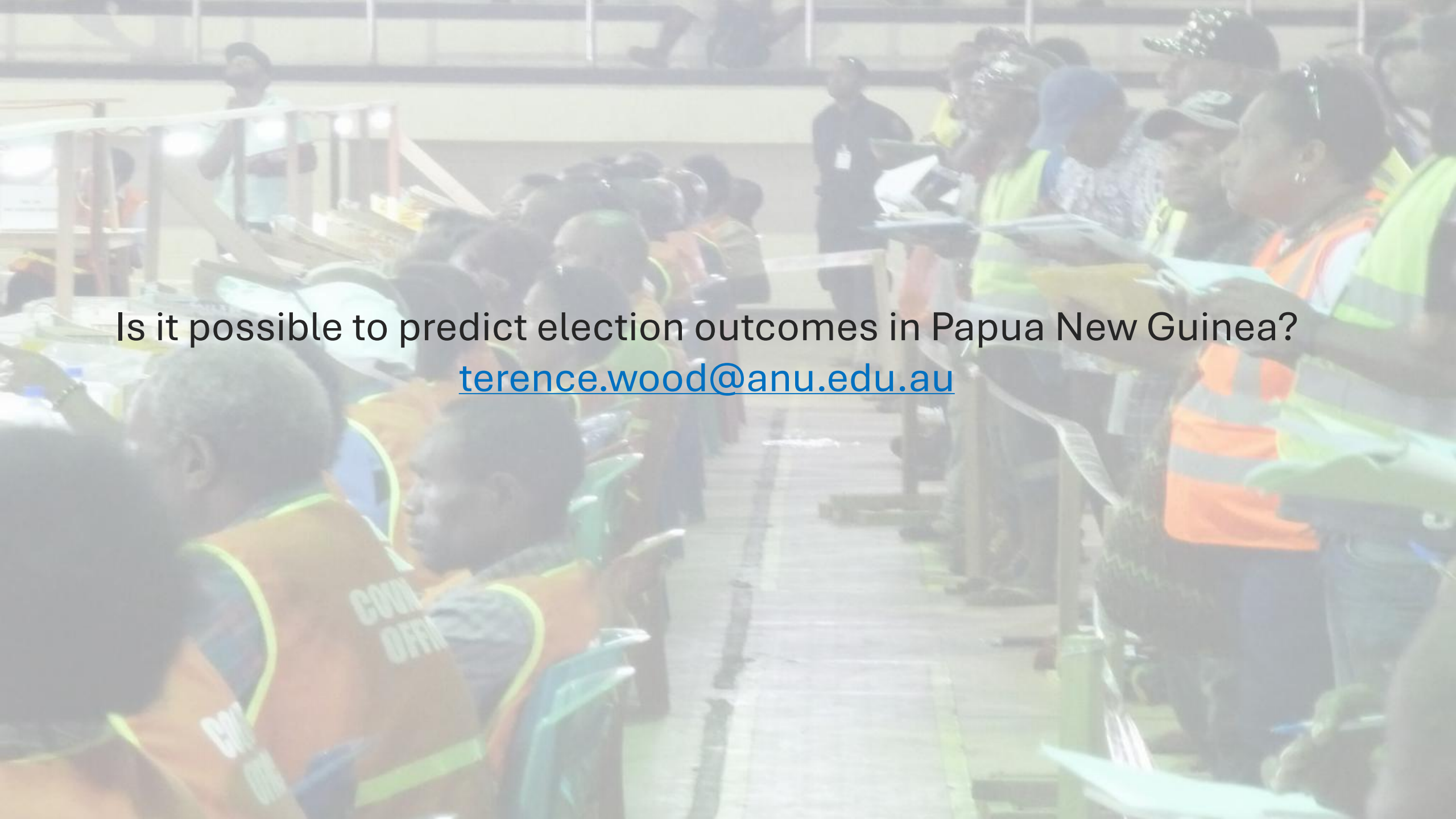
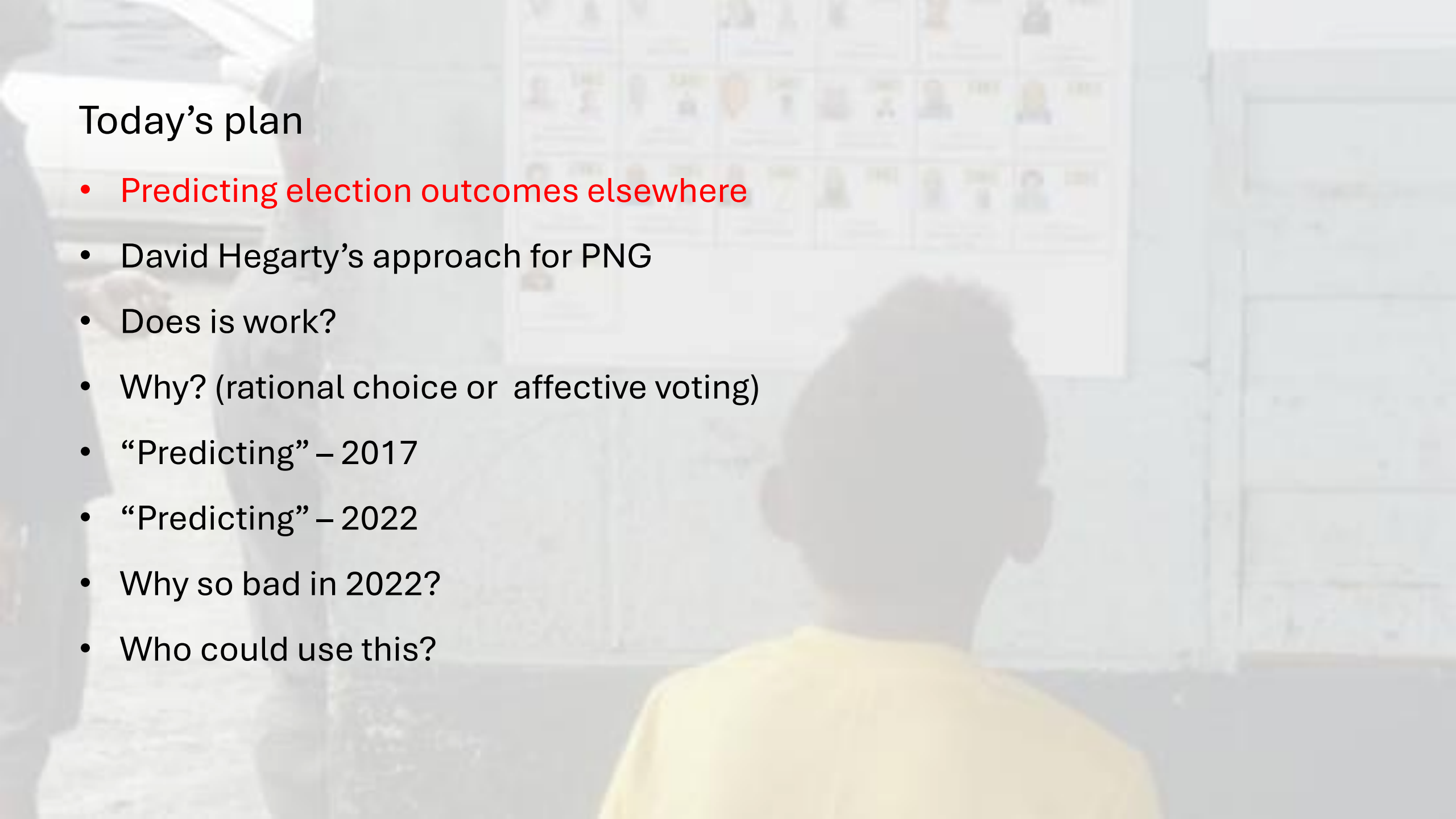


Is it possible to predict election outcomes in Papua New Guinea?

terence.wood@anu.edu.au

Today's plan

- Predicting election outcomes elsewhere
- David Hegarty's approach for PNG
- Does is work?
- Why? (rational choice or affective voting)
- "Predicting" – 2017
- "Predicting" – 2022
- Why so bad in 2022?
- Who could use this?



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Polling: sample many people and ask who they're going to vote for

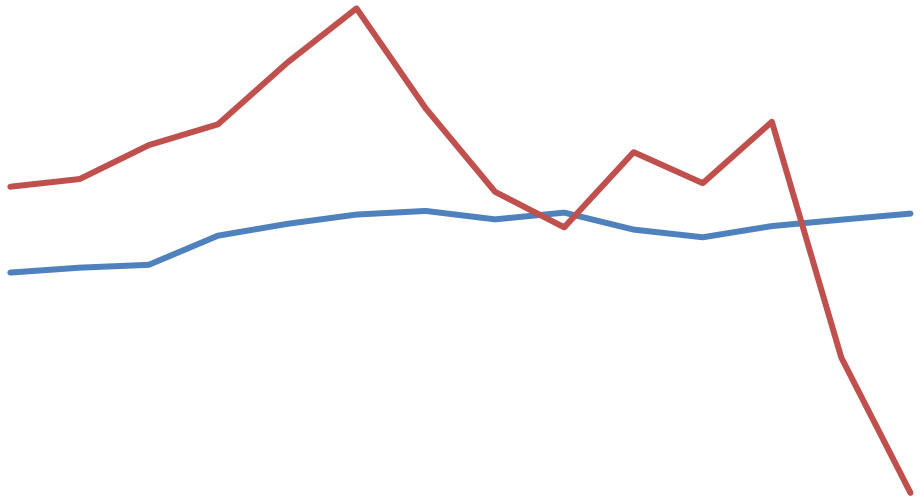
Often does pretty well

No use in PNG though

Surveys too expensive

Polling national – electoral contests local

Fundamentals approach



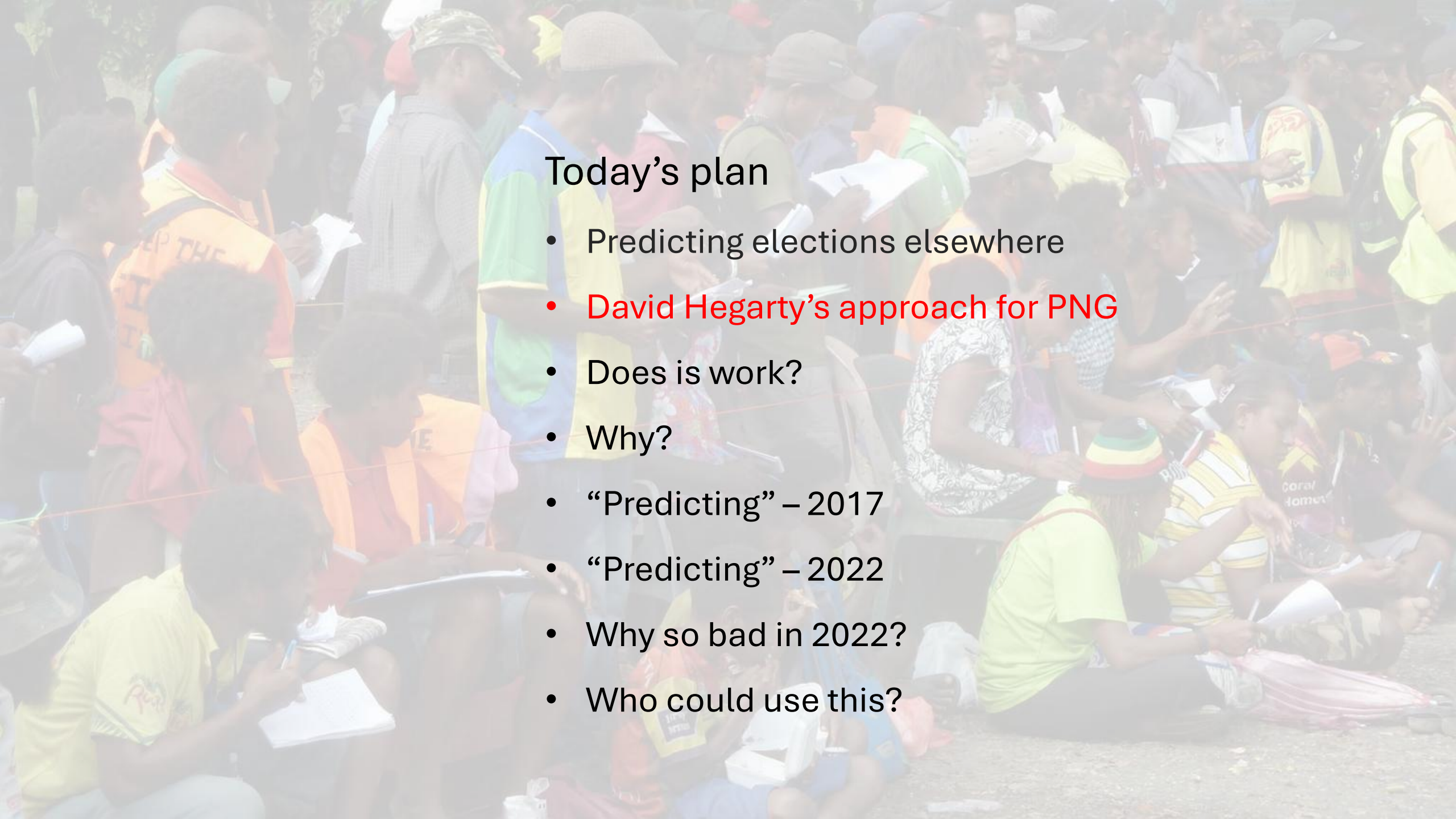
Use other variables – unemployment, inflation, growth – to predict outcomes.

Works well in some countries.

Might be hard to get good data in PNG.

Will only national results.

But in PNG want to know electorate results.



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David Hegarty's approach

The Hegarty Model (my name for it)

David Hegarty – Senior Lecturer at UPNG

Later SSGM at ANU

ELECTORAL VULNERABILITY IN PAPUA NEW GUINEA

DAVID HEGARTY

SENIOR LECTURER

POLITICAL AND ADMINISTRATIVE STUDIES DEPARTMENT

U.P.N.G.

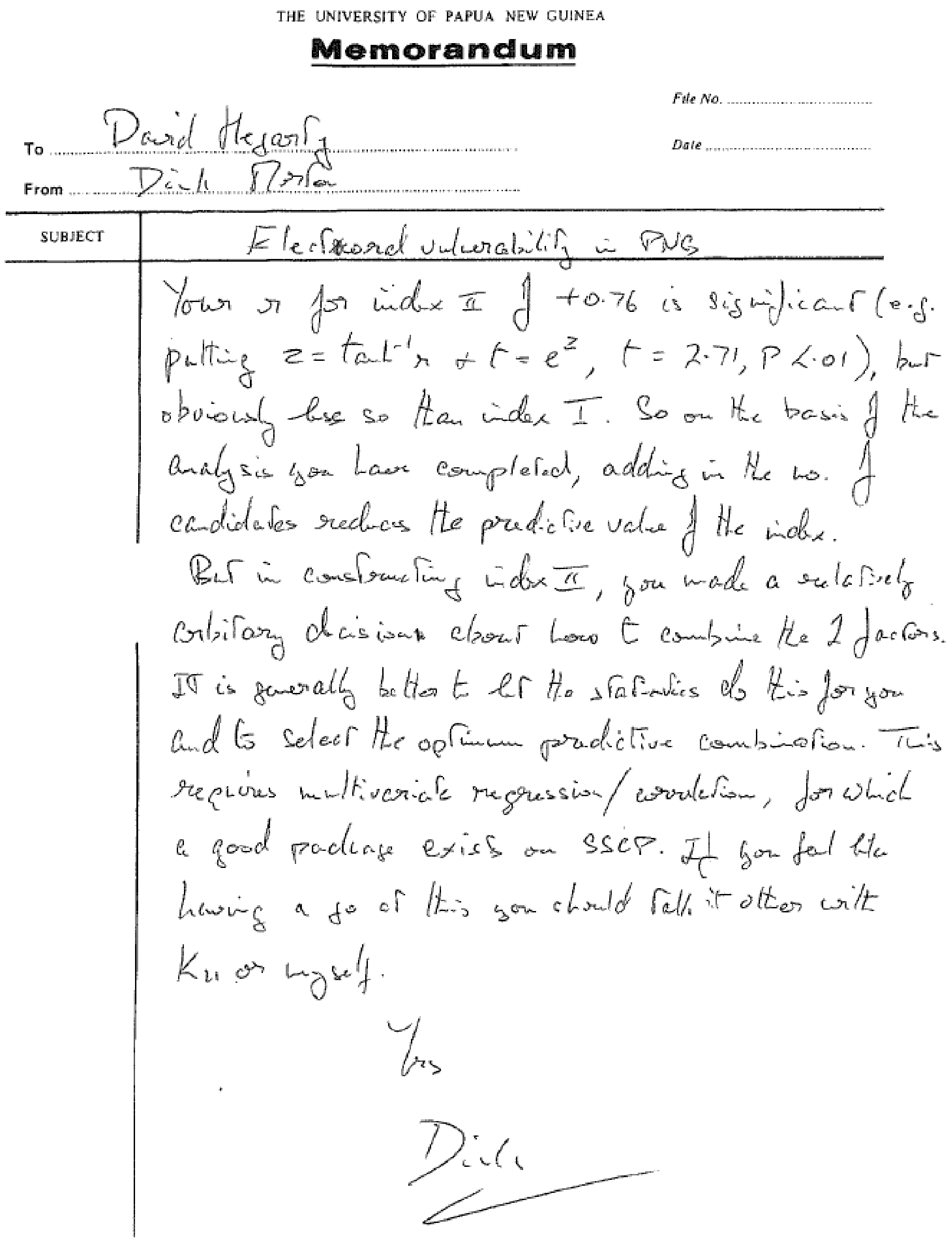
(Draft paper presented at Political Studies Seminar UPNG, on 7 June, 1982.

The paper should be treated as a rough draft only, and I would welcome comments and criticisms.)

David’s idea was that in PNG you can predict the probability the incumbent will be re-elected based on number of candidates standing against him (usually him).

David tested this in 1982 using results from the 1977 general election.

He found a clear correlation.


THE UNIVERSITY OF PAPUA NEW GUINEA

Memorandum

File No.

Date

To David Hegarty

From Dick [illegible]

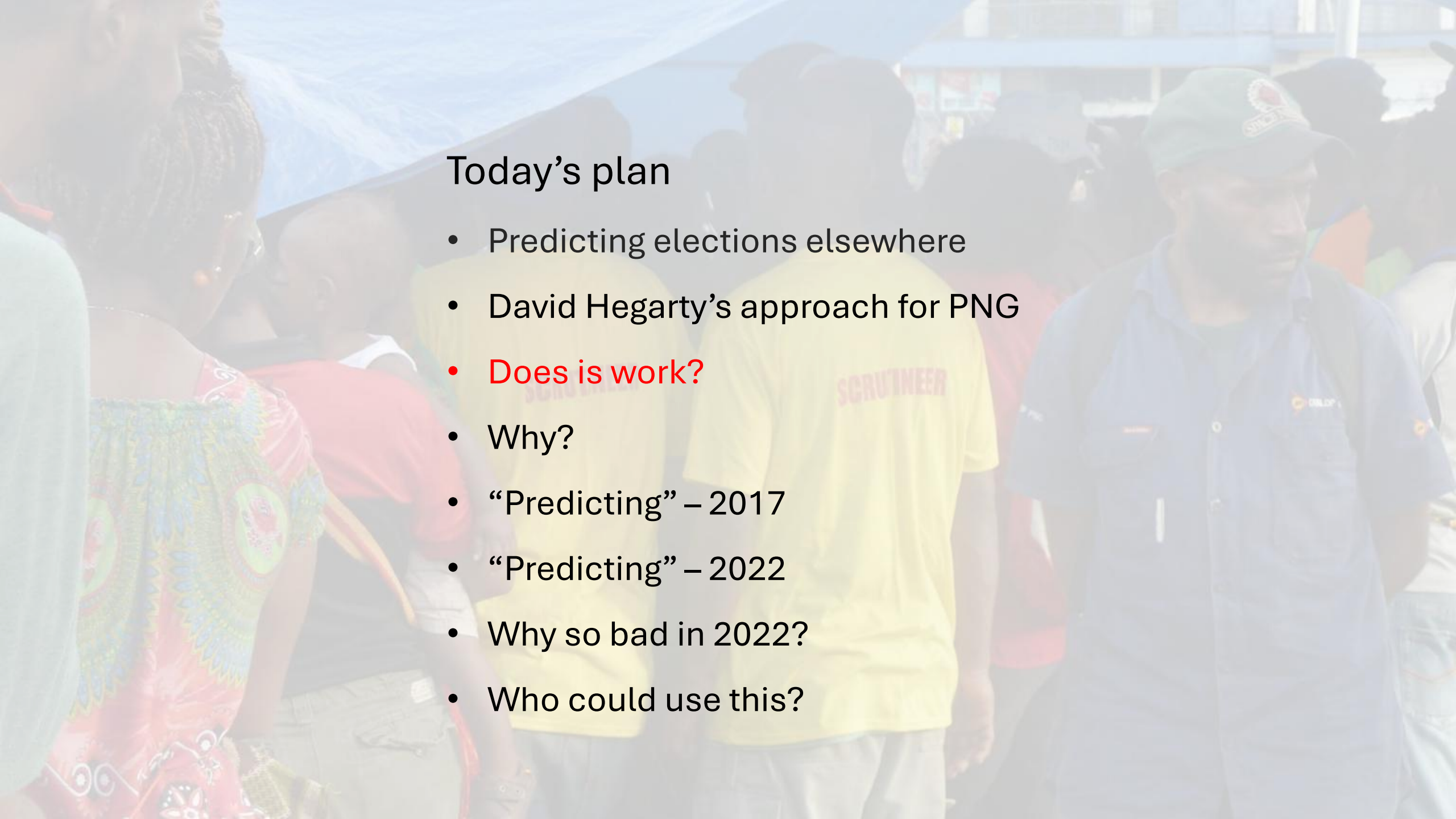
SUBJECT Electoral vulnerability in PNG

Your r for index II of +0.76 is significant (e.g. putting $z = \tanh^{-1} r$ & $t = e^z$, $t = 2.71$, $P < .01$), but obviously less so than index I. So on the basis of the analysis you have completed, adding in the no. of candidates reduces the predictive value of the index.

But in constructing index II, you made a relatively arbitrary decision about how to combine the 2 factors. It is generally better to let the statistics do this for you and to select the optimum predictive combination. This requires multivariate regression/correlation, for which a good package exists on SSCP. If you feel like having a go at this you should talk it over with Ken or myself.

Yrs

Dick



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After David came up with it, it was left unexamined for 30 years.

Until Jon Fraenkel told me about it and David gave me his original paper in about 2012.

I've mulled over David's approach ever since. And tinkered with it, but never really tested in properly.

Not necessarily true that the model was worthwhile.

David's study involved predictions for 1977 using 1972 and 1977 data.

That's a one off. Maybe a fluke.

And a long time ago. Things have changed a lot since then.

So we need to know if relationship is robust / still found in data across time?

Using data for all post independence elections, I used multiple regressions to see if the following variables were correlated with likelihood incumbent was re-elected:

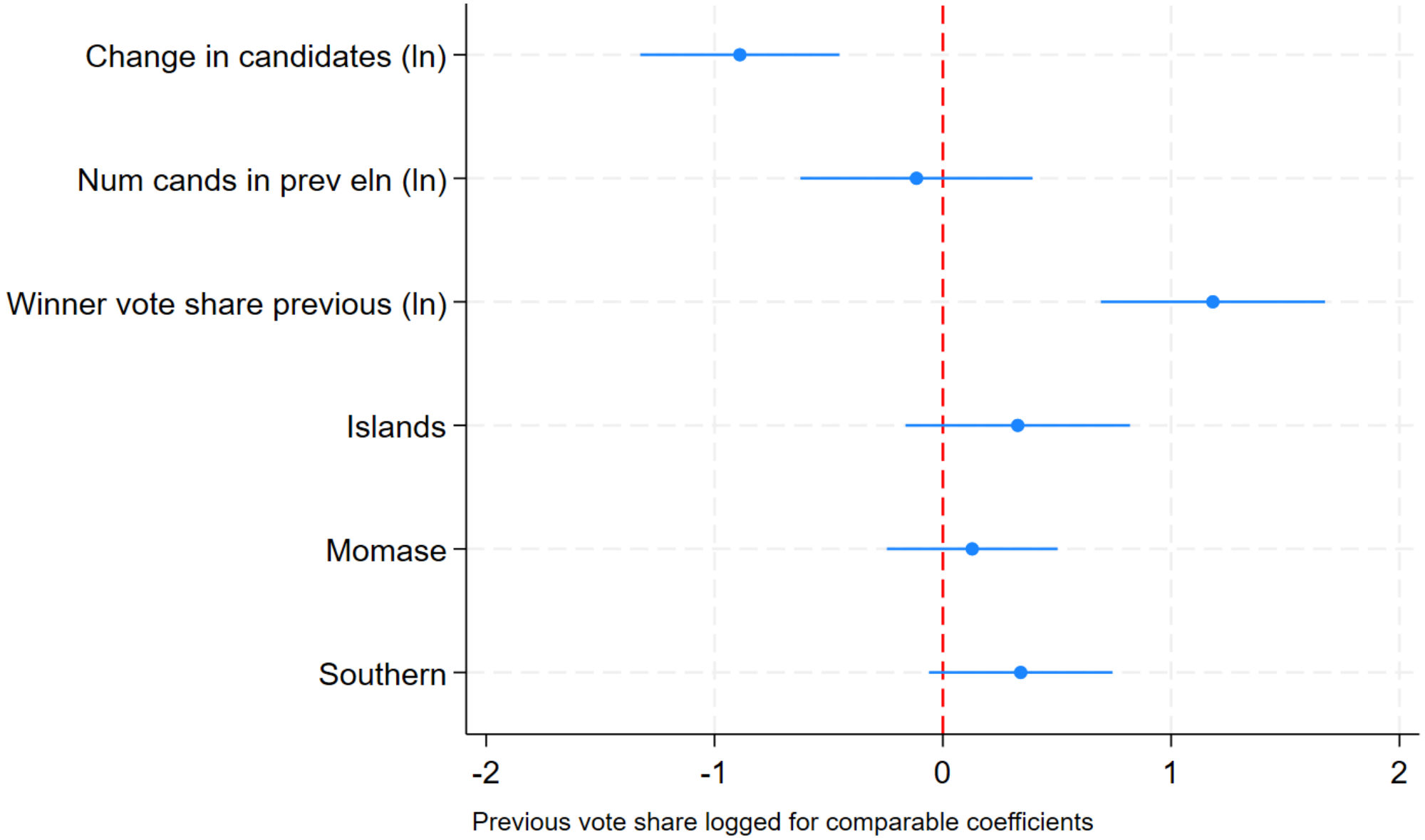
- Change in candidate numbers
- Candidate numbers in previous election
- Winner vote share in previous election

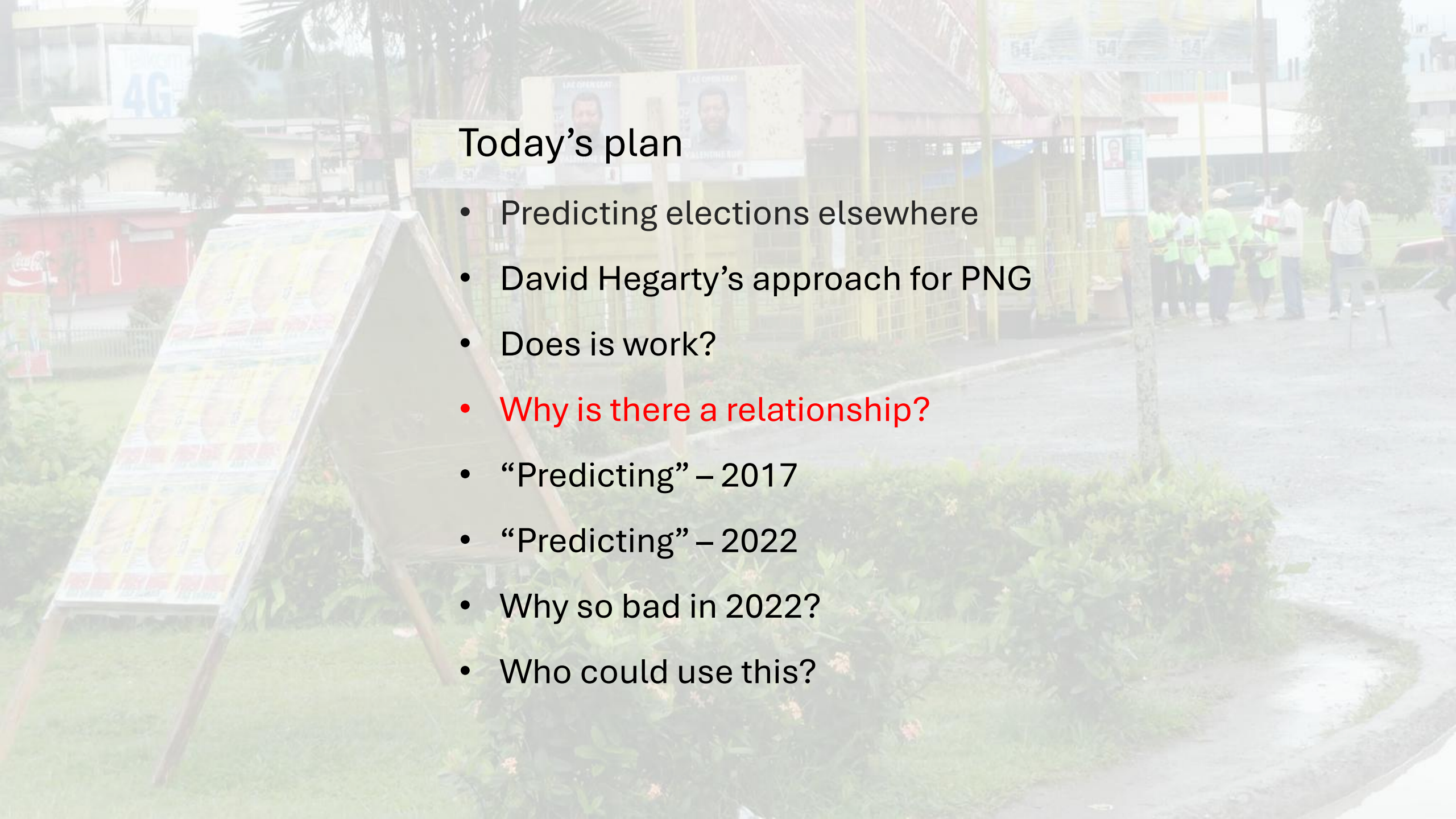
Also, to reduce risk of false positives, controlled for:

- Region fixed effects
- Year fixed effects

Log odds ratio of incumbent win = α + change in candidate numbers (ln) + candidate numbers $(\ln)_{t-1}$ + winner vote share$_{t-1}$ + region fixed effects + year fixed effects + ε

Incumbent wins – data from all elections since independence





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Rational calculation

It’s easier to beat a weak incumbent.

So when incumbent is unpopular (weak) more candidates stand against them, thinking their chances of winning are higher.

Therefore, correlation.

Correlation caused by candidate calculation of chances of winning.

Affective decision making

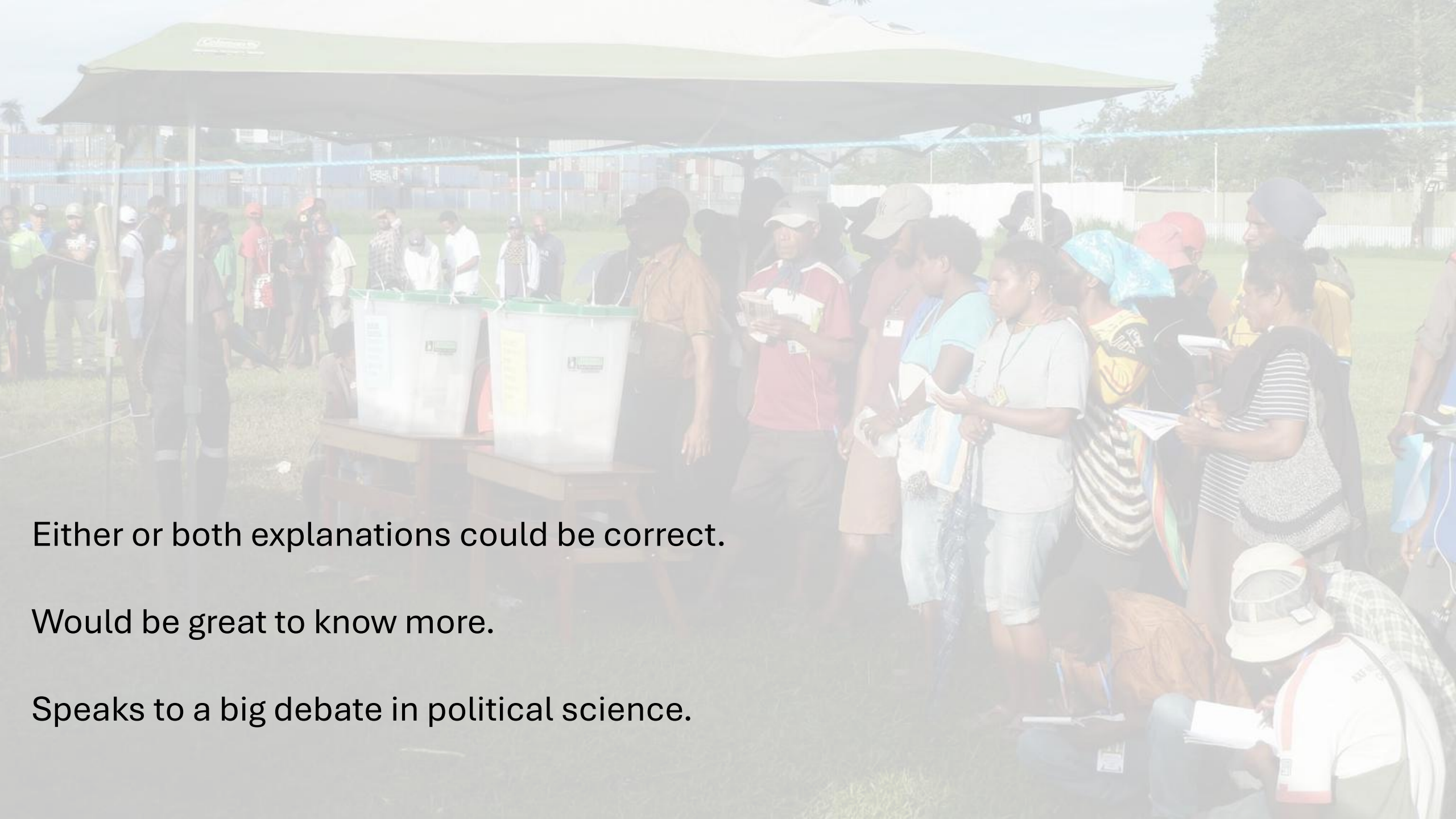
Idea suggested to me by the late Bill Standish.

When MP is not assisting people, people get angry.

Frustration means more candidates stand against MP.

Frustration also means MP more likely to lose.

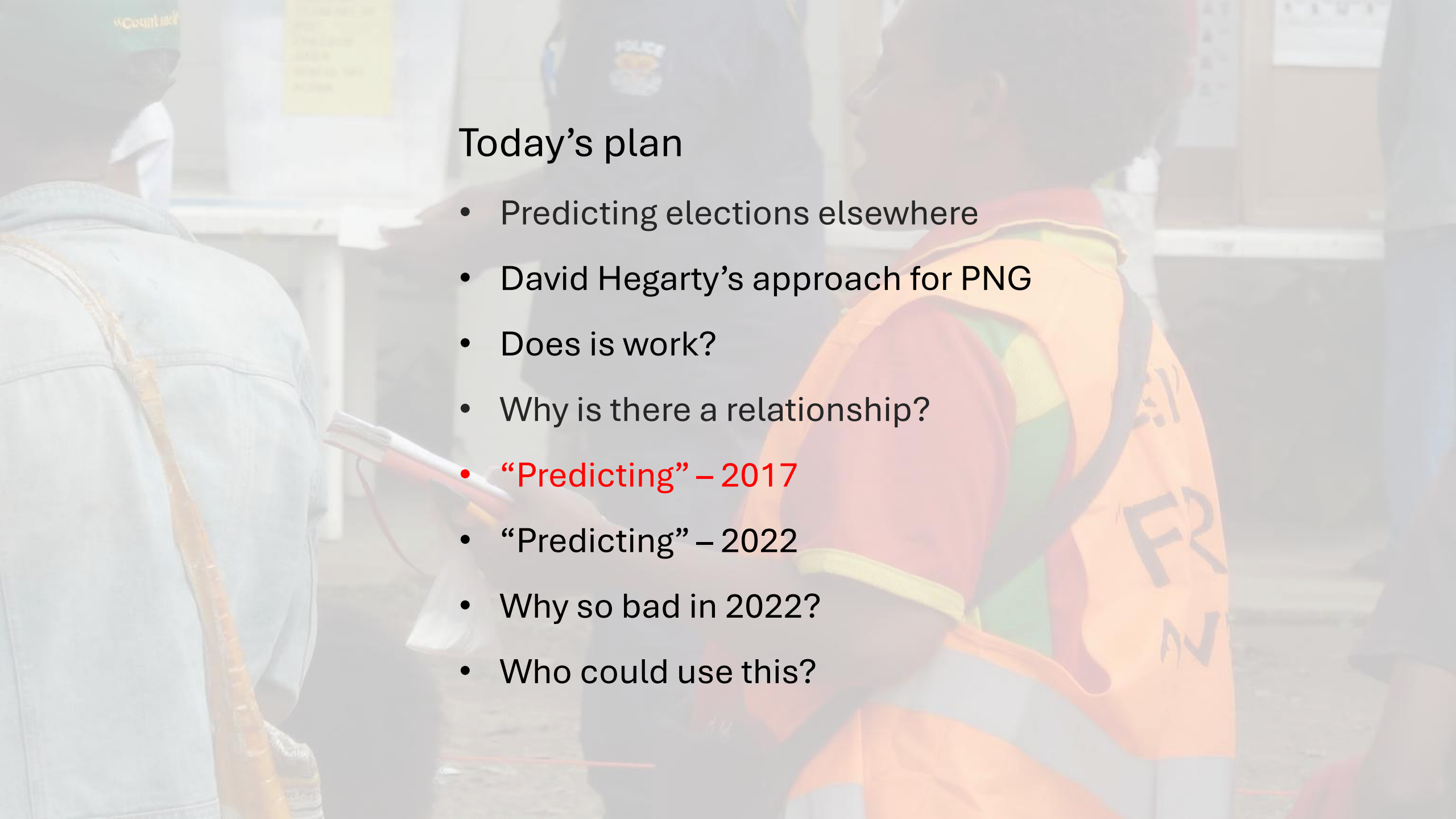
Link between candidate numbers and outcome is mediated by emotion.



Either or both explanations could be correct.

Would be great to know more.

Speaks to a big debate in political science.



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Interesting to know there's a relationship but what we want to know is whether you can predict elections with it.

Can't do this for 2027 yet.

But can "predict" by taking coefficients from regressions run on earlier years to generate predictions, and testing these predictions against what happened in 2017 and 2022.

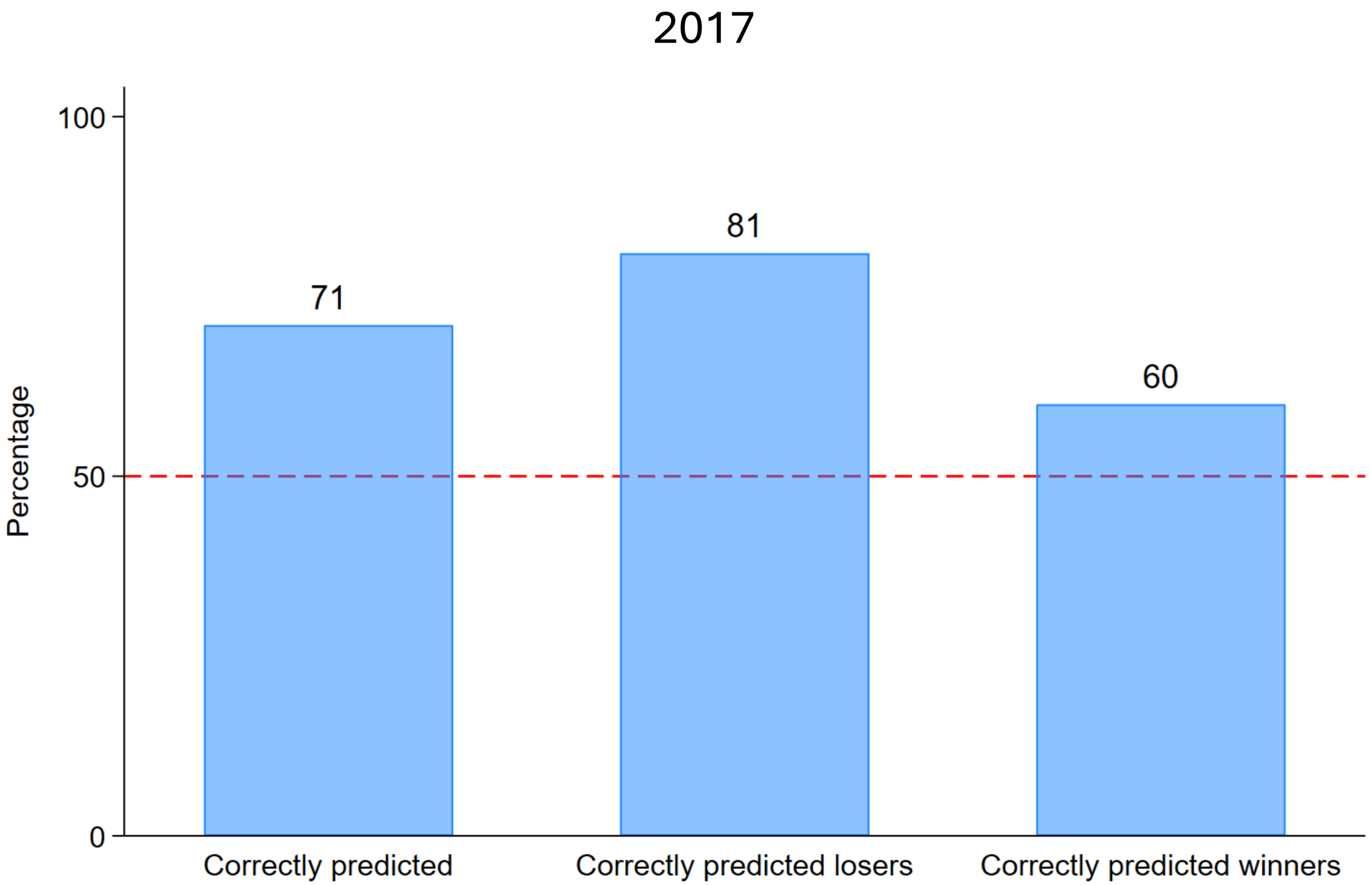
Illustrates how good model could be at predicting.

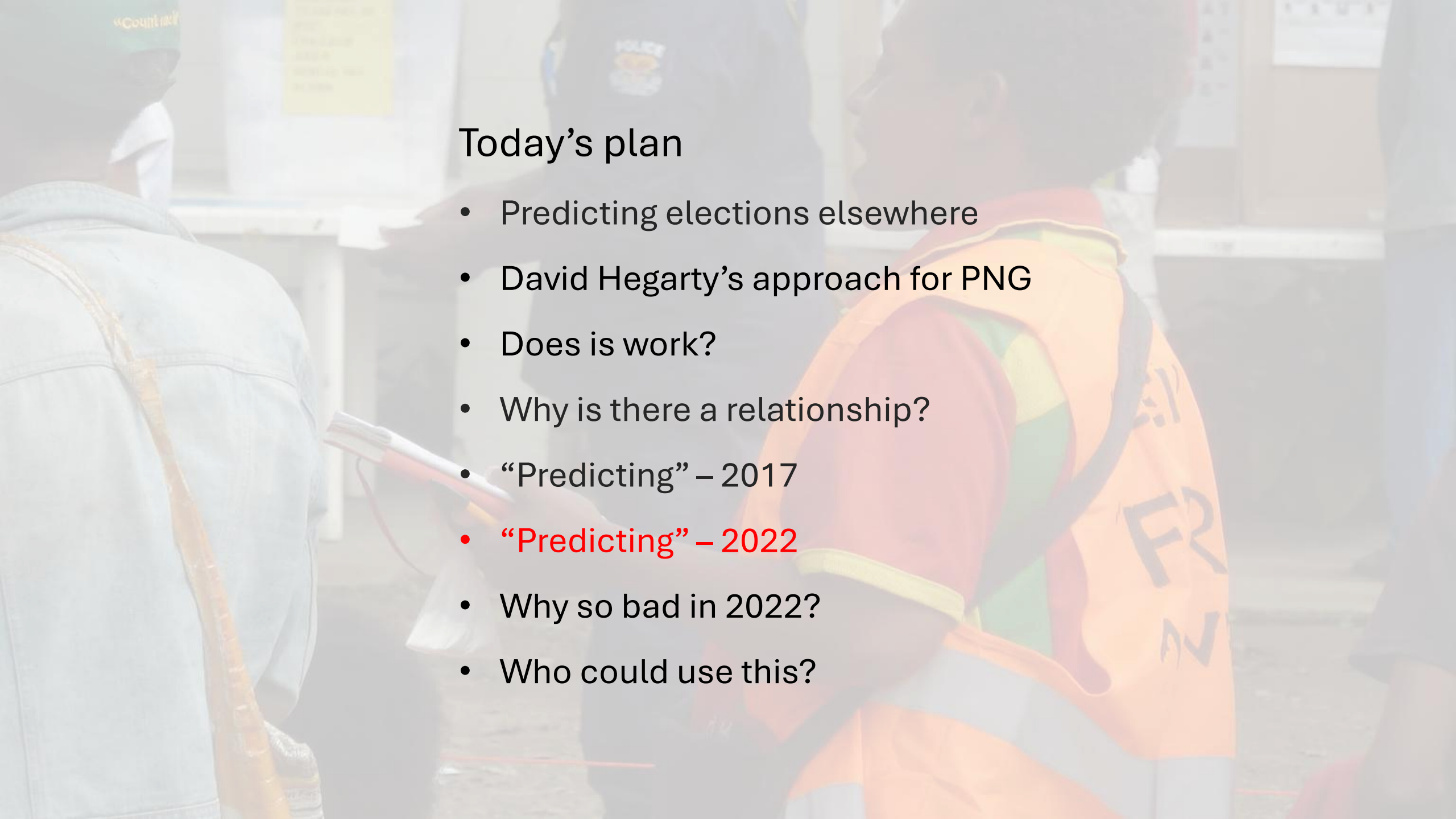
Same model, with one difference:

Incumbent victory is regressed against:

- Change in candidate numbers
- Candidate numbers in previous election
- Winner vote share in previous election
- Region fixed effects
- Year (linear trend)

And only using previous years' data


2017
100
50
0
Percentage
71
81
60
Correctly predicted
Correctly predicted losers
Correctly predicted winners



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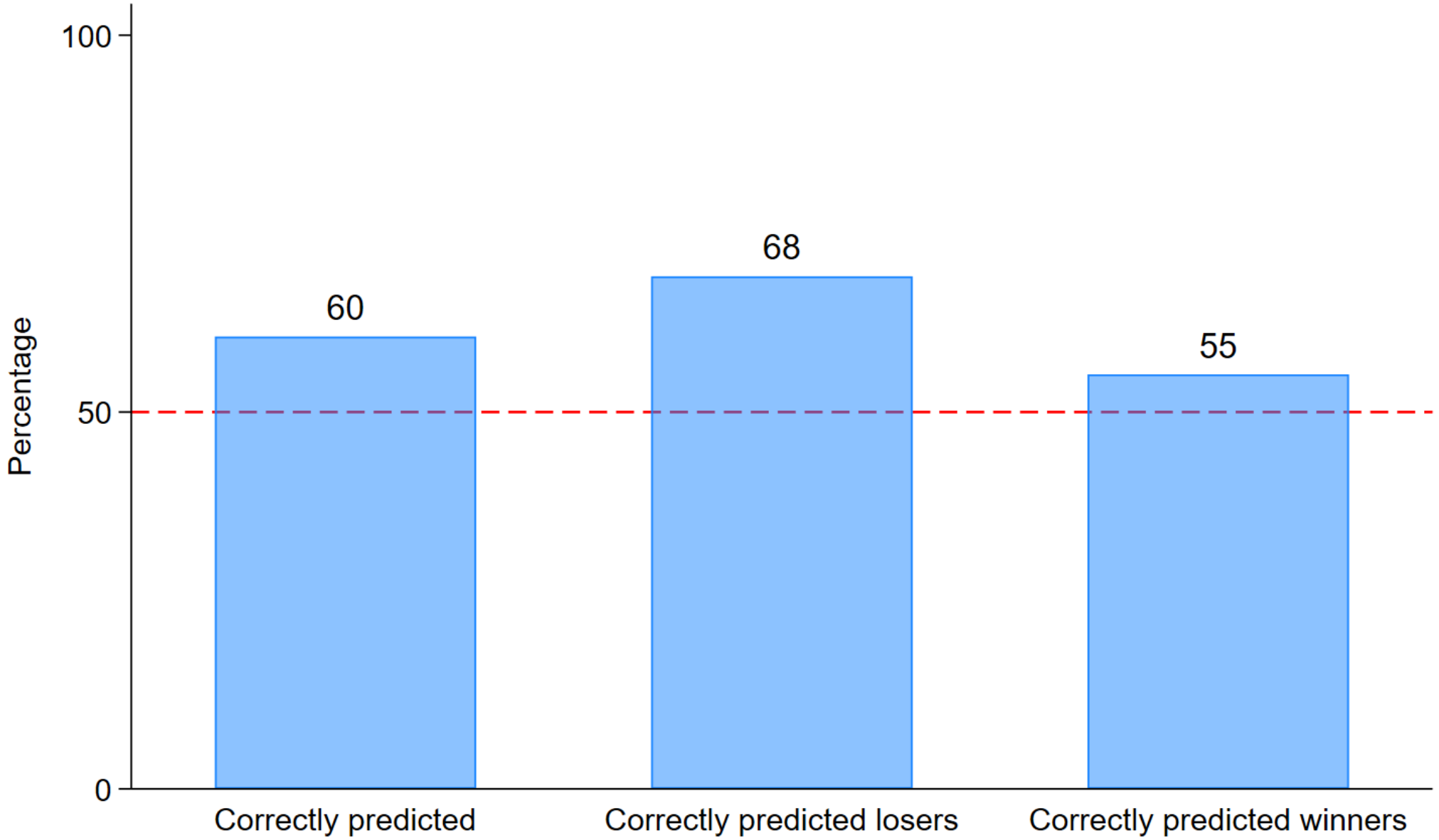
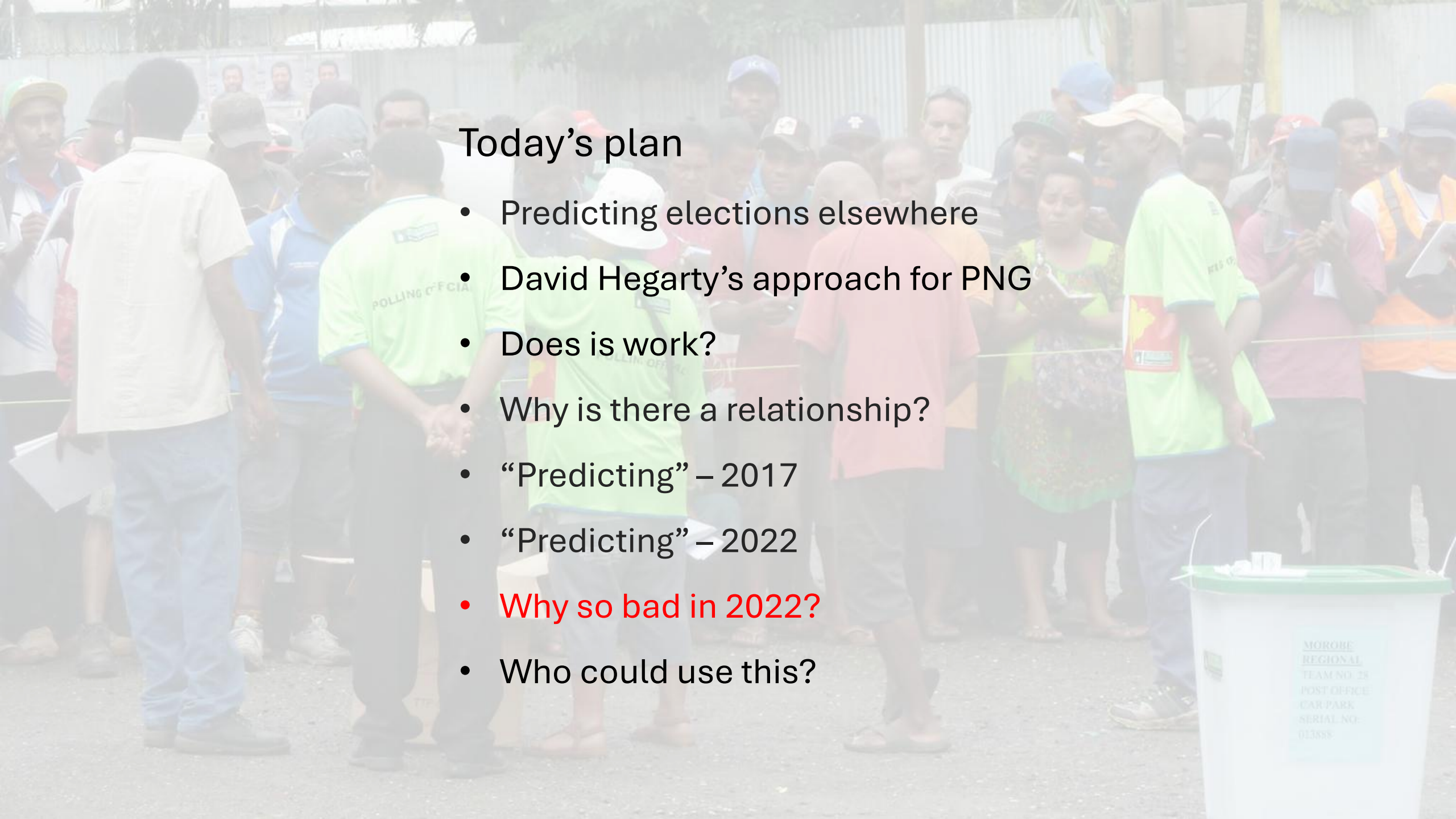
2022


100
50
0
Percentage
60
68
55
Correctly predicted
Correctly predicted losers
Correctly predicted winners



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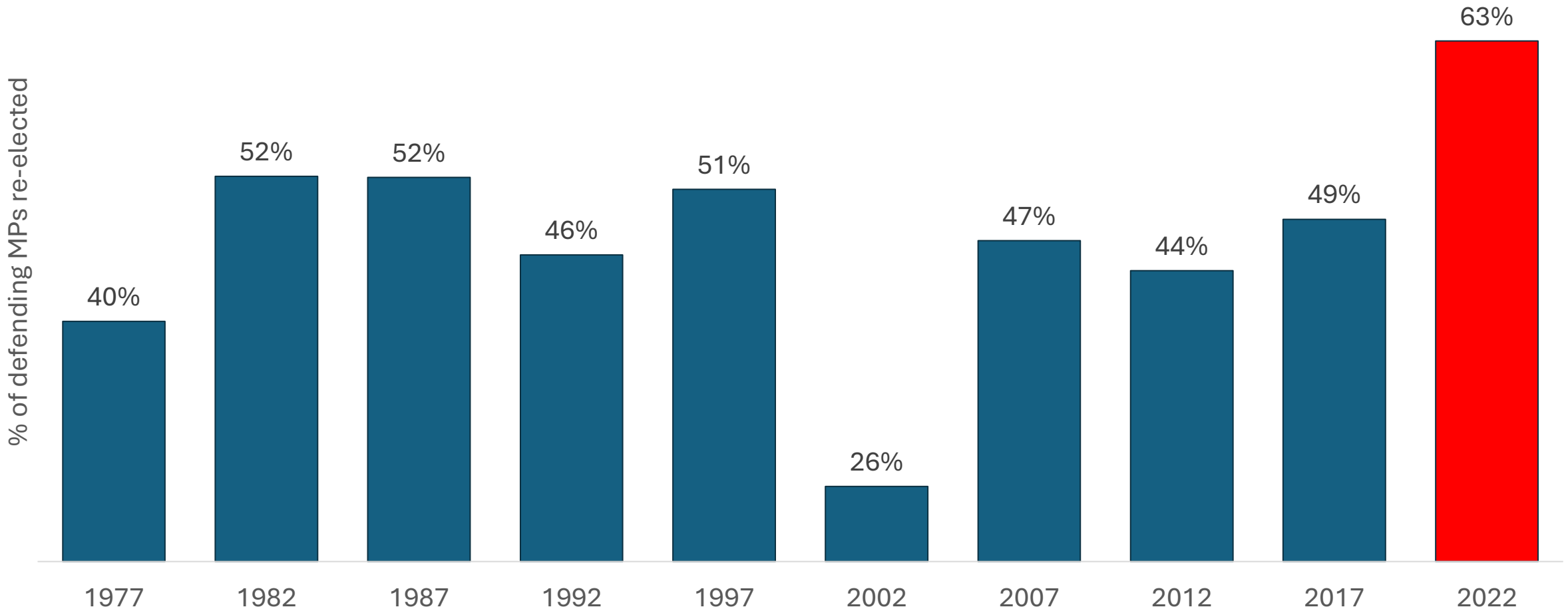
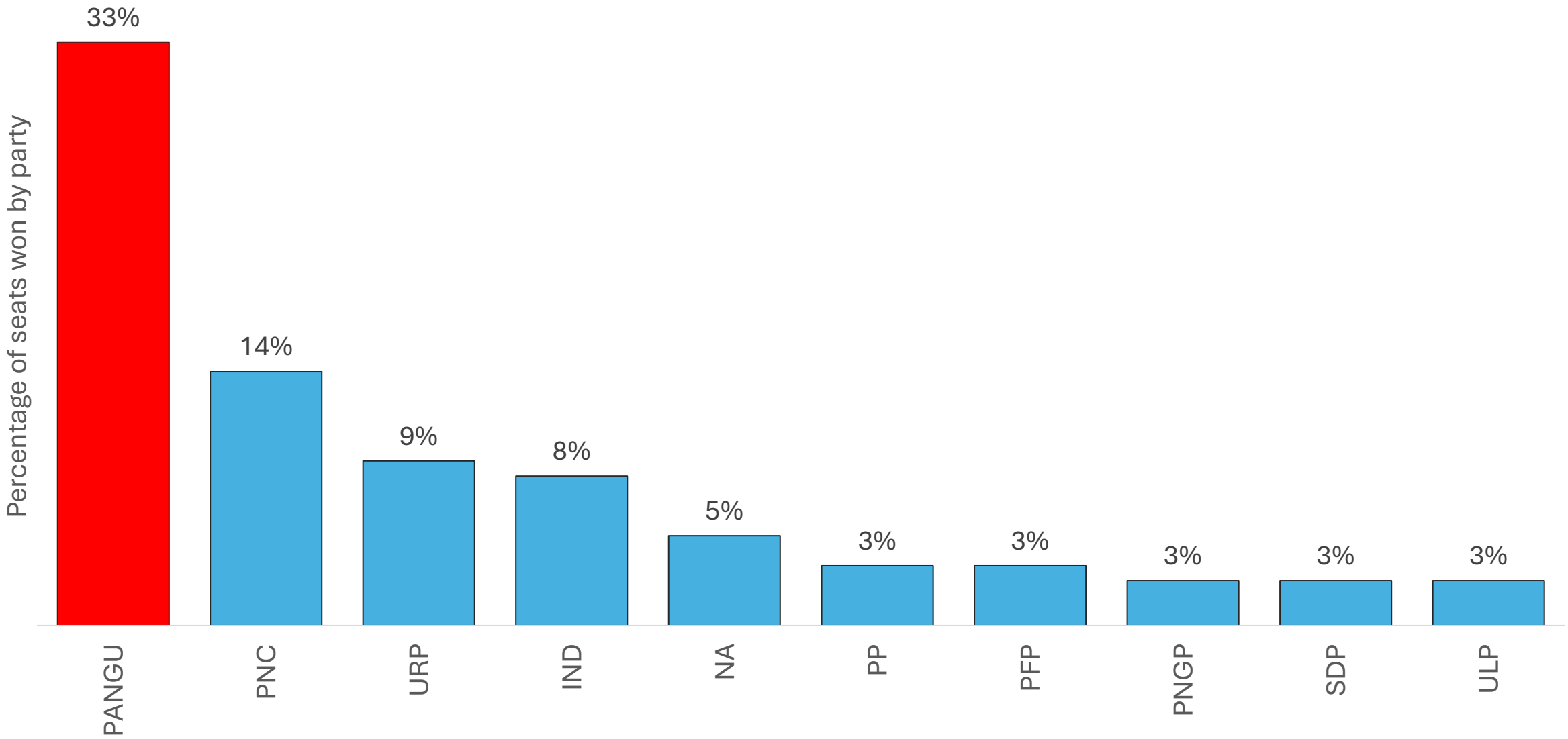
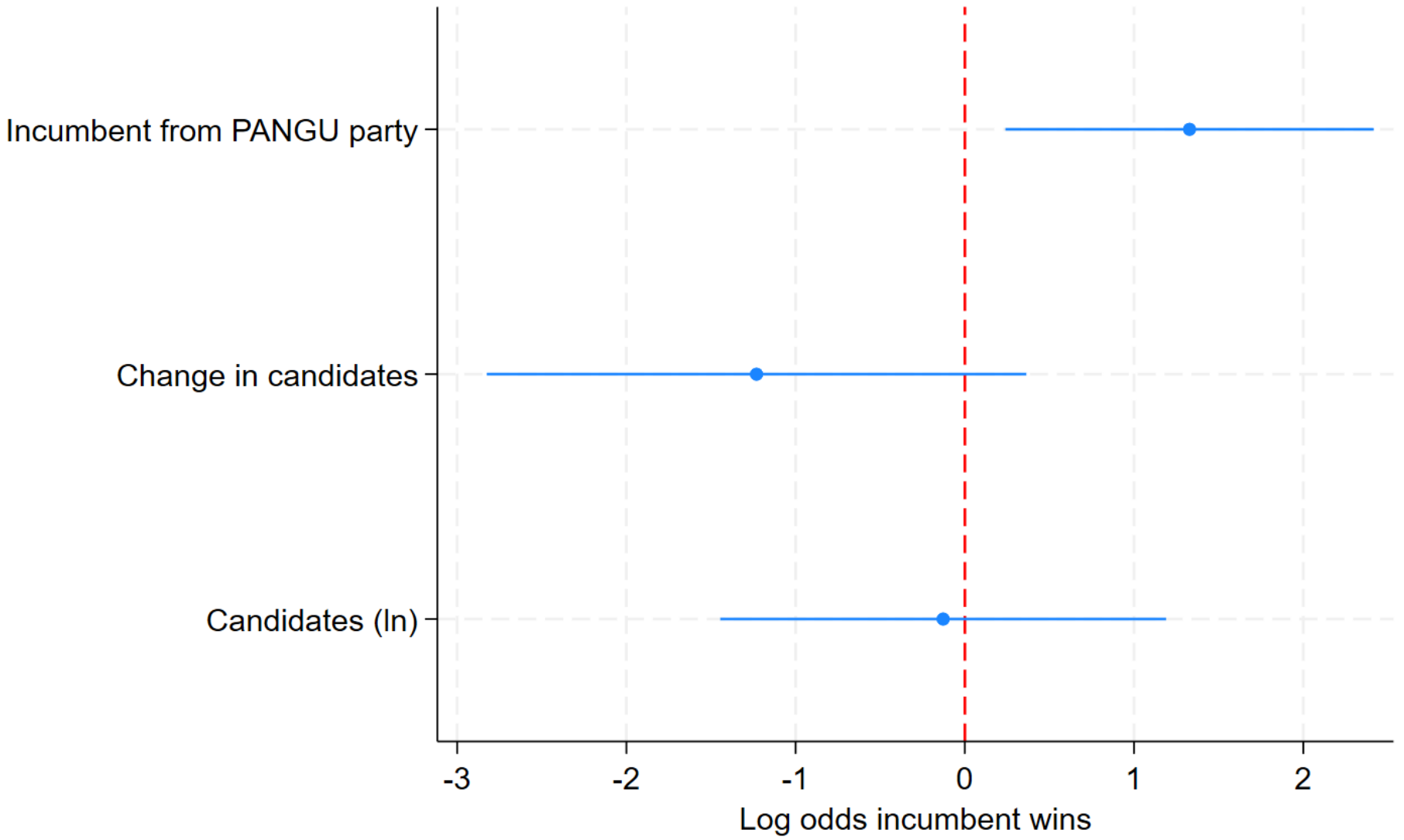
2022 was a very unusual election



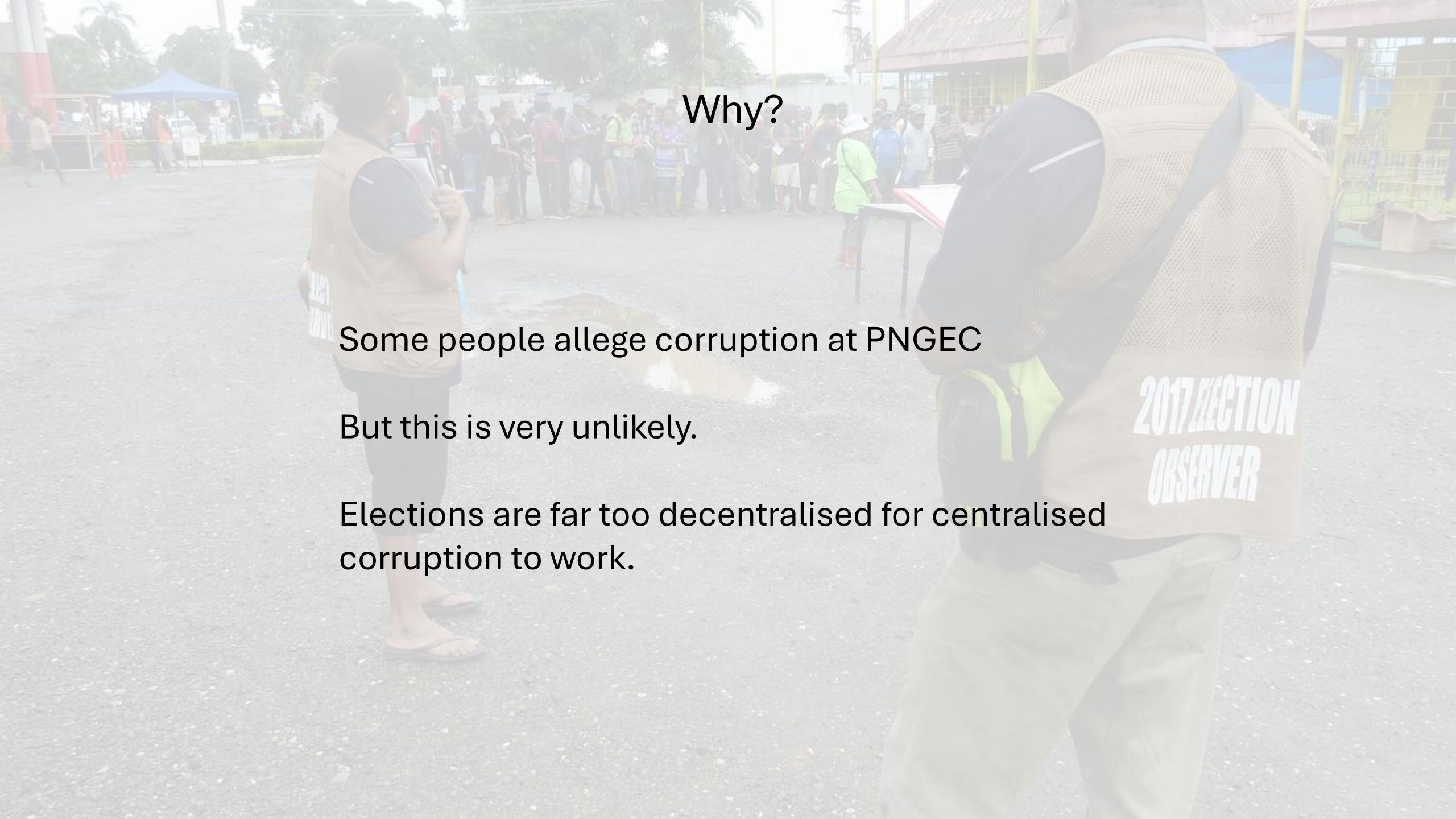
2022 was a very unusual election



PANGU **incumbents** more likely to win even taking into account candidate numbers



Caveats: doesn't work with regional FE. Clearer in first preference results. Government effect instead?

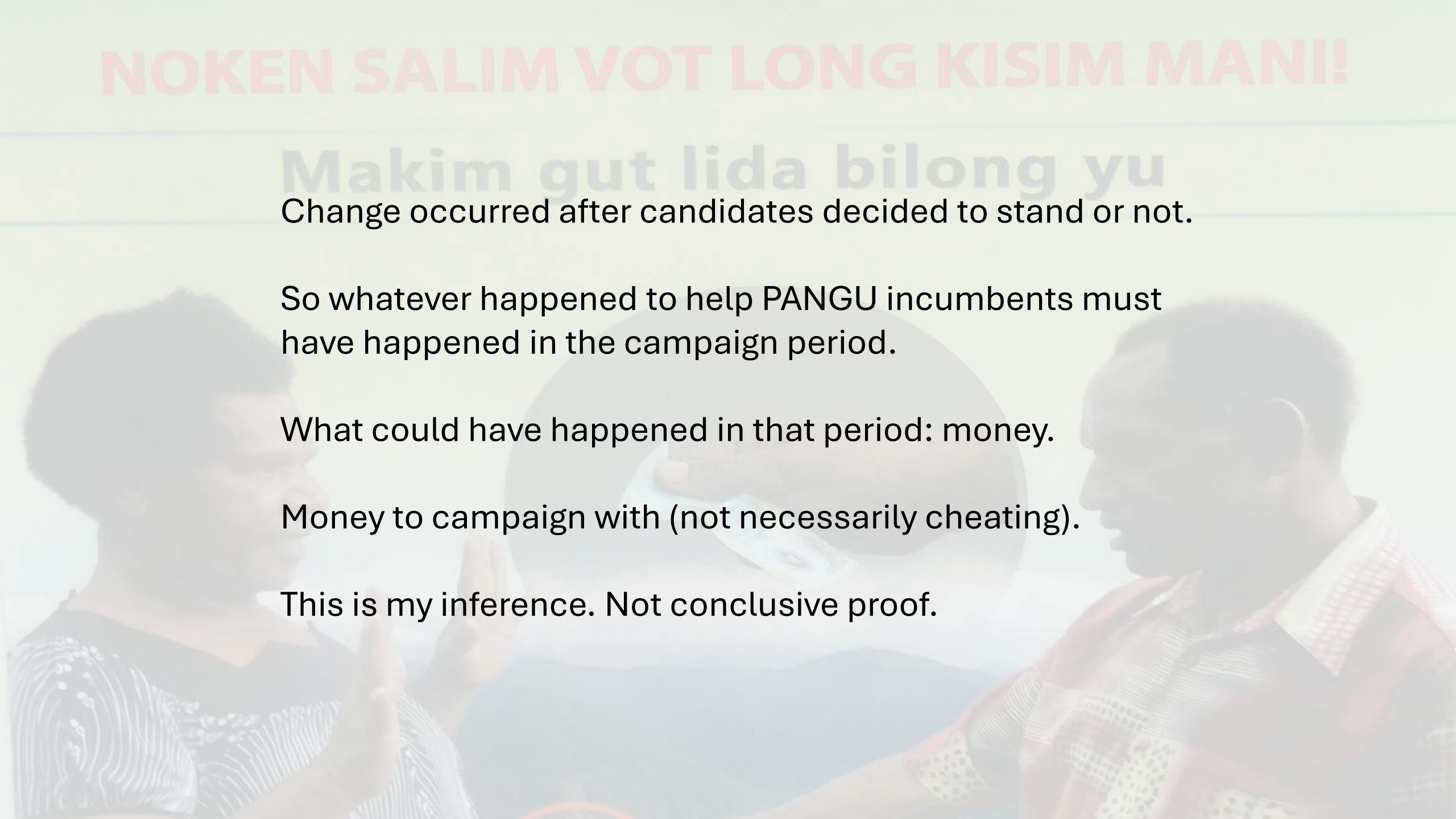


Why?

Some people allege corruption at PNGEC

But this is very unlikely.

Elections are far too decentralised for centralised corruption to work.



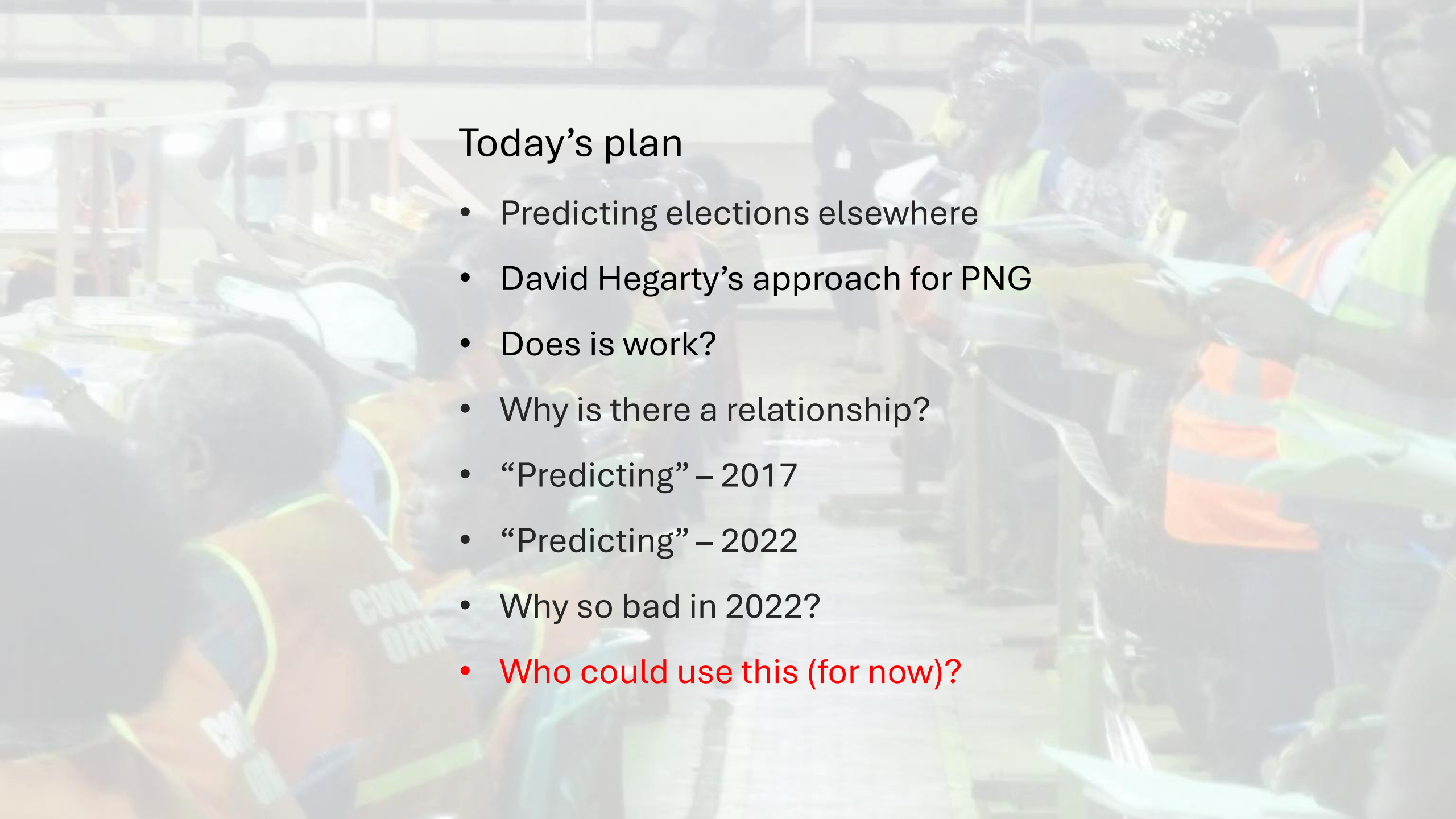
Change occurred after candidates decided to stand or not.

So whatever happened to help PANGU incumbents must have happened in the campaign period.

What could have happened in that period: money.

Money to campaign with (not necessarily cheating).

This is my inference. Not conclusive proof.



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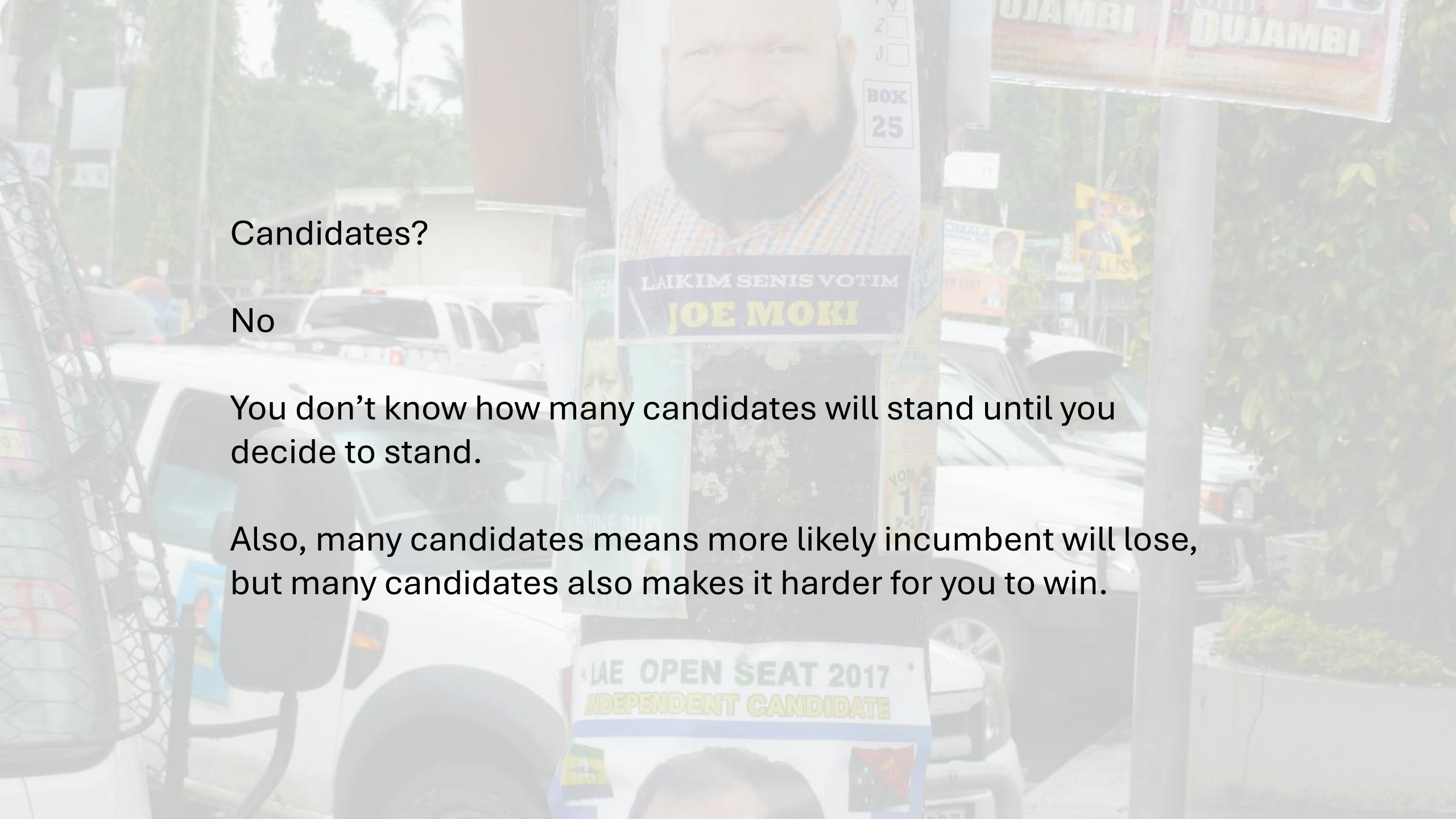
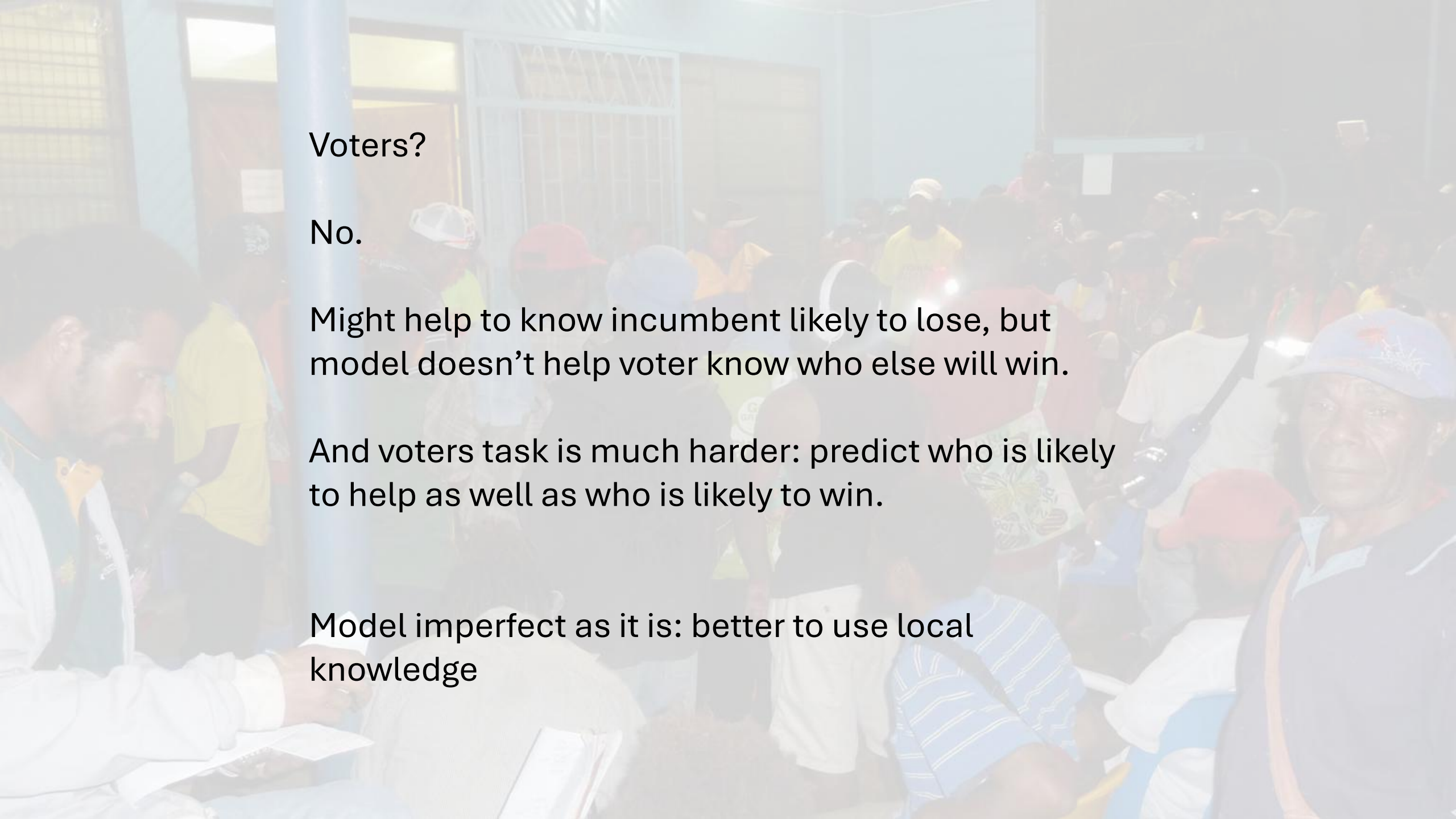


Candidates?

No

You don’t know how many candidates will stand until you decide to stand.

Also, many candidates means more likely incumbent will lose, but many candidates also makes it harder for you to win.



Voters?

No.

Might help to know incumbent likely to lose, but model doesn’t help voter know who else will win.

And voters task is much harder: predict who is likely to help as well as who is likely to win.

Model imperfect as it is: better to use local knowledge

Diplomats

Presumably would like to know who they will and won't have to deal with next year.

However, except at extremes model not yet that accurate.

Don't burn any bridges yet.

Academics

Yes.

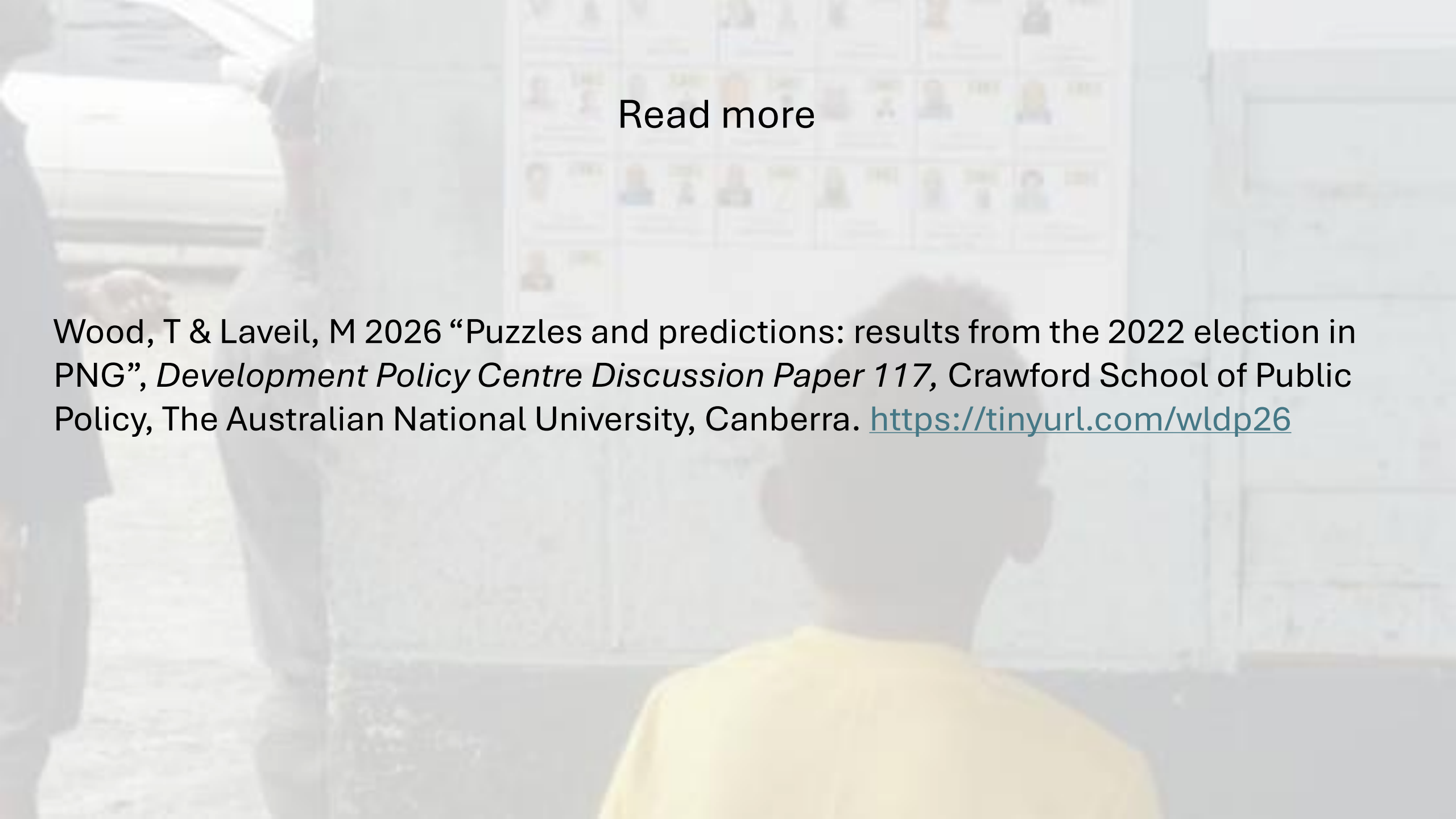
Can improve model – many other variables if we can get data.

One day as good as polling.

Learn more about what affects results.

Learn more about election dynamics.

Learn more generally – generate questions.



Read more

Wood, T & Laveil, M 2026 “Puzzles and predictions: results from the 2022 election in PNG”, *Development Policy Centre Discussion Paper 117,* Crawford School of Public Policy, The Australian National University, Canberra. https://tinyurl.com/wldp26

Questions?