs pass a given threshold at which point he *jumps on the bandwagon* and votes uninformatively.

- For any symmetric BWV (C_B, C_A) strategy, a bandwagon begins with probability one.
- Informative vote lead is equivalent to a Bayesianly updated prior.
- **Informative Vote Lead:** Only votes cast before the bandwagon begins matter/convey information. Let $n(h_i)$ represents A's lead in terms of informative votes at history h_i
- under CPV: $n(h_i) = \sum_{j:\pi(h_j) \neq \pi(h_{j+1})} [1_{\{v_j=A\}} - 1_{\{v_j=B\}}]$
- The informative vote lead is a sufficient statistic for the information contained in a history

Properties of the Symmetric Equilibrium

Buyer's Remorse:

- The closer the leading candidate is to securing a bandwagon in his favour, the more acute is the possibility that information aggregation is stopped and the stronger is the informational incentive to vote against the leader. The informational incentive grows at a faster rate and the voter at $n = g - 1$ requires the largest k to vote informatively.
- **Theorem 1:** Consider the symmetric strategy profile $CPV(1 - C, C)$, where $G(1 - C, C) = g$. If $g \geq 2$ then $0 < k_g < k_G$; hence a g -step bandwagon equilibrium exists if $k \in [k_g, k_G]$.
- Later voters follow the bandwagon because earlier voters vote informatively, and early voters vote informatively precisely because later voters follow the the bandwagon (ensuring victory for the leading candidate).
- **Theorem 2:** For every $k > 0$ there exists a $C \in (1/2, 1)$ such that $CPV(1 - C, C)$ is an equilibrium (and a g -step bandwagon equilibrium exists).
- So for any positive desire to conform, a bandwagon equilibrium exists.

Analyzing the US Primary Elections

- Role of media and candidates in voter behaviour needs to be factored in.
- Strategic behaviour by candidates may transform the competition from one on competence to one on ideology. Ideology typically does not play an important role in the primaries (Bartels, 1988)
- The process has become increasingly front loaded due to competition between states and the choice of voting timing is best modeled as a strategic variable.
- Early commanding victory: Voters might want to send the winning candidate to the presidential election with an early win with a large margin

Empirical Regularities from the US primaries

Type of Bandwagon

- Berelson, Lazarsfeld, and McPhee (1954): "... a "bandwagon effect"; people may vote for the man whom they expect to be the winner."
- Bartels, 1985 "Rather than doing better and better in an unbroken cycle, candidates may reach plateaus of support determined in part by their political skills and circumstances." The circumstances are varying levels of k .

Buyer's Remorse

- R. Brownstein, LA Times on the 2000 election: "Many analysts-including some in the Gore camp-believe Bradley could benefit from a reluctance among some New Hampshire voters to possibly end the race by giving the vice president a victory."
- Voters who could potentially start bandwagons and stop information aggregation are hesitant to do so.
- BWs are started not by the voters but by the media and the candidates themselves who determine an election is over and cease coverage and drop out of election
- In this case people would not want either of the candidates to come to edge of dropping out or ceasing coverage

Lopsided Elections

- Prior beliefs may be sufficiently skewed and even the first voter may ignore private information and support the favored candidate.
- LA Times on the 2000 race: “Conversely, if the two front-runners can reinforce their solid Iowa victories with wins in New Hampshire, the challengers may find the curtain falling in the first act. ‘I think that New Hampshire is the last chance that both McCain and Bradley have to gain toehold on the nomination,’ says political scientist William G. Mayer. ‘Even if they win, I still think the odds are probably against them. But the odds are even more strikingly against them if they lose New Hampshire.’”

Level of Voter Information

- Informational requirements in a BW are pretty low as voters need to know only their private signal and the informative vote lead. Such low levels documented by Popkin(1984)
- Popkin: Voter attention to the primary process is minimal until it is their state’s turn to vote. Voters learn little more than “horse race” information until that point. The equilibria uncovered here suggest that this is optimal as “horse race information” is all that a voter needs to observe to behave rationally.

Mo’mentum

- George H.W. Bush after his success in the Iowa caucuses: ““What we’ll have you see is momentum. We will have forward ‘Big Mo’ on our side, as they say in athletics.” ““Big Mo’?,” Schieffer asked. “Yeah,” Bush replied, ““Mo’, momentum.””

- Aldrich, 1980: a candidate possesses momentum when his chances of victory are improving (continuously).
- In a g -step bandwagon equilibrium, the probability of victory for a candidate A given an n vote lead is increasing and he possesses momentum.
- Candidates seem to have periods where their votes seem to have upsurges.