A BRIEF BUT VITAL CRITICISM
OF
THE REPORT OF THE INDEPENDENT COMMISSION ON THE VOTING SYSTEM

Introduction

In late October The Rt Hon Lord Jenkins of Hillhead OM delivered to the Home Secretary *The Report Of The Independent Commission On The Voting System;* he having been invited to chair this Commission in December 1997. The Commission's terms of reference requested "an alternative to the present system", with the obligation to "observe the requirement for broad proportionality, the need for stable government, an extension of voter choice and the maintenance of a link between MPs and geographical constituencies".

The Report is an interesting and detailed comparison of a number of voting systems. However, the Report is not — and does not pretend to be — a complete treatment of voting systems. Several voting systems are omitted or compared incompletely. Most obviously, the Commission's Report does not fully examine the merits and demerits of the current system, because the terms of reference specify "an alternative". But one particular omission fatally wounds the Report: a new voting system called PR-Squared is not discussed, despite that fact that it well satisfies the four simultaneous equations in the second paragraph of the terms of reference. This criticism explains why the omission so greatly undermines the worth of the Commission's conclusions, and attempts to identify the reason for the omission.

The author

Before discussing the omitted system, and the reasons for its omission, the reader is asked to allow a few words about the author of this criticism. The author is also "independent", in the sense of not being a member of or employed by a political party, nor having ever stood for any form of public office. (In this sense more 'independent' than some of the members of the "Independent Commission".) However, the author has devised a new voting system, which has all the merits of the current system, yet still has the fairness of Proportional Representation. Those who suggest "he would say that, wouldn't he" are referred both to ¶24 of the Report, and also to the description of PR-Squared. The author is British, and is employed as a researcher in financial markets.

The Commission's evidence

The Commission's Report comes in two volumes. The first, containing much excellently crafted language, gives the Commission's conclusions. The second volume, published on CD-ROM, is described as containing "items of key evidence". It actually contains submissions from political parties / fora, submissions and correspondence from Members of Parliament, submissions from academics, from representative / campaigning groups and from commentators, listed in that order in the table of contents. Those of a cynical disposition will notice that political parties come before MPs, and also that, although the majority of the "over 1500 written submissions" were from the public, the public is entirely unrepresented in the Commission's compendium of evidence.

Amongst the unrepresented evidence is a description of PR-Squared dated 14th February 1998, that was sent by the author of this criticism. That description is attached as an appendix to this criticism. Perhaps some readers of this criticism will not like PR-Squared, but nonetheless all should concede that it has a distinctive set of advantages, and hence that, at a minimum, it (and its obvious variants) should have been considered, and that any rejection of it or them should have been fully justified.

PR-Squared

PR-Squared is a new electoral system, designed for the UK's House of Commons. It has two novel features: vote squaring; and a seat assignment mechanism called "happiness maximisation". The Commission considered neither PR-Squared as a whole, nor its two novel features.

PR-Squared typically elects a majority government; it elects one local MP from each constituency each of whom is dependent on the local vote; yet still ensures that if two parties receive equal numbers of votes then they receive equal numbers of seats. In brief, it works as follows:

- As now, the country is divided into single-member constituencies;

- As now, each party fields at most one candidate in all or some constituencies;

- As now, each voter casts a single vote in favour of a single candidate;

- The votes for each party are totalled nation-wide;

- The key rule: each party is allocated seats in proportion to the square of its nation-wide vote;

- As only a whole number of seats can be won, the seat allocations must be rounded. The rounding is upwards for those parties with the largest fractional seat allocation, down for those with the smallest (the 'largest remainder' rule);

- It is now known how many seats each party has won, but not which constituencies. Constituencies are allocated to the parties in the manner that maximises the nation-wide total of the number of voters who voted for their local MP. Equivalently, define a "happy voter" to be a voter who voted for his or her MP, and then assign seat winners so as to maximise the nation's total "happiness". In practice this will be First-Past-The-Post in non-marginal seats, with marginal seats being "rearranged" to ensure that parties receive the required number of MPs.

As an example, recall that in the 1983 election the three large parties split the vote in the proportion 44·5% to 28·9% to 26·6%. Seats would have been allocated in proportion to the squares of these numbers: 1980·25, 835·21 and 707·56. Scaling the ratio of the squares so that they total 650 seats gives 365·4, 154·1 and 130·5. These would be rounded for an actual seat allocation of 365, 154 and 131: a majority of 80 for the largest party, with the opposition seats split much more equitably than under FPTP .

Again making the counter-factual assumption that voting habits would be unchanged under PR-Squared, then 1997's Labour landslide would have resulted in a majority of 119. In 1992 the Conservative majority would have been about 50; in 1987 of almost 64; in 1983 80; in 1979 of 66 seats; and in October 1974 Labour would have had 308 of the 635 seats.

So under PR-Squared: equal votes mean equal seats ("broad proportionality"); there is usually a majority ("stable") government; votes cast in 'safe' seats have exactly as much effect on the national result as votes cast in marginal seats ("voter choice"); and yet all MPs are constituency MPs ("maintenance of a link"). Further, PR-Squared is monotonic[†], though this property is so obvious that I neglected to mention it in the original description.

PR-Squared and its advantages are discussed in more detail in the appendix.

There is a natural variant of PR-Squared that might well have appealed to the Commission, which works as follows. Pure Proportional Representation with a cutoff would be used regionally (each region containing about a dozen constituencies). Within each region, seats would be assigned to parties using happiness maximisation. (Although note that this author would favour a more majoritarian system than this variant.)

The Commission was misled

The Commission did not consider PR-Squared and its variants because the Commission was misled. From volume 2 of the report it is possible to identify how this happened.

Professor David Butler writes "I was asked by the Jenkins Commission to consult a few academic students of elections to see if they could reach consensus on some technical questions about systems of proportional representation" (page 1 of acdmcs01.pdf). Amongst the most important questions asked (of the Butler Group or indeed of anybody) by the Jenkins Commission was:

E.1. Are there systems other than AMS, AV/SV, and STV that the Commission should be considering?

Rephrased: "what are the choices". The academics replied:

1. The Commission might want to consider a national list system, if only to reject it.

2. The Commission might want to put forward a 'tailor-made' system and not confine itself to 'off-the-peg' models. For example, it could pursue an open party list system with about five members per constituency. The broad proportionality of such a system is evident in the work of Dunleavy et al. {Dunleavy et al. 1997].

3. The Commission might wish to refer to parallel systems (as in Russia) if only to dismiss them.

4. The Commission might want to consider versions of AMS using open lists to elect top-up MPs.

[†] The Conservative Party's submission to the Commission gives an example of non-monotonicity in ¶3.3.13 on page 14 of ppf-02.pdf (in volume 2 of the Report). As a simpler example, consider a election held under SV or AV or double-ballot, in which there are 3 candidates (colour-coded R, Y and B) and 17 voters. Voters' true preferences are as follows: 8 voters favour R; 3 favour Y with R as second preference; 2 Y then B; and 4 B then Y. If all vote 'honestly' then the first preferences for R:Y:B split 8:5:4, B is eliminated, its second preferences go to Y which wins 9 versus 8. But if 2 of the voters who favour R instead put B as first choice and R as second, then first preferences split 6:5:6, Y is eliminated and R wins 9 versus 8. So putting R higher rather than lower in the preference list would be to R's detriment. In contrast, in ¶s 4.20 and 4.21 of cmmnt01.pdf Peter Kellner emphasises that this type of tactical voting requires "precise knowledge of the initial support of all three candidates". But in contrast to this contrast, Kellner's addendum rightly argues that voters will have enough information to unfairly disrupt the top-up allocations.

It is now apposite to admit *mea culpa.* Because I am not a professional academic, PR-Squared has not been published in any academic journal. Naïvely, I wrote directly to the Commission, not realising that the list of candidate systems would be constructed away from Clive House.

But the academics' error was not a once-off:

> *E.6. Are there systems which discourage a multiplicity of parties?*

the reply once again missing the existence PR-Squared:

> *The lower the threshold the more the parties. FPTP is probably the most discouraging, but it can allow in small parties with strongly localised support to secure disproportionate representation.*

On page 7 of acdmcs07.pdf Professor Ron Johnston and David Rossiter reach the punchy conclusion:

> *…with any electoral system based on constituencies, you cannot get away from the effect of geography*

a conclusion which suffers from the one drawback of being completely wrong. Under PR-Squared every MP is a constituency MP from a single-member constituency, yet redrawing the boundaries would have no effect whatsoever on the number of seats won by each party. (So, under PR-Squared, boundary commissions would be entirely depoliticised, and constituencies could be more 'natural' and less like the "artificial creation" referred to by Gareth Thomas MP in mp-24.pdf.) Anyway, my fault for never having written to Professor Johnston and Mr Rossiter.

Drs David Farrell and Michael Gallagher (page 7, acdmcs06.pdf) sent the Commission a useful summary table:

	Broad Proportionality	Stable government	Extension voter choice	Maintenance of geographical link
FPTP	–	+?	–	++
Double ballot	–	+?	+	++
Open list in large constituencies	++	0	++	–
Open list in small constituencies	+	0	++	++
Closed list in large constituencies	++	0	–	–
Closed list in small constituencies	+	0	–	+
AMS	++	0	+	++
PR-STV	+	0	+++	++

Unfortunately, the table missed a row:

PR-Squared	+	++	+	++

PR-Squared may not be perfect, but it compares very favourably to all the other systems mentioned. (Admittedly, this is when PR-Squared is scored by its designer. Please do read the full description sent to the Commission, and then score it yourself. It will still do well. Alternatively, score PR-Squared in the context of the table on page 4 of Martin Linton's mp-14.pdf — it will still do well.)

Conclusions

The Commission was misled about the choices open to it.

The Commission's recommendation must therefore be considered as its opinion of the best amongst those that it considered.

PR-Squared is a viable alternative with much to commend it. Because its existence was not drawn to the attention of the Commission, it went unconsidered. In the opinion of this author it should have been the Commission's recommendation, but there can be no doubt that it should have been considered.

Julian Wiseman, 15th November 1998

APPENDIX

REPRINT OF THE

DESCRIPTION OF PR-SQUARED

SENT TO

THE INDEPENDENT COMMISSION
ON THE VOTING SYSTEM

14 FEBRUARY 1998

PR-Squared is a new electoral system. It typically elects a majority government; it elects one local MP from each constituency each of whom is dependent on the local vote; yet still ensures that if two parties receive equal votes then they receive equal seats. It works as follows:

• As now, the country is divided into a large number of single-member constituencies;

• As now, each party fields at most one candidate in all or some constituencies;

• As now, each voter casts a single vote in favour of a single candidate;

• The votes for each party are totalled nation-wide;

• The key rule: each party is allocated seats in proportion to the square of its nation-wide vote;

• As only a whole number of seats can be won, the seat allocations must be rounded. The rounding is upwards for those parties with the largest fractional seat allocation, down for those with the smallest (the 'largest remainder' rule);

• It is now known how many seats each party has won, but not which constituencies. **Constituencies are allocated to the parties in the manner that maximises the nation-wide total of the number of voters who voted for their local MP.** Equivalently, define a "happy voter" to be a voter who voted for his or her MP, and then assign seat winners so as to maximise the nation's total "happiness". In practice this will be First-Past-The-Post in non-marginal seats, with marginal seats being "rearranged" to ensure that parties receive the required number of MPs.

As a first example, recall that in the 1983 election the three large parties split the vote in the proportion 44·5% to 28·9% to 26·6%. Seats would have been allocated in proportion to the squares of these numbers: 1980·25, 835·21 and 707·56. Scaling the ratio of the squares so that they total 650 seats gives 365·4, 154·1 and 130·5. These would be rounded for an actual seat allocation of 365, 154 and 131: a majority of 80 for the largest party.

The following table shows the 1997 election in greater detail:

Party	Votes	Votes Squared	Unrounded seats	Actual Seats
Labour	12,917,988	166,874bn	388·65	389
Conservative	9,600,940	92,178bn	214·68	215
Liberal Democrat	4,724,626	22,322bn	51·99	52
Referendum Party	811,679	659bn	1·53	1
Scottish National Party	617,260	381bn	0·89	1
Labour Co-operative	599,423	359bn	0·84	1
Ulster Unionist Party	258,349	67bn	0·16	0
S. D. & L. P.	192,060	37bn	0·09	0
Plaid Cymru	161,030	26bn	0·06	0
Sinn Fein	126,921	16bn	0·04	0
D. U. P.	107,348	12bn	0·03	0
UK Independence Party	106,001	11bn	0·03	0
others	small	small	small	0

(Assumes that the vote totals were as 1st May '97, assumes that the three largest parties would have fielded candidates in every constituency, and that the Speaker was an independent.)

And who would have won which seat? As a randomly-chosen example, in Sedgefield the Labour Party candidate received 33526 votes, against 8383 for the (second-placed) Conservative Party candidate. This would have been sufficient to ensure that the "happiness-maximisation" allocated this seat to the Labour candidate in this constituency; and if in this constituency fewer than 23804 of those who voted Labour had stayed a-bed that day, then this seat would still have been held by the same candidate.

This electoral system satisfies the requirements specified in the Commission's terms of reference:

• **"Broad proportionality":** PR-Squared explicitly ensures that equal votes give equal seats, and that more votes — howsoever arranged geographically — give more seats.

• **"Stable government":** the squaring of votes penalises small parties and penalises party splintering. Hence coalitions have an incentive to form before the election, rather than negotiating for power after the

election. Minority factions within a coalition would have a strong incentive not to undermine that coalition, because if there was a split then the faction would lose most or all of its seats in the following election. Indeed, The Plant report commented favourably on the "exaggerative effect" of FPTP, an effect that penalises small parties and hence prevents them holding the balance of power; the absence of such an exaggerative effect leads to coalition politics in which power moves from the ballot box to the post-election negotiating table.

- **"Extension of voter choice":** Under FPTP there are many seats in which the result is such a foregone conclusion that there is little purpose to voting. Under PR-Squared, a Conservative vote in Liverpool or a Labour vote in Maidenhead is unlikely to change the result in that seat: but it might help make the difference somewhere else. A supporter of any of the large parties can usefully choose to vote for that large party, so the choice has increased from none to some. But the extension of choice is limited. Because of the squaring, there is little purpose in voting for the Fascists or Communists (or even one of Northern Ireland's sectarian parties), because these parties are highly unlikely to win any seats anywhere. The voters' choice is extended to include all the large nation-wide parties, and no others.

- **"Maintenance of a link between MPs and geographical constituencies":** Although parties are elected by their nation-wide results, every MP is local and dependent on local votes for re-election. Unlike the Additional Member System, there is one type of MP, and that one type of MP is a constituency MP.

The Economist thought that the Prime Minister's list of requirements was "a bit like … having your cake and eating it too". But it can be done, and PR-Squared is how.

There are five other advantages that should be mentioned here.

- **The mechanism of voting is simple**: voters just place a mark by the desired candidate. There is no requirement to sort a large number of candidates into a preferred order.

- Parties' representation is independent of the geographical distribution of the votes. Thus boundary commissions become far less important. Moving a seat's boundary might still cause a rearrangement of seats, but not a change in any party's total number of seats. From the viewpoint of a party seeking a national mandate, **boundary changes are irrelevant**.

- **Party headquarters are denied the power and patronage** that would result from a 'list system';

- **All votes carry equal weight**, even if constituencies vary in size;

- **There are no "wasted votes"**, because parties gain or lose power on the basis of the nation-wide vote totals.

Criticisms

Five criticisms have been levied at PR-Squared, and because I might not have the chance to reply to any criticisms in person, I shall briefly reply to them here.

- **Criticism 1: The perception of complexity**
  It is true that the algorithm by which seats are assigned is complicated. This is true in many other countries, especially those with PR systems. But voting itself — the one thing that people must be able to do unaided — is neither easier nor harder than it is now: a voter marks a single cross by a single candidate.

- **Criticism 2: Not all MPs receive the most votes in their constituency**
  David Lipsey wrote that *"…[PR-Squared] does have one consequence I do not believe would be acceptable, namely that some constituencies are represented by an MP who did not receive the most votes in that constituency"* (October 1996, personal communication). But this criticism must also be true of any non-FPTP electoral system in which MPs are all constituency MPs. The only way to avoid this

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PR-Squared and the Additional Member System

There is a possibility that the Commission might approve of allocating seats in proportion to the square of the votes received, but not of the 'happiness maximisation' method of choosing which candidates are elected. In this eventuality the Commission might wish to consider the merits of combining PR-Squared with the Additional Member System. Voters would choose one candidate and one party. Constituencies would be contested on a FPTP basis. Additional MPs would be appointed from party lists, such that each party received a total number of seats in proportional to the square of that party's vote.

criticism is either to use FPTP, or to have non-constituency representatives — contrary to the Commission's terms of reference.

• **Criticism 3: By-elections do not fit cleanly into this regime**
Under FPTP a 'general' election is in effect many simultaneous by-elections. This is not so under PR-Squared, and two possible accommodations would work as follow:

– Seats vacated by resignation or death remain vacant until the next general election (as in the US); or

– Seats vacated by a death from natural causes trigger a FPTP-style by-election; others remain vacant until the next general election.

Neither of these is perfectly clean, but most non-FPTP electoral systems without a party list suffer from a similar disadvantage.

• **Criticism 4: PR-Squared will still encourage tactical voting**
This is no criticism, this is praise. Tactical voting is not only good for representative democracy, it is the essence of it. A British voter who desires a Communist or a Fascist government knows that voting for either of these parties is pointless, and so instead votes for a less extreme political party. The effect of this incentive is to deny the Communists and the Fascists a base from which to grow into a significant force in UK politics. Hence the incentive to vote tactically (as embedded in both FPTP and PR-Squared) is part of the reason that UK governments have historically been moderate — as have most MPs.

But tactical voting plays a bigger role than 'merely' keeping the Fascists out. Imagine a hypothetical election in which there was a complete absence of tactical voting, every voter standing as a candidate and then voting for himself or herself. This would be direct rather than representative democracy. Representative democracy necessitates voters choosing between the candidates (or parties) with a realistic chance of being elected.

This is why PR-Squared encourages tactical voting, deliberately and by design.

Alternatively, the squaring of the vote can be viewed differently, by likening it to conventional PR with a cutoff. A 5% cutoff rule in PR is akin to taxing seats: a party with an 'income' of 4·9% of the vote has its seat allocation 'taxed' at a rate of 100%, whereas a party with an 'income' of 5·1% is 'taxed' at a rate of 0%. Squaring the vote is akin to a 'soft' cutoff, in which the 'tax rate' falls smoothly as the number of votes rises.

• **Criticism 5: PR-Squared is new**
This is the strongest criticism, and in practice the hardest to overcome. PR-Squared was designed — and designed recently — for the UK's House of Commons. No other country uses it. This newness will make it harder for the Commission to "sell" PR-Squared to both politicians and to voters.

However, the country has been bold enough to consider a change of electoral system: perhaps the country will be willing to consider an electoral system — despite its newness — that has the advantages of FPTP (stable government, a simple voting form and local MPs) that also has the advantage of PR (equal votes mean equal seats).

In summary, PR-Squared is an electoral system in which voting is simple, in which voters choose a local MP, which gives stable government, but which treats equally parties with dispersed and parties with concentrated support. It may not be perfect, but it is materially less imperfect than any other electoral system.

Julian Wiseman, 14th February 1998