Strategic Voting in Plurality Rule Elections: Intuition versus Formal Theory

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The standard intuition about tactical voting

Tactical voting (voting for a party other than your first preference to influence who wins in your constituency) increases with . . .

- Indifference between your preferred and second choice party
- Strong preferences for the second over third choice party
- How far behind your party is (distance from contention)
- Marginality of the constituency
  - The closer the race the more likely you are to be able to influence it, apparently . . .

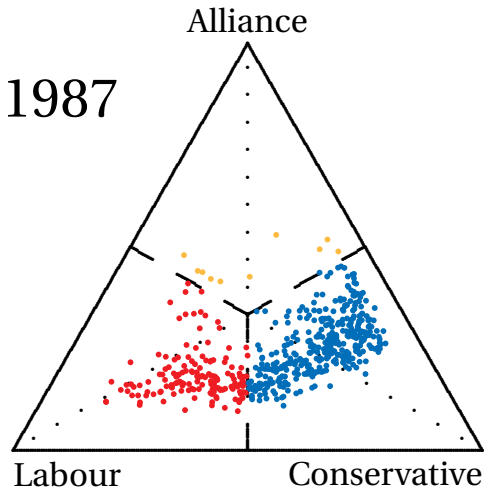
Formal Theory

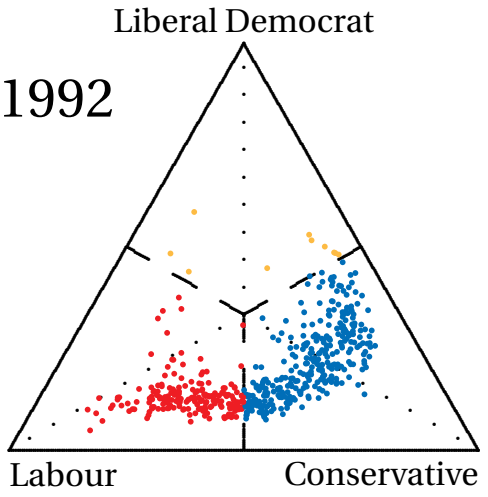
- You can only influence the outcome of the election if you are pivotal
- Ask not how likely you are to be pivotal, but what you can do if you are pivotal.
  - I.e. what are the chances each pair of parties will be tied for the lead if I am pivotal?
  - This shifts focus to ratios of (tiny) probabilities
- Specify a probability distribution for different possible results that reflect voter expectations
  - With good specification, ratios of different tie probabilities turn out not to be all either tiny or huge
- Consider how voters use information to update probabilities
- Use game theory to predict how voters will respond, taking into account others' behaviour and how others might take into account your behaviour and so on.

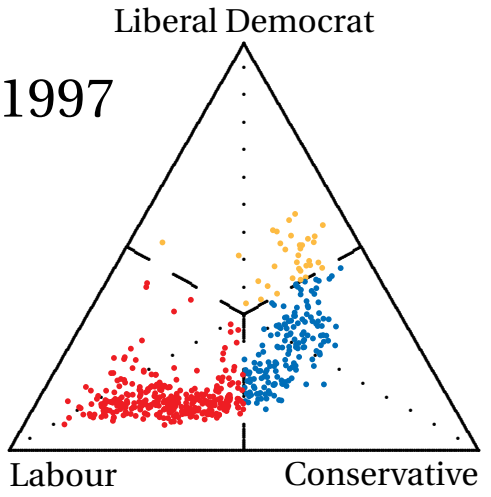
Cox Theory

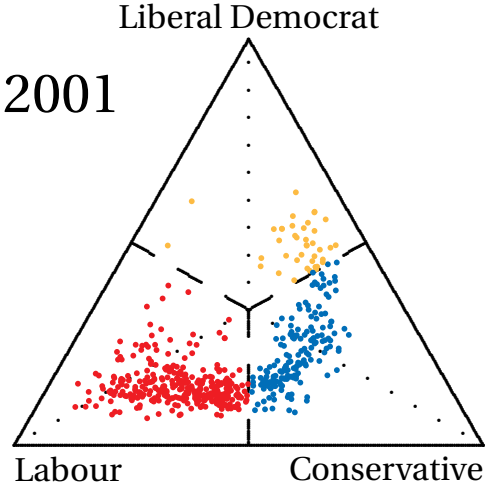
- Assume voters have strong public signals of the constituency result
- Then strategic voting is self-reinforcing and the third party ends up completely deserted (as Palfrey argued)
- Cox argued that there would be an equilibrium with the second and third candidates tied
  - So the ratio of Second to First loser (SF ratio) will be bimodal
- But theoretically the tied outcome is unstable and requires tactical voting the wrong way
- Empircally there is no evidence for the bimodality hypothesis either

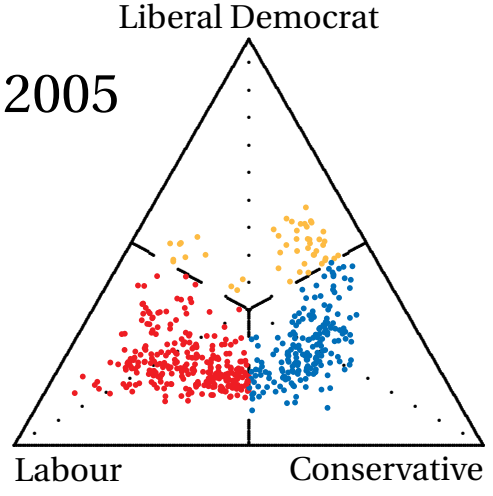
Simplex plots

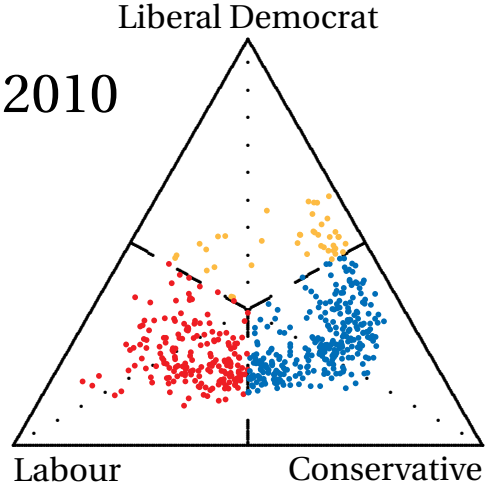




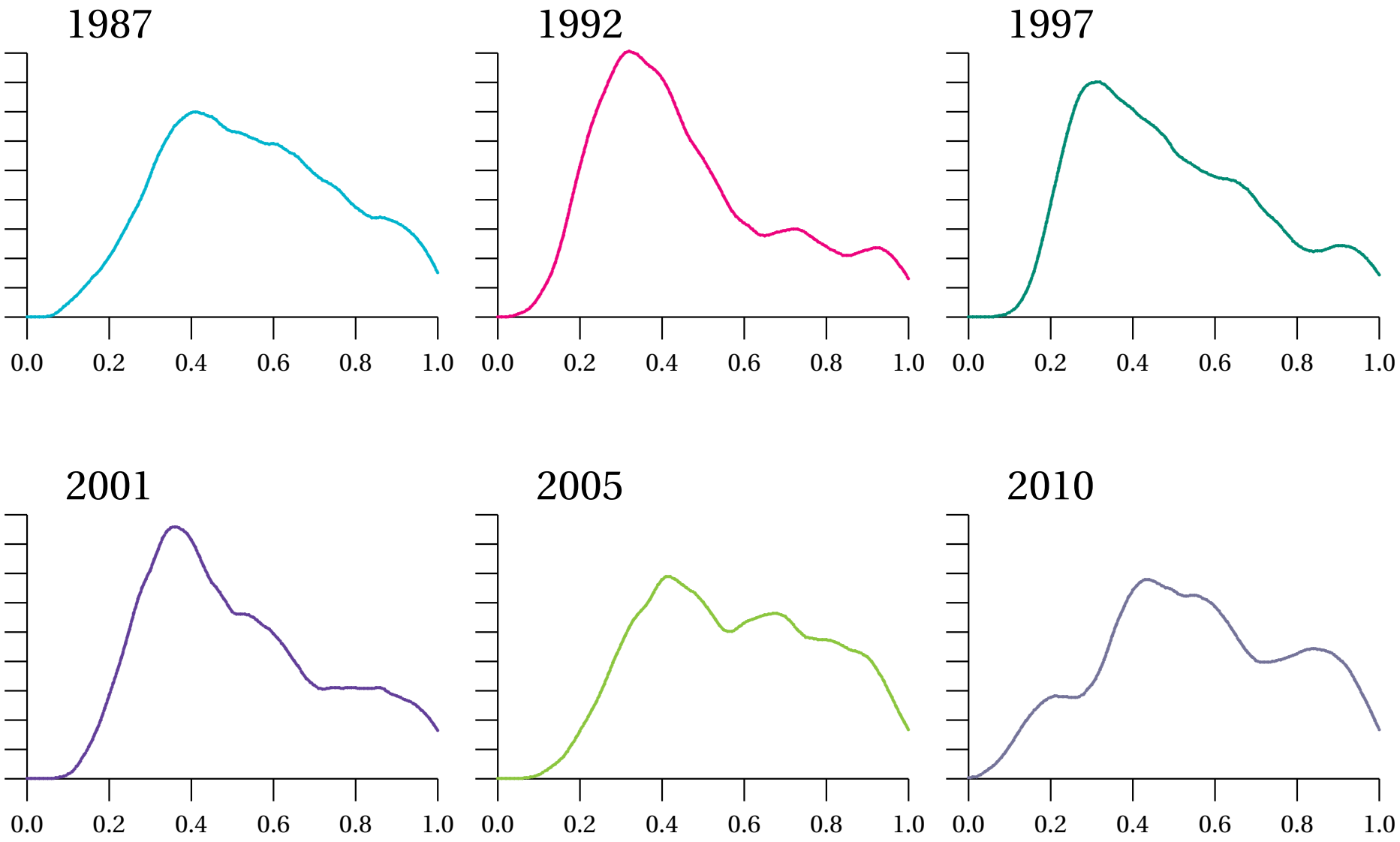








Failure of Cox's bimodality hypothesis



A better formal theory

- Allow for voter uncertainty about the outcome
- E.g. consider private information, where everyone gets their own signal like their own private poll
- Signals vary but are on average unbiased
- People know that others have different signals but not what they are
  - No common knowledge so hard to coordinate
- Then . . .
  - No silly tied-for-second-place equilibria
  - Some but not complete Duvergerian tactical voting
    - Perfect two-party outcomes only predicted with public information which voters can easily coordinate on
  - Some testable comparative statics about who should vote tactically and where
    - These are initially generated from a decision-theoretic model with voter uncertainty but also hold in a game-theory model

Really formally . . .

If the electorate size is sufficiently large, then the instrumental voter should vote strategically if

$$\log\left(\frac{u_1 - u_3}{u_2 - u_3}\right) < \lambda \quad \text{where} \quad \lambda \equiv \log\left(\frac{p_{23} + 2p_{12}}{p_{13} + 2p_{12}}\right). \tag{1}$$

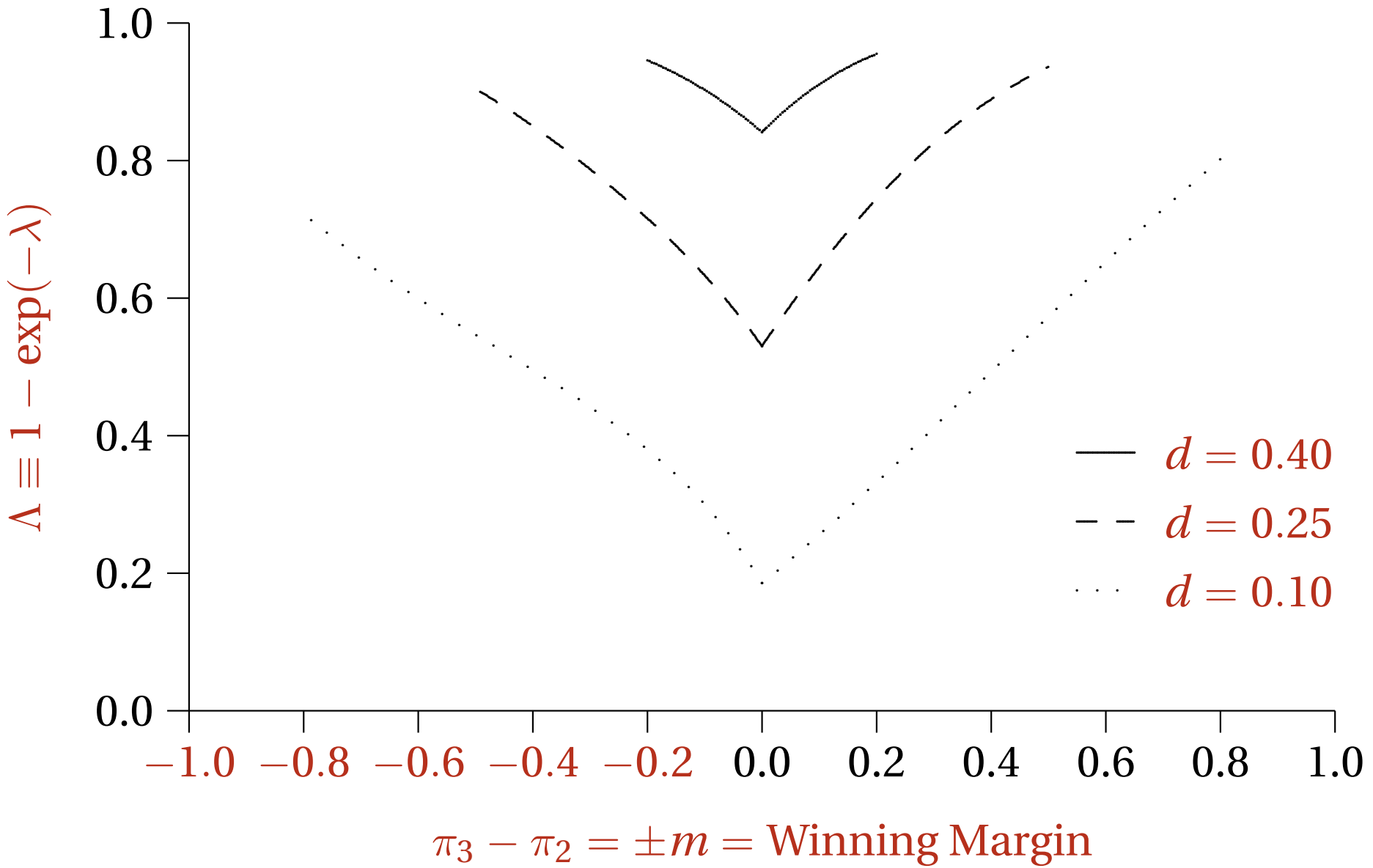
With Dirichlet beliefs:

$$\lambda = \log \frac{B_{1/3}(1 + \pi_3 s, 1 + (1 - \pi_3)s) + 2^{(\pi_1 - \pi_3)s - 1} B_{1/3}(1 + \pi_1 s, 1 + (1 - \pi_1)s)}{B_{1/3}(1 + \pi_3 s, 1 + (1 - \pi_3)s) + 2^{(\pi_2 - \pi_3)s - 1} B_{1/3}(1 + \pi_2 s, 1 + (1 - \pi_2)s)} \tag{2}$$

where $B_{1/3}(a, b)$ is the incomplete Beta function evaluated at $1/3$ with parameters a and b.

But the real gory detail is in the paper.

Distance from Contention and Marginality



Levels of tactical voting

	All voters		Third Party Supporters		Broad Risk Population	
Election	%	N	%	N	%	N
1987	5.0	2633	13.5	488	13.1	613
1992	7.7	1998	26.4	334	22.4	459
1997	8.5	1860	26.8	381	23.6	533
2001	7.5	1137	19.1	250	20.4	275
2005	6.2	1511	16.5	366	15.1	427
2010	6.1	1362	18.7	266	16.9	319
Total	6.8	10501	19.9	2085	18.7	2626

Models of tactical voting for third-party supporters

	OLS 1 Coef/s.e.	OLS 2 Coef/s.e.	Probit 1 Coef/s.e.	Probit 2 Coef/s.e.
Constant	0.02	0.04	-1.55***	-1.47***
	(0.03)	(0.04)	(0.13)	(0.15)
Dist. from Contention	0.87***	0.79***	3.05***	2.95***
	(0.12)	(0.11)	(0.43)	(0.45)
Margin of Victory	0.09	0.06	0.35	0.11
	(0.08)	(0.08)	(0.31)	(0.33)
1st Pref. Gap (1st-2nd)		-0.42***		-2.10***
		(0.04)		(0.20)
2nd Pref. Gap (2nd-3rd)		0.31***		1.11***
		(0.04)		(0.15)
Election (1987 baseline)				
1992	0.08**	0.08**	0.29**	0.31**
	(0.03)	(0.03)	(0.10)	(0.10)
1997	0.11***	0.08***	0.41***	0.34***
	(0.03)	(0.02)	(0.09)	(0.10)
2001	0.06	0.07*	0.25*	0.32**
	(0.03)	(0.03)	(0.12)	(0.12)
2005	0.04	0.05	0.19	0.25*
	(0.03)	(0.03)	(0.11)	(0.11)
2010	0.06	0.07*	0.24*	0.32**
	(0.03)	(0.03)	(0.11)	(0.12)
BIC	2275.69	2071.16	2242.89	2022.18
N. of cases	2206	2206	2206	2206

Notes. $*p < 0.05, **p < 0.01, ***p < 0.001.$

MLE of the formal model

	Coef	s.e.
Constant	-1.67***	(0.04)
β	1.17**	(0.37)
s	3.93***	(1.19)
Election (1987 baseline)		
1992	0.18**	(0.06)
1997	0.19**	(0.06)
2001	0.24**	(0.08)
2005	0.09	(0.07)
2010	0.07	(0.07)
BIC	4474.31	
N. of cases	11690	

Notes. $*p < 0.05, **p < 0.01, ***p < 0.001$.

Sincere and strategic major-party supporters and voters in England.

Conclusions

- Distance from contention and preference gaps behave as both intuition and formal theory expect
- Margin of Victory insignificant but estimate is closer to the weak positive effect from the formal theory than the substantial negative in the standard intuition
- Support the formal model in direct estimation
- So, the formal model beats loose intuition
  - Not just any formal model but one which allowed for voter uncertainty
  - Cox (1994, 1997 - Making Votes Count) model not supported
- Behaviour suggests that information about likely constituency outcomes is seriously imprecise: equivalent to a private poll of just four
  - Helps to explain why there isn't more tactical voting than just 20% of third-party supporters