

What has limited preferential voting changed in Papua New Guinea?

Terence Wood, Maholopa Laveil and Michael Kabuni

Abstract

Limited preferential voting (LPV) replaced first past the post in the wake of the 2002 general elections in Papua New Guinea (PNG). The change was the source of high hopes of better electoral quality and political governance, particularly among policymakers, civil society and the international community. Among academic observers, the shift brought debate, with proponents and opponents disagreeing about whether something as simple as a change in electoral rules could overcome serious political problems. Twenty years on and three LPV general elections later, we take the opportunity to examine LPV's impact on electoral processes and outcomes, as well as governance more generally, in PNG. We find no evidence of large changes — either positive or negative — stemming from the shift in electoral systems. However, we do find some evidence of smaller benefits and costs, as well as tantalising hints of possible future potential. LPV has failed to deliver as was hoped, yet it has brought some change, and there remains a case for keeping the system in PNG.

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1 Introduction

In the wake of the 2002 general election, Papua New Guinea (PNG) changed electoral systems. Since independence, PNG had used a single member district plurality (or first past the post) electoral system. After 2002, it started using a system of limited preferential voting (LPV).¹ Unlike first past the post, in which voters simply placed a cross by the name of the candidate they wished to cast their ballot for, under LPV voters rank their three most preferred candidates by writing '1', '2' and '3' by their names.

If a candidate wins more than 50 per cent of valid first-preference votes, they win the seat. If no candidate has an outright majority, the lowest-polling candidate is eliminated and their ballots reallocated according to the voters' second or, if necessary, third preferences. If a voter's first, second and third most-preferred candidates have been eliminated, the voter's ballot is considered 'exhausted', and no longer counted. The counting process continues until one candidate wins more than 50 per cent of the of non-exhausted ballots left in the race. LPV is used both when voters vote for their electorate's MP and their province's governor.²

At the time of the change, it was hoped that LPV would modify the electoral calculus of voters, who would no longer be trapped in an all or nothing decision about who they supported, but who would instead be able to offer varying degrees of support to three different candidates. One predicted consequence was that candidates would be elected with the backing of larger shares of their electorate, which would cause them to focus their governing efforts less on rewarding their supporters with patronage, and more on governing for the greater good. It was also argued that LPV would change the nature of

¹ LPV was legislated for in 2001. It was not, however, used in the 2002 general election. Its first use occurred in a series of post-2002 by-elections.

² Voters in PNG cast two separate ballots, one for the provincial governor, who will represent their province in the national parliament, and one for the MP who will represent their electorate in the national parliament. Although it has a dual ballot system, PNG has a unicameral parliament with provincial and electorate MPs sitting together in the same chamber, and having the same voting rights.

campaigning, making campaigning less confrontational and more strategic, with candidates collaborating more as they sought not only to win first preference votes, but also the second and third preference votes from supporters of other candidates (Reilly 2001, 2006).

Scholarly advocates of LPV, while supporting the change, tended to qualify their claims — LPV would bring better governance, but not wholesale transformation; LPV would reduce electoral conflict, but not eliminate all violence. Hopes were higher, however, among civil society, government reformers and aid donors. Some donor-funded material went so far as to promise more representative democracy, better governance, improvements for women and better development outcomes all at once (Electoral Reform Project 2001; Reilly 2021; Standish 2006).

High hopes were understandable. Governance had become worse, not better, in PNG since independence. The 1990s had been a very troubled decade with political scandals, conflict and economic crises (ANU-UPNG Partnership 2021; May 2003). The 2002 general elections, held under first past the post, had suffered from unprecedented violence, particularly in the Highlands (Gibbs et al. 2004; Laveil 2021; May 2003; Standish 2003). There was a clear need for improvement and it is easy to see why many latched on to what they saw as LPV's potential.

There were sceptics though, especially in academia. The sceptics argued that LPV would increase the complexity and cost of elections, while failing to improve electoral outcomes (Fraenkel 2004a; May 2003; May et al. 2011b; Standish 2006).

However, academic debates from the time of the electoral change were largely hypothetical: there were few precedents from other countries with similar ethnic fragmentation, poverty, geography and governance issues as PNG. Theoretical arguments could be made, but applying theory in a predictive manner to the complexities of the political economies of developing countries is hard (Banerjee & Duflo 2012; Rodrik 2007). The best serious evidence that did exist at the time came from PNG's own pre-independence elections, which were run under a form of preferential voting. These elections appeared to be more collaborative and less conflictual

(Reilly 1996, 1997). Yet the preferential electoral system used in pre-independence PNG differed in one important respect — the elections were not held in a sovereign state but rather managed to a significant extent by Australia, the colonial power. Evidence from pre-independence elections was suggestive, but no substitute for evidence from LPV itself used in an independent polity.

The first post-2002 by-elections held under LPV provided somewhat better evidence of what to expect going forward. The results of these elections were encouraging: violence was lower than in the 2002 general election, and campaigning more collaborative (Reilly 2006; Standish 2006). But even so, the by-elections differed in important ways from general elections: it was much easier for the PNG Electoral Commission (PNGEC) and security forces to focus on single by-elections, and to ensure they were conflict free. Moreover, the electorates involved in the by-elections were not necessarily representative of PNG as a whole (Reilly 2006).

Better evidence still started to emerge from the 2007 general elections, the first held under LPV, but even these were unusual elections. After the disastrous 2002 elections, substantial donor, PNG military and PNG government efforts were expended to ensure the 2007 elections were a success. As a result, improvements occurred, but it was unclear to what extent they could really be laid at the feet of LPV (May 2008; May et al. 2011a). It was also unclear if changes would endure over time once voters and candidates adapted to the new system (Standish 2006).

We are now in a somewhat better position to assess LPV's impact in PNG. There have been three general elections (2007, 2012 and 2017) since the system was introduced, and the fourth is scheduled for mid-2022. Papua New Guinea is data poor, and there is still less evidence than would be ideal.³ However, election results, governance data, grey

³ The ongoing paucity of evidence is particularly frustrating given how much energy was devoted to extolling and debating the virtues of LPV at the time it was introduced. To be fair, gathering systematic evidence in PNG is not easy, particularly for individual scholars. However, the international community, in particular, had — and still has — the capacity to gather good evidence on aspects of LPV.

literature and some academic work, now provide a better sense of what LPV has changed and what it has not.

In the remainder of this paper, we draw on available evidence to offer an assessment of LPV's impact. We start by looking at costs, before examining benefits. As we do this, we identify both real costs and what appear to be real gains. Surprisingly, however — given the vigorous academic debate when LPV was introduced, and the hopes vested in the system by civil society, reformers and the international community — one of our central conclusions is that LPV's effects have been limited. All told, it appears that benefits have outweighed costs. Yet, LPV has been anything but transformational. There is some tantalising evidence to suggest LPV might contribute to significant changes in the future, but the evidence is only that: tantalising. In the final section of this paper we conclude with a discussion on whether LPV is a model that warrants exporting to PNG's West Pacific neighbours, as well as whether LPV has a future in PNG. We also offer explanations as to why LPV's impacts have been so limited.

2 The downside of LPV

Two downsides of LPV were anticipated in advance of it being introduced. These were the increased costs associated with LPV, and a rise in invalid ballots as voters made mistakes while casting ballots in the new, more complex, system (Fraenkel 2004b; May 2003; May et al. 2011b; Standish 2006). We cover each of these in turn below. We also cover one other possible downside, which does not seem to have been predicted in advance, but which has been documented in recent elections, and attributed by some authors to LPV: an apparent increase in vote-buying.

2.1 The cost of elections

Running elections in a country as geographically challenging as PNG is not easy. Many of the country's residents live in rural areas a considerable distance from the nearest population centre of any size, and road infrastructure is either non-existent or run down in much of the country (Dornan 2016; Hanson et al. 2001). Violent clan conflict, especially in the Highlands region, as well as urban crime, further add to challenges. As might be

expected given this, elections are expensive in PNG. According to one estimate, the government of PNG spent US\$207 million (in 2012 prices) on the overall process, including security, of running the 2012 general election (Henderson & Boneo 2013, p. 12).

Elections are expensive in PNG — inevitably so. One predicted problem associated with LPV is that it would add to these costs. That LPV has added to costs somewhat seems beyond dispute — it is a more complex system. But the magnitude of LPV's impact is less clear. LPV's impacts on the cost of elections are primarily in the area of ballot counting.⁴ Under first past the post, ballots in most electorates could usually be counted within a day or two. Under LPV, ballot counting, which involves the multiple iterations of preference reallocations in most electorates, now stretches over days, sometimes taking longer than a week. LPV is not the only reason counting has taken longer in recent elections: more votes are being cast, and more candidates standing on average (both trends of increase predated LPV). However, the multiple iterations of preference reallocation, often punctuated by objections from candidates' scrutineers, are the central source of increased counting times. Prolonged counting periods come with a price tag. Ballots need to be kept secure over the counting period, which requires security personnel to guard them. Security personnel are usually also needed to ensure that only electoral officials and recognised scrutineers are allowed into counting centres. Ballot counters need to be employed throughout, as do a range of employees associated with the counting process. A subset of these people will be electoral commission staff or police who would have been paid regardless, but even they are often paid additional allowances, and most employees are temporary hires used for the election alone. Longer counting times of ballots means increased costs. (For a good description of the tasks required in preparing for and running an election, see Papua New Guinea Electoral Commission 2009.)

Unfortunately, itemised budgets of electoral spending, which separate counting costs from other costs, are not made publicly available. As a result, it is not possible to calculate exactly how much prolonged counting periods have added to the overall price of elections.

⁴ LPV may have also slowed down polling times somewhat because voters take longer to rank preferences while in the polling booth, rather than the simple process of indicating support with an X under first past the post. There is no clear evidence this has seriously prolonged the electoral process though.

However, the cost of the ballot count is not the main cost associated with elections in PNG (personal communication from international adviser involved in the 2017 elections). In addition to ballot counting, there is voter education, roll compilation, training of temporary electoral officials, ballot printing and other preparatory tasks that need to be paid for. Then there is the major logistical task of establishing polling stations, getting polling material to and from polling stations, employing polling station officials, and paying for security staff to keep polling stations safe. The advice we have received is that, compared to the overall cost of running elections, counting comes comparatively cheap (personal communication from international adviser involved in the 2017 elections).

Describing the 2017 general election, the PNGEC stated that: ‘approximately 4,800 polling teams conducted voting in approximately 10,800 polling places ... Approximately one-third of polling teams required fixed wing, or rotary-based air transport in the remote mountains and islands of the country’ (Papua New Guinea Electoral Commission 2017, p. 47). By contrast, based on PNGEC data, we estimate that there were just 77 counting centres used in the 2017 election (Papua New Guinea Electoral Commission 2017, p. 50).⁵ Counting centres were always in comparatively easily accessible provincial or district capitals. Counting centres typically require more staff than polling places, and thanks to LPV counting centres must operate for days and occasionally even weeks longer than they had to previously, but there are more than 100 times as many polling places as counting centres. Given this, the advice we received appears very reasonable: counting is not central to overall electoral costs.

In theory, tracking overall election costs over time ought to provide some sense of the impact of LPV on electoral costs in PNG. This is harder than it seems though. Documents containing accurate cost estimates are difficult to obtain, and the task of gauging electoral costs is made more difficult by differing approaches to measuring the costs of elections.

⁵ Exact numbers of counting centres are hard to determine. In contrast to our count, which is based on PNGEC data, the PNGEC itself states it ran 111 counting centres, one for each open electorate and one for each province. However, it also states that in the Highlands region all electorates’ results were counted in provincial centres. What is more, our experience was that in some places provincial electorates and open electorates were counted in different parts of the same location.

Some sources document the entire cost of an election across the electoral cycle (effectively all the time since the previous election), other sources only cover spending in the electoral year. Also, some sources include spending on the police and defence force’s electoral security work, other sources only include money flowed through the electoral commission itself. Bearing these challenges in mind, Table 1 contains our best estimates of electoral costs for the 1997, 2002, 2007, 2012 and 2017 elections. Security costs are included separately, and only for those years where they are available.

Table 1: Electoral costs in Papua New Guinea over time (Kina millions in 2017 prices)

Year	Police	Army	Electoral Commission
1997			94
2002	11	11	146
2007	110		228
2012	165	47	317
2017	121		279

Notes: Data are inflation adjusted. Blank cells indicate missing data.

Sources: Heilman (1999), p. 20; Henderson & Boneo (2013), pp. 11–12; Notarpietro et al. (2003), p. 17; Papua New Guinea Electoral Commission (2017), p. 106.

As can be seen, if we focus on Electoral Commission costs alone, election costs did rise between 2002 and 2007, but they were already rising prior to 2002, and they continued to rise up until 2012. What is more, some of the 2007 increase stemmed from the completely new roll created for that election. The introduction of LPV to elections in PNG also corresponded with good fiscal times for the PNG government owing to mineral revenues. The fall in election spending in 2017 took place as the resource boom tapered off. LPV must have come with attendant costs resulting in more expensive elections, but its impact on overall electoral costs was not so large as to stand out from a trend of already rising electoral costs.

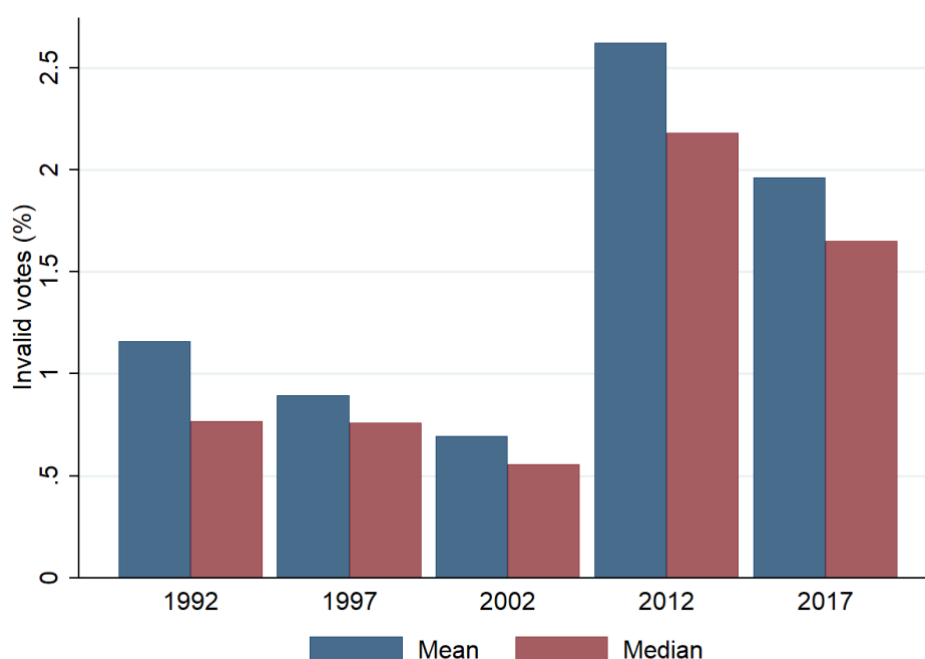
2.2 Invalid ballots

The issue of invalid ballots was debated when LPV was introduced and in the wake of early byelections (see, for example, Fraenkel 2004b; Reilly 2006). Ranking preferences requires basic numeracy, or assistance from polling officials, and requires numbers be entered alongside the names of three candidates. It is more complex than simply placing

an 'X' next to a candidate's name. Levels of functional literacy are low in PNG and it was feasible that, even with voter awareness campaigns and educational materials, the number of invalid ballots would rise with LPV's introduction.

Frustratingly, comprehensive election results data including counts of invalid ballots from the 2007 general elections are missing for many electorates. Invalid ballot numbers are missing for some earlier elections too. However, good data exist for a number of general elections held in years prior to and after the change to LPV. Figure 1 shows the invalid votes as a share of total votes cast for each election for which data is available. In the figure, invalid votes are calculated as a share of total votes at the electorate level and then averaged across electorates. The mean across electorates is shown, as is the invalid vote share of the median electorate.

Figure 1: Invalid votes in general elections in Papua New Guinea



Notes: Data come from the PNG Election Results Database (Wood 2019).

As can be seen, invalid votes clearly increased between 2002 and 2012 (2012 being the first LPV election that we have full data for). It is possible that, owing to large-scale polling issues in 2002, invalid ballots were artificially low thanks to ballot fraud. Yet, the share of invalid ballots in 2012 was still considerably higher than in 1997 and 1992. Two additional points also stand out in Figure 1 though. The first is that there

appears to be a trend of decrease in invalid ballots in the post LPV years with data. Possibly, issues with invalid ballots are diminishing as people become more familiar with the new system. More importantly, although the relative increase in invalid ballots was high (more than double), in an absolute sense the increase in invalid ballots is not. The average of medians across the three pre-LPV years is 0.7%. The same average for the two LPV elections with data is 1.9%. This latter figure is higher, but the absolute difference is only slightly more than a percentage point — not so high as to qualify as a serious problem amidst the other electoral issues PNG faces. LPV does appear to have increased the number of invalid ballots, but the magnitude of the problem is fairly small.

2.3 Vote-buying

Vote-buying is present in many developing countries (Birch 2011; Brusco et al. 2004; Gonzalez-Ocantos et al. 2012; Hicken 2011; Vicente & Wantchekon 2009). Papua New Guinea is no exception. Vote-buying — which sits at the most short-term, transactional end of the country's clientelist politics — has been a notable phenomenon since at least the 1990s (Dorney 1997). Although vote-buying has not been consistently surveyed over the years spanning the change to LPV and subsequent elections, there is a view among researchers that LPV has increased the prevalence of vote-buying (Haley & Zubrinich 2013, 2018). In instances, similar beliefs have been expressed by people from Papua New Guinea interviewed by qualitative researchers (Cook & Winn 2012). Although the exact trend has not been quantified, it seems very likely vote-buying has increased in PNG in the years since 2002. It is also clear that vote-buying and LPV are interacting: voters are selling their second and third preference votes as well as their first (see Haley & Zubrinich 2018, p. 44, for photographic evidence of this.)

Yet none of this evidence demonstrates comprehensively that the introduction of LPV is the primary cause of rising vote-buying in PNG. Vote-buying is also present, and apparently on the rise, in neighbouring Solomon Islands, a country which uses a first past the post electoral system, but with an otherwise similar political economy (Marau 2010; Wiltshire et al. 2019). Notably, in both Solomon Islands and PNG, increased vote-buying

has come over a time when extractive industries have played an ever more important role in the countries' economies, and political economies. And, over this period in which resource revenue has flooded into PNG's politics, the value of electoral victory has become much higher. In particular, District Service Improvement (DSIP) funds, money that MPs get to spend within their electorates, has risen dramatically,⁶ albeit with fluctuations — DSIP grants are now more than five times higher after adjusting for inflation than they were in 1998 (Laveil & Wood 2022, p. 5).

Thanks to the resource boom, in much of PNG aspiring MPs have more money to spend on their candidacies. Thanks to DSIP grants, the material rewards of becoming an MP, or supporting an MP, are substantially greater than they once were. It is hardly surprising that vote-buying has become more prevalent in such an environment.

LPV may well have contributed to some rise in vote-buying in recent years, but there is no reason to think it has been the main driver of the phenomenon. There are other more likely culprits.

3 The benefits of LPV

LPV has come with costs, but they have been sufficiently limited that, if the electoral system has brought benefits, the costs could quite reasonably be described as a small price to pay for a better system. In the following section we turn to potential benefits. This includes four sets of benefits that were anticipated: reduced electoral violence; changed election outcomes; MP mandates and improved governance; and improvements for women candidates. We also cover two possible benefits which do not fit as neatly with early predictions: use of preferences in a protest vote in 2017; and the popularity of LPV among voters themselves.

⁶ There are some constraints on DSIP spending; however, in practice MPs retain a considerable say in how much money goes where and for what. There is a provincial equivalent of the DSIP for provincial MPs — the PSIP.

3.1 Electoral violence

Electoral violence has plagued post-independence elections in PNG, particularly since the early 1990s. The issue is not equally distributed: violence is most prevalent in the Highlands, and in the urban areas of Port Moresby and Lae. Yet, at times, much of the country has experienced at least some small-scale electoral violence or voter coercion (Haley & Zubrinich 2013, 2018). The 2002 general election was a watershed, with approximately 100 lives lost during the election and in its immediate aftermath (Notarpietro et al. 2003, p. 23). Violence fell considerably in the 2007 general election before rising somewhat in 2012, and returning to very high levels in 2017. Haley and Zubrinich (2018, p. 91) report that over 204 people were killed in election-related violence around the 2017 election.

Prior to 2017, there was some evidence to suggest that, although LPV had not eliminated post-election violence, it had greatly reduced violence in the pre-election campaign period. This appeared to be because LPV fostered a more collaborative approach to campaigning, which allowed supporters of most candidates to campaign safely across their electorates on the grounds that they were only seeking to win voters' second and third preference votes (May et al. 2011a). However, Haley and Zubrinich's (2018, p. 91) record of 2017 deaths includes nearly 70 from the campaign period as well.

LPV, it is now clear, has not solved the problem of electoral violence in PNG. Yet this does not necessarily mean the system has not helped. The relevant counterfactual is what the state of electoral violence would have been in PNG had the country continued to use first past the post.

There are some grounds for thinking violence may have been worse again still in 2017 had PNG been using first past the post. Law and order in general had become an increasingly urgent problem in PNG in the years post 2007 (Lakhani & Willman 2014). As a result, the broader context for the 2017 election was far from ideal. In addition, owing to DSIP funds, the immediate financial stakes of elections have become higher in the years since the late 1990s. DSIP volumes are now sufficient to offer a pathway to riches for candidates and their supporters. This provides an incentive to be violent, particularly in

some parts of the Highlands, where violent clashes between clans are commonplace outside of politics.

Beyond raw numbers of deaths, and attempts to guesstimate what conflict might have been like had the 2017 elections been held using first past the post, evidence of the effects of LPV can be found in detailed observations of the electoral process produced by local researchers and officials involved in administering elections. By and large these types of assessments of LPV have tended to be positive, particularly in early years. Reilly (2021, pp. 6–7) provides a very useful collection of positive appraisals from informed local sources. Yet these positive appraisals are from early LPV elections, and Haley and Zubrinich (2018, pp. 93–100) provide a persuasive and devastating description of the 2017 election which takes a similar form — in-depth quotes from local electoral observers. However, the 2017 quotes all focus on the electoral process more generally, and have little to say about the impacts of LPV. Clearly, LPV does not resolve the problem of violence when electoral issues are rife, as they were in 2017, but it may still have contributed to less violent elections than would have occurred under first past the post.⁷ Reilly's (2021, pp. 6–7) qualitative data, based on participant assessments of LPV, is at least suggestive of this.

Ultimately, time, and more careful research involving careful case studies of approaches to campaigning and the use of violence, will be required to deliver a definitive verdict on LPV's impact here. Until such work is conducted it is our — very tentative — verdict that LPV has probably reduced electoral violence in PNG, compared to a counterfactual world of first past the post elections. However, as 2017 demonstrated, LPV has most certainly not solved the problem of electoral violence in PNG. It has fallen far short of being a panacea in this area.

⁷ Another possibility, which is intriguing, is that candidates' behaviour under LPV may reflect their expectations of the behaviour of other candidates, leading to outcomes of the sort often predicted in game theory. In particular, there may be multiple equilibria: including comparatively peaceful states of affairs in which cooperation is anticipated, and as a result is common, and violent states of affairs in which expected cooperation is low and therefore actual cooperation is low, and violence high. Variation under such circumstances might occur both across locations and across time.

3.2 Does LPV change election results?

Although it is not strictly speaking a benefit, in that it is not something that leads to better-run elections or better political outcomes, one aspect of LPV that provides a useful sense of whether the system has altered the nature of electoral competition is the extent to which election outcomes change as preferences are reallocated.

There are instances where LPV has clearly had an impact on a candidate's fortunes. Table 2 shows the six winning candidates across the 2017 and 2012 elections whose results improved the most preferences were reallocated.

Table 2: Election winners who gained off preferences

Year	Electorate	Winner	First preference rank
2012	Lae	Loujaya Toni	5
2012	Dei	Westly N Nukundj	4
2012	Eastern Highlands Provincial	Julie Soso	4
2012	Karimui-Nomane	Mogerema Sigo Wei	4
2017	Kagua Erave Open	Wesley Ora Raminai	4
2017	Middle Ramu Open	Jonny Ananias Alonk	4

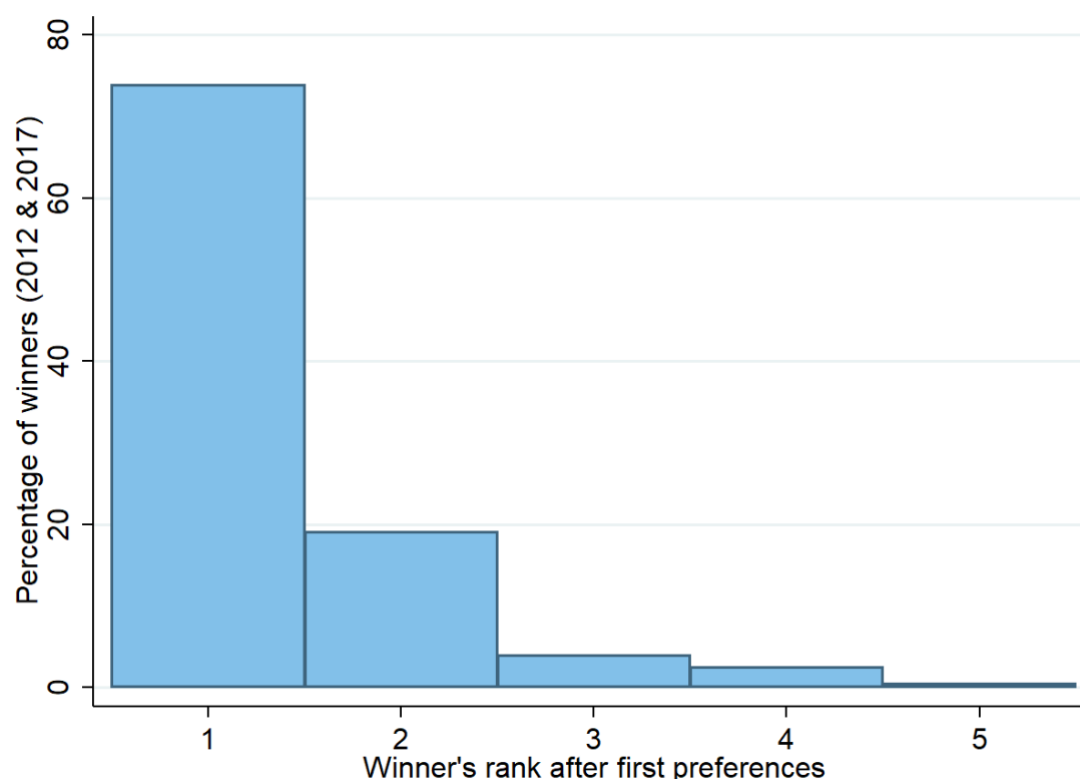
Notes: Data come from the PNG Election Results database (Wood 2019)

All six of these candidates would almost certainly not have ended up in parliament in a first past the post electoral environment. Indeed, the first preference ranks of all six are low enough to suggest they were likely a quite different type of winner from the sort of person who once won under first past the post — two were women for a start. Presumably, to benefit from second and third preferences so much they almost certainly won using unconventional strategies and with a different type of support base.

However, as Figure 2 shows, leap-frog wins of this nature were the exception, rather than the norm. Figure 2 combines data from the 2017 and 2012 elections and is a histogram of the first preference ranks of all winners for which there are reliable preference data (199 out of 222 provincial and open electorates.)⁸

⁸ No equivalent data exist for 2007.

Figure 2: Histogram of first preference ranks of winners, 2012 and 2017



Notes: Data cover 199 out of 222 provincial and open electorates from the 2012 and 2017 elections. Our numbers differ very slightly from those of Laveil and Wood (2019, p. 35) as we are using more detailed data that allow for the calculation of how much MPs' ranks changed, but which exist for fewer electorates.

All told, 74 per cent of elected candidates in 2012 and 2017 were in first place after first preferences were counted; 93 per cent were in first or second place. The reallocation of preferences only changed who won elections in 2012 and 2017 in about a quarter of electorates. The reallocation of preferences only very rarely propelled anyone to parliament who was not already placed first or second.

By international standards, a state of affairs in which preference votes change results in about a quarter of electorates is high among countries that have similar electoral systems (Reilly & Santucci 2021). Preferences change results more in PNG than they normally do elsewhere. What is more, there are documented instances of winners winning by adopting strategies geared around gaining second and third preference support (Reilly 2021). And yet, as Figure 2 demonstrates, the norm in PNG's LPV elections to date has been victory from candidates who would have won under first past the post, or at the least been very competitive.

Perhaps unsurprisingly given this, Laveil and Wood (2019, p. 48) show that the age and education levels of first preference leaders who went on to win did not appear to be significantly different on average from those who won thanks to second and third preference votes. LPV does not appear to be having a dramatic impact on the type of person who wins elections in PNG.⁹

3.3 Mandates and governance

One argument made in LPV's favour by some advocates was that it would increase MPs' mandates and through this bring improvements in governance. The argument ran as follows: MPs were being elected with increasingly small vote shares in their electorates under first past the post in PNG. As a result, they were governing poorly. Not only was their governance clientelist, but it was also increasingly narrowly focused — calibrated foremost to deliver benefits to the ever-smaller groups of people who had supported the MP to victory. LPV, it was argued, would force MPs to focus on the support of a larger share of the constituents in their electorates. They would do so because they now needed to win second and third preference votes if they wished to be elected (Fraenkel 2004b; Reilly 2006; Standish 2006).

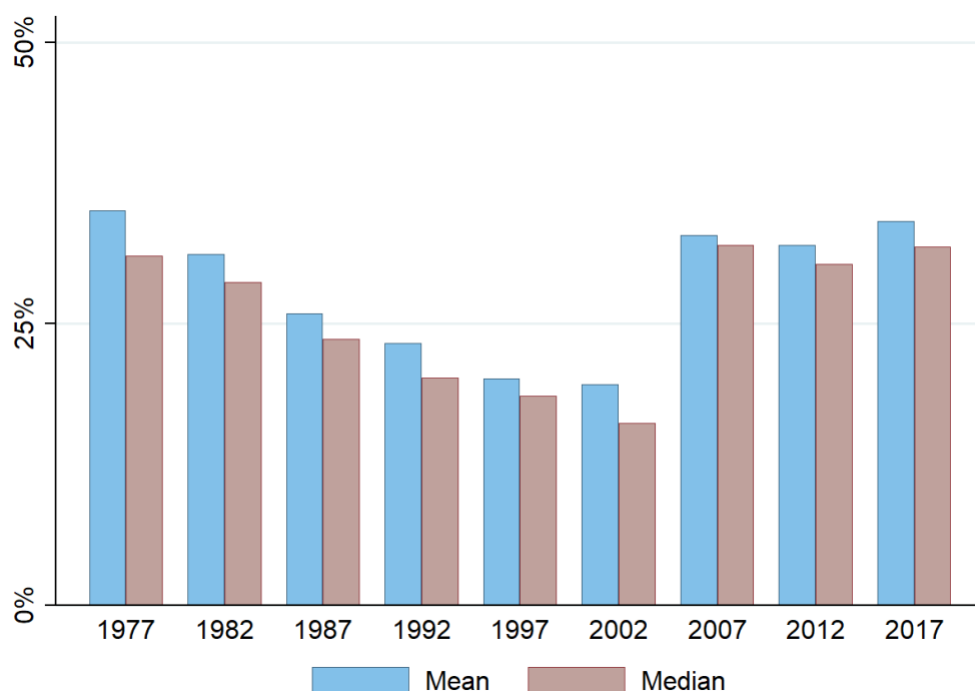
In PNG's strongly clientelist electoral politics, and in a country where constituency funds like the DSIP are potentially important sources of local development spending, it is easy enough to see how LPV could potentially lead to better governance within constituencies: under LPV, MPs need to win second and third preference votes if they wish to be re-elected. Therefore, they might quite reasonably be expected to broaden the part of the electorate where they engage in patronage spending. It would hardly be a transformation, but at least a larger share of the electorates' populations would be benefitting in some way from the actions of their MP.

⁹ It should be stressed, however, that this may not be the end of potential impacts associated with winning on preferences. It may be the case that different types of electorates are more conducive to such victories, for example. More interestingly, it could plausibly be the case that MPs who win thanks primarily to preferences behave in a different kind of way when in power. The data to investigate these possibilities are currently not available; although gathering data in these areas is something that we are working on. We are grateful to a reviewer for highlighting LPV's possible effects in these areas.

It is less easy to see how LPV was expected to lead to better national governance. National governance in PNG had been plagued by instability, clientelism, and short-termism. It is hard to see why a changed electoral system would be expected to change that. One possibility is that a different type of person might have been expected to be elected under LPV (a hope that has, as we showed in the previous section, proven unfounded). Another possibility might have been that the need to win second and third preference votes would require MPs to elicit greater support from their electorates than they could with particularistic spending alone. As a result, they may have started to adopt an increasingly programmatic focus in parliament to help bring benefits to their constituency. In theory this is plausible, although whether there remained any good grounds for expecting it in practice is less clear.

The following three figures look at whether a series of related factors have changed in PNG since LPV's introduction, starting with MPs' mandates. Figure 3 shows the share of total votes, including second and third preferences from 2007 onwards, won on average by MPs over all elections since independence.

Figure 3: Mean and median winning candidate vote shares over time



Notes: Data come from the PNG Election Results Database (Wood, 2019). Results are limited only to electorates with reliable data. In practice this is not a major issue as it was possible to obtain almost all MPs' final vote shares, even from 2007.

Average winning candidate vote shares were trending clearly downwards prior to the introduction of LPV. Possibly the descent was close to finding a floor in 2002, but it was a low one (the median winner in 2002 won just 16% of the vote). LPV substantially increased the share of votes that winners were elected with. It could hardly have done otherwise given that winners were now winning second and third preference votes. On average, winners still fell far short of gaining majority support across electorates. But presumably they now had some form of electoral obligation — be it genuine reciprocal concern or simple electoral logic — which required them to deliver to a larger share of their constituents.

And yet an observer hoping to find any evidence of the changed electoral system having led to MPs being more attentive to the needs of their constituents will struggle to find much by the way of persuasive evidence, at least for the majority of MPs. The qualitative work of Cook and Winn (2012), who ran focus groups across 12 locations in six provinces in PNG is filled with despondent and frustrated assessments of members of parliament. As the authors noted:

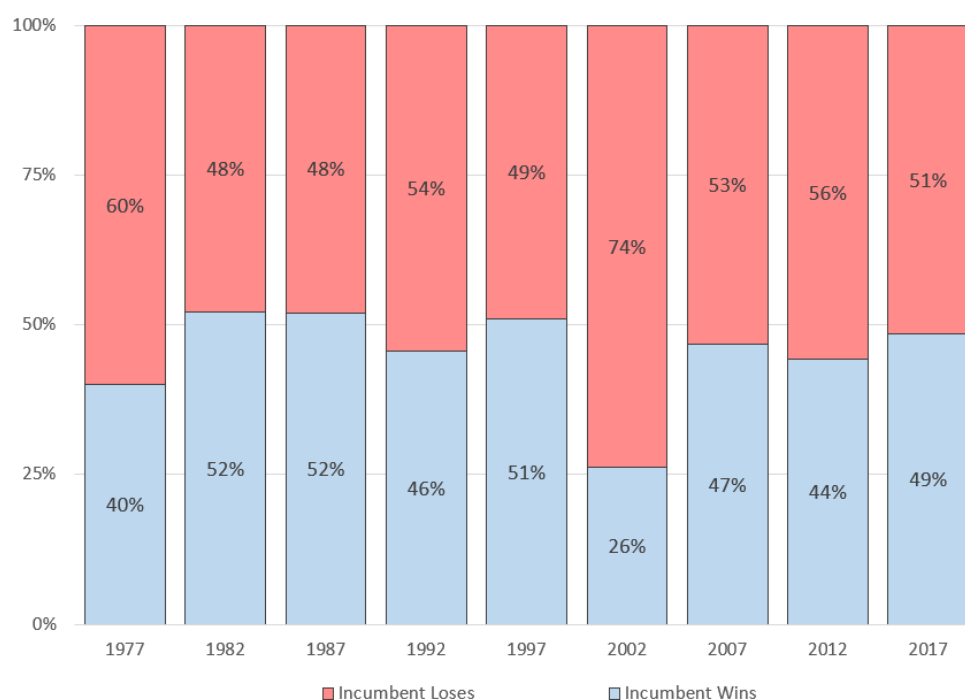
Members of Parliament (MPs) are the target for most of the criticism from participants. Most [participants] say MPs are selfish, uncaring politicians who spend their time in Port Moresby and care most about enriching themselves. ‘To them being a member is just for the fame and name and supporting their family’ is how one participant describes the reputation of MPs. The high turnover in parliament is attributed directly to their poor performance. (Cook & Winn 2012, p. 8)

Although Cook and Winn (2012) did also provide one quote from a participant who felt they were more likely to benefit from their MP because of how they had cast their second or third preference vote, this seemed to be the exception rather than the norm.

Unfortunately, there is no available survey data that shows the extent to which voters are benefitting from MP attention, and whether this attention is being devoted only to core supporters or whether it is being spread in search of second and third preference votes in future elections.

However, we might expect to find some sort of relationship between LPV and changes in MP re-election rates if MPs were being prompted to attend to the needs of a greater share of their constituents thanks to LPV. Figure 4 plots MP re-election rates over time, showing the share of those MPs who contested in each general election that were successful in winning their seats back.

Figure 4: Incumbent re-election rates



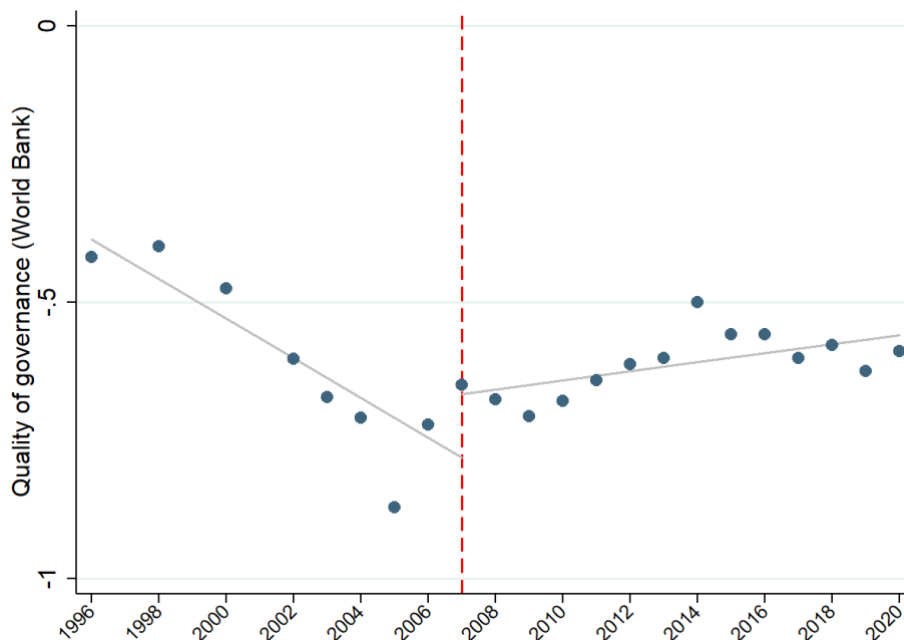
Notes: Data come from the PNG Election Results Database (Wood, 2019).

After the turbulent 2002 general election which saw nearly three-quarters of sitting MPs lose their seats, the incumbent re-election rate returned to something close to the long-run average in 2007. This increased re-election rate might plausibly be a by-product of LPV, but in practice it is much more likely that the 2002 election was an aberration born of the scandals, conflict, controversial reforms and poor economic performance found in the years leading up to that election (Laveil 2021). More importantly for the question at hand, an increased re-election rate in 2007 — the first general election under LPV — is not evidence that voters were more satisfied with the performance of MPs *elected under LPV*. The first election to provide evidence of whether this was the case or not was 2012, and re-election rates in 2012, as with 2017 subsequently, were close to long-run

averages. If LPV has led to MPs paying more attention to their constituents, and if this has left more satisfied voters, the impact is not clear in re-election rates.

It could be the case that voters are as dissatisfied as ever with the performance of their MPs, particularly in terms of direct benefits received, but that MPs themselves have responded to the changed electoral incentives provided by LPV by governing the country better. Figure 4 provides one reason to doubt this: unchanged turnover rates mean that MPs will still have a strong electoral incentive to behave foremost with a view to the political short term.¹⁰ What is more, other data emerging from PNG provide grounds to believe this is not the case: new analysis of ministerial tenure and stability shows no improvement in the frequency with which government ministers are shifted between portfolios, for example (Ivarature forthcoming). Meanwhile, although World Bank governance data show a trend of improved governance in years following the shift to LPV (see Figure 5), the trend of improvement started prior to the introduction of LPV and came to an end in 2014, between the second LPV election and the third.

Figure 5: World Bank assessed quality of governance in PNG



Note: Data come from the Worldwide Governance Indicators (World Bank 2021). Values shown are the mean across all six governance indicators for PNG in each year with available data. Trend lines are OLS lines of best fit.

¹⁰ We are grateful to a reviewer for pointing this fact out.

More likely explanations for the improvements seen in World Bank data are either a suite of broader reforms introduced by the Morauta government of the late 1990s, or plausibly the revenue inflows associated with PNG's resource boom, which at least made the government appear better-functioning up until about 2014, even if the country's political economy remained broadly unchanged.

3.4 Female candidates

In the years since independence, women have only very rarely been elected to PNG's national parliament. At present, there are no female members of parliament. One hope that some reformers placed in LPV was that it would lead to more women being elected (Baker 2018). To date this has not been the case, at least on average (Baker 2018; Reilly 2021), although there have been cases of individual female MPs whose success almost certainly was assisted by LPV (Meki 2019). There have also been cases of women candidates who did not win, but who gained significantly from preferences. Jill Garong, for example, gained four places in the East Sepik Provincial seat in 2012; and Julie Moide gained five places in the West Sepik Provincial seat in 2012, and six places in the same seat in 2017. At the same time though, there are also individual examples of preferences working against women. Delilah Gore in Sohe Open in 2017 is the best known. She was in first place after first preferences but went on to lose.

Although LPV has not led to a substantial rise in the incidence of women winning, Laveil and Wood (2019, pp. 36–38) present some systematic evidence that female candidates' ranks (i.e. whether they finish first, second, third, tenth, and so on) improve more than men's on average as preferences are reallocated.

One difficulty faced by anyone wishing to estimate the average effect of preference reallocations by gender is that, as Laveil and Wood (2019, p. 38) show, most candidates' ranks do not change at all as preferences are reallocated. This presents a challenge: OLS regressions will not necessarily produce accurate estimates when based on data distributed this way. In order to overcome this challenge, in this paper we have broken our analysis into two phases: the first studies the relationship between gender and whether a candidate's rank changed at all, or whether it remained unchanged during

preference reallocation. We did this using logistic regression models. Then, in the second stage, for those candidates whose ranks did change, we ran OLS regressions with the dependent variable being the amount candidates' ranks changed. We ran simple bivariate regressions and also regressions controlling for other factors that might potentially affect rank changes. We pooled data from 2012 and 2017. Data were missing for a small number of electorates in one or other year, but all electorates were covered at least once. Results are shown in Table 3.

Table 3: Regression results, female rank changes during preference reallocation

	(1) Basic logit	(2) Basic OLS	(3) Logit controls	(4) OLS controls
Female	0.16 (0.12)	0.82*** (0.18)	-0.05 (0.13)	0.76*** (0.19)
Is incumbent=1			0.89*** (0.19)	-0.89*** (0.17)
PNC			0.48** (0.19)	-0.13 (0.20)
Number of candidates			-0.08*** (0.01)	-0.01*** (0.00)
Rank first preference			0.07*** (0.00)	0.02*** (0.00)
Constant	0.44*** (0.06)	-0.02 (0.01)	1.95*** (0.19)	0.13*** (0.03)
Region FE	No	No	Yes	Yes
Year FE	No	No	Yes	Yes
Observations	6007	2340	6007	2340

Notes: Data pooled from 2012 and 2017 elections. Clustered robust standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The results of the logistic regressions (models 1 and 3) show that women candidates' rankings do not appear to be any more likely to change than their male counterparts when preferences are reallocated. However, the results of the OLS regressions (models 2 and 4) show that, if their rankings do change, female candidates' rankings improve more on average. This finding holds true even when control variables are added to the regression models, and if year and regional fixed effects are applied.

In a practical sense, the gains for women are small. On average their performance improves by about three-quarters of one rank in the fourth model in Table 3. Given this, it could legitimately be asked whether LPV has improved female candidate

competitiveness in any material sense. Our own interpretation of the finding is that the magnitude of the average improvement is far too small for LPV to be said to be a meaningful substitute for other approaches aimed at improving women's representation such as Temporary Special Measures. Nevertheless, the gain appears real, and LPV appears to have helped some strong female candidates in particular.

3.5 Could LPV be opening new political space?

In their report on the findings of the 2017 electoral observation mission that they oversaw, Haley and Zubrinich (2018, p. 42) noted the following about voters' attitudes towards the People's National Congress party (PNC), which was the largest party in government, and the party of then Prime Minister Peter O'Neill:

[P]arty politics figured more prominently in this election than previously, in that anti-PNC sentiment and campaigning against PNC was evident throughout the country. Several observer teams reported candidates of various affiliations working together to unseat PNC incumbents, while observers in all four regions witnessed incidents in which PNC candidates were verbally harassed and/or prevented from campaigning. Large rallies involving PNC candidates descended into chaos [in places]... with onlookers throwing sticks and stones and tearing up PNC caps and t-shirts to disrupt proceedings.

Later in the report they quoted an election observer who claimed that: "*The people of this country joined together with their candidates to unseat PNC ...*" (Haley & Zubrinich 2018, p. 94).

Such observations are surprising as parties have been of little direct electoral importance in PNG in recent decades — voters rarely vote along party lines, and strong voter affiliations with parties have been largely absent (Saffu 1989; Wood 2018). The observations described by Haley and Zubrinich might plausibly have been isolated or unrepresentative. Yet there is also good evidence from voting patterns in 2017 that fits with their descriptions.

As noted above, the PNC was the party of the prime minister going into the 2017 election. It stood 95 candidates (as per candidate registrations). Of those candidates, 54 were sitting members of parliament going into the election. (The National Alliance party had the next highest number of sitting MPs, with just 11.) MPs are only re-elected about 50 per cent of the time in PNG, but given the number of candidates in most seats, MPs' chances of winning are higher than other candidates based on the odds alone. The PNC was well resourced and its candidates tended to be powerful local figures. It was alleged that its candidates were disproportionately the beneficiaries of electoral malfeasance (Flanagan 2017; Haley & Zubrinich 2018).

Despite these advantages though, the final results proved disappointing for the PNC. Around 40 PNC candidates were in front after first preference votes were counted. But after second and third preferences were counted its number of winners fell to 29.¹¹ This still placed it clearly ahead of its nearest rival, the National Alliance, which saw only 15 of its candidates win. But the fall was unusual. The National Alliance party also lost seats as preferences were reallocated, but seven of the top 10 parties either gained seats as preferences were reallocated or saw their results remain unchanged. In 2012, 25 of the PNC's candidates had been in first place after first preference votes, and the party went on to win 27 seats.¹²

Table 4 presents the results of a more systematic study of whether PNC candidates performed more poorly as preferences were reallocated than other comparable candidates. In particular it looks at the (natural log of) the ratio of after preference to first preference votes won by candidates. The data included in the model all come from 2017 and are limited only to candidates with full preference data (2917 out of 3178). In an attempt to limit comparisons to broadly similar candidates, the regression models are limited to data from candidates in major parties (parties that elected five or more MPs) and to candidates that were in the top 10 after first preferences. Both models in the table

¹¹ All results data in this section come from the PNG Election Results Database (Wood 2019).

¹² Our numbers differ from those of Laveil and Wood (2019) as they limit theirs only to electorates with complete data. We cover all electorates — we believe data for all electorates is accurate enough for the purposes of these comparisons.

are estimated using OLS. One model looks at the bivariate relationship, the other includes a suite of controls for factors that might reasonably be expected to affect preference allocations.

Table 4: Change in votes won after preferences

	(1) Basic	(2) Controls
PNC	-0.07** (0.03)	-0.07*** (0.03)
Incumbent		-0.16*** (0.03)
Female		0.02 (0.18)
Total candidates		0.01*** (0.00)
Rank first preferences		-0.03*** (0.01)
Constant	0.46*** (0.02)	0.43*** (0.06)
Region FE	No	Yes
Observations	274	274

Notes: Data from 2017 election, candidates with full preference data only. Robust standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

As the results show, when compared to other, similar, candidates, PNC candidates performed worse on average as preferences were reallocated in the 2017 election. When we analysed the data further, we found the PNC's problem with preferences to be most prominent among PNC incumbents, who were the PNC candidates most closely associated with the unpopular government and prime minister.

Preferences did not completely transform the 2017 election results. The median or typical candidate, be they PNC or not, did not see their ranking change, but preferences did break against most PNC candidates, and this cost the party a considerable number of electorates they would have otherwise won.

Why this happened should be the subject of future research. But given the PNC's unpopularity reported so vividly by Haley and Zubrinich (2018), a very plausible explanation is that voters used their second and third preference votes to cast ballots for candidates who they believed had a strong chance of beating PNC candidates, particularly

PNC incumbents. Voters still used their first preferences to vote along family lines or for candidates most likely to help them, as is common, but it appears as if the system of preferential voting did allow them a means of protesting an unpopular government through the use of their second and third preference votes.

This may simply have been a one-off, a reflection of unusually strong sentiments, but it hints at potential. PNG's clientelist politics contributes directly to the country's poor governance (Wood 2018). Perhaps in the future voters will continue to reserve their first preferences for their near-term needs and obligations, but will increasingly use their second and third preference votes to vote on national issues. It is only a possibility but it is an interesting one.¹³

3.6 Voter views on LPV

One final surprise, given the hopes vested in LPV, is the fact that very little effort has gone into systematically surveying people in Papua New Guinea to ask them their views about the system, and how they have experienced it in practice.

The small amount of evidence that does exist points to favourable appraisals for the most part. The work of Cook and Winn (2012) is the most systematic evidence in the public domain. Their study, based on 12 focus groups held in six provinces, relays generally positive assessments from voters. Voters have some concerns about LPV — some blame LPV for increased vote buying for example — and many have concerns about electoral quality more generally. Yet, overall, most of the focus group participants viewed LPV favourably. In particular, participants in the Cook and Winn study appeared to appreciate the additional freedom that having three choices provided. One focus group participant, for example, stated that LPV: 'is all right. Why because as mentioned I can put "1" on the candidate I want and "2" and "3" on the other candidate that my family or clan want' (Cook & Winn 2012, p. 34).

¹³ Interestingly, we have also been told that in Morobe Province, where the PANGU party was associated with the charismatic leadership of Sam Basil, the PANGU party also benefitted from a willingness among some voters to vote along party lines, including with preference votes. This is an area that warrants further study.

Such — comparatively mundane — benefits may fall short of the hopes of those who introduced LPV, but if they improve the elections as experienced by voters this is a mark in LPV's favour nevertheless.

Because Cook and Winn's (2012) qualitative work is only from six provinces, small and not randomly sampled, we cannot be entirely confident the views it captures are representative of the voting-age population as a whole. There have been newspaper reports of a larger survey conducted on LPV in 2021, apparently commissioned by the PNG government. The survey results are not in the public domain but as reported in parliament, they suggest a majority of PNG's voters view LPV positively (Wood et al. 2021).

Compared to the amount of money that is spent on elections in PNG, commissioning a nationally representative, comprehensive public opinion survey of views on the system would be cheap. There is a strong case for the PNG government and international community doing so. The impact of the system on voters' lived experiences of elections and voting clearly matters. Until such a survey is commissioned and its results are put in the public domain, the best available evidence suggests LPV is generally appreciated by the public. This counts in its favour.

4 Discussion

In recent years, there have been points in time when PNG's neighbour, Solomon Islands, has considered adopting the LPV system. One helpful way of summarising our assessment of LPV in PNG is to address the question of whether — given the costs and achievements of LPV to date — we would recommend the system for a neighbouring, socially and politically similar, country. Here our answer is 'no': after its introduction LPV may not have come at a great, sustained cost to PNG, but it has had some downsides. And, at the same time, benefits at this point in time have not been sufficient for the system to serve as a model that might warrant exporting to similar countries. This is particularly true given there is a risk that the negative impacts of LPV could be worse in other countries. Also, transitioning to a new electoral system brings opportunity costs: in particular, government and donor resources that would be better invested in

shoring up recent electoral capacity gains in Solomon Islands, and protecting against potential future risks.¹⁴

However, by the same token, at this point we would not recommend that PNG itself abandon LPV. The system's downsides in PNG have been real, but they have also been small, and are far from the main electoral issues that PNG is facing at present. There is also some evidence of upsides. LPV has possibly brought a reduction in electoral violence, although clearly LPV has not been nearly sufficient to prevent the problem. LPV appears to have afforded a small degree of assistance to some women candidates. More interestingly, it appears as if LPV provides some voters with a greater freedom to consider and choose as they decide who will benefit from their second and third preference votes. This freedom appears to be part of the reason why LPV is viewed favourably by most voters. The same freedom may also be associated with political potential: the potential for voters to cast their second and third preference votes at times on the basis of national issues, as some voters appear to have done when casting anti-government ballots in 2017. To be clear, 2017 could be a one off. Only future elections will be able to demonstrate whether LPV fosters sustained political change in this way. But for now, the possibility is interesting. It would be a mistake to bring PNG's experiment with LPV to an end just yet.

That is our assessment of LPV: one which is on balance slightly positive, albeit with important remaining uncertainties.

One question which such an equivocal assessment raises is why has LPV failed to deliver more? As Reilly (2021) has pointed out, part of the issue was that the change was oversold in some quarters at the time. Even accounting for this, LPV's achievements have only been either real but small, or promising but uncertain. Why hasn't it performed better?

In the case of two of the areas where improvements were promised and where outcomes have not been as positive as hoped — women's electoral performance and reduced electoral violence — the issue is clearly that too much was hoped for from a change in

¹⁴ We are grateful to a reviewer for emphasising this important point.

formal electoral rules. Women candidates face a multitude of challenges — intimidation, fewer resources, fewer influential local supporters. On average, providing voters with second and third preferences seems to have improved the fortunes of women candidates slightly. But given the array of challenges women candidates face, any greater benefits are simply beyond what changed voting rules can deliver.

The grounds for hoping electoral violence might be reduced were stronger. However, while LPV may well have helped somewhat in reducing electoral violence, it has not come close to eliminating it. Once again, this appears to be an example of electoral rules on their own being up against too much. In particular, inter-clan violence in parts of the Highlands, and violent crime in larger urban areas is often an entrenched social feature outside of elections. With the benefit of hindsight, such normalised violence seems too big a problem to be overcome with a simple change in voting rules. In addition, in recent elections, electoral administration, including security, has suffered serious issues of its own (Haley & Zubrinich 2013, 2018). Such a context, where rules are often not being enforced, is a particularly difficult one for changes in voting rules to succeed in eliminating problems such as violence.

Finally, there is the question of governance. The case of the anti-PNC vote in 2017 suggests perhaps that LPV's possibilities are not exhausted in this area yet. However, any expectations should be tempered by the fact that overcoming the clientelism that undermines PNG's national politics, as well as other challenges such as the influence of money from extractive industries, will almost certainly require much more than the odd protest vote against the government of the day. In particular, sustained, national collective action, probably stemming from civil society, will likely be required to shift PNG to healthier, more programmatic, politics (Wood 2018). Such wholesale social change will not emerge from electoral rules. It could be the case that LPV will ultimately provide more space for such social change to translate into political change. But social change will be needed first.

If nothing else, in the short term LPV still leaves plenty of scope for future research. First and foremost, voters should be surveyed on their experience of it. Voters have the most at stake, and their views would be very helpful in any future decisions about keeping the

system. Voter's experiences could also help inform political scientists about the changes that LPV has and has not brought on the ground. In addition, there is much scope for future careful case studies. Some candidates, including some women, have managed to benefit considerably from preferences: why? Answers should be sought by learning from these cases.

LPV has not brought all that was hoped, but there is still much to be learnt from the change in electoral systems.

References

- ANU-UPNG Partnership (2021). PNG Economic Database 2021.1. Viewed 12 January 2022, <https://devpolicy.org/pngeconomic/>
- Baker, K (2018). Women's representation and electoral system reform in Papua New Guinea: The limitations of limited preferential voting. *Asia & the Pacific Policy Studies*, 5(2), 208–219. <https://doi.org/10.1002/app5.235>
- Banerjee, A & Duflo, E (2012). *Poor economics: A radical rethinking of the way to fight global poverty*. PublicAffairs, New York.
- Birch, S (2011). *Electoral malpractice*. Oxford University Press, Oxford.
- Brusco, V, Nazareno, M & Stokes, SC (2004). Vote buying in Argentina. *Latin American Research Review*, 39(2), 66–88. <https://doi.org/10.1353/lar.2004.0022>
- Cook, TD & Winn, T (2012). *Demanding more: Citizens share their views on better politics and better government*. National Democratic Institute and the University of Papua New Guinea, Port Moresby. <https://www.ndi.org/sites/default/files/PNG-focus-group-110112.pdf>
- Dornan, M (2016). The political economy of road management reform: Papua New Guinea's national Road Fund. *Asia & the Pacific Policy Studies*, 3(3), 443–457. <https://doi.org/10.1002/app5.142>
- Dorney, S (1997). 'If you don't give them money they won't vote for you': The election campaign in Lagaip-Porgera. In R May & R Anere (eds), *Maintaining democracy: The 1997 elections in Papua New Guinea* (pp. 113–122). University of Papua New Guinea, Port Moresby. <http://hdl.handle.net/1885/133356>
- Electoral Reform Project (2001). *Preferential voting: Popular participation in the elections and representative government*. Transparency International, Port Moresby.
- Flanagan, P (2017, 27 July). Book cooking and the PNG election. *East Asia Forum*. <http://www.eastasiaforum.org/2017/07/27/book-cooking-and-the-png-election/>
- Fraenkel, J (2004a). *Do Pacific electoral systems matter or is political culture everything?* Paper presented at the 'Political Culture, Representation and Electoral Systems in the Pacific Islands' conference, Port Vila, Vanuatu, July 2004.
- Fraenkel, J (2004b). Electoral engineering in Papua New Guinea: Lessons from Fiji and elsewhere. *Pacific Economic Bulletin*, 19(1), 122–133. <https://devpolicy.org/PEB/2019/06/08/electoral-engineering-in-papua-new-guinea-lessons-from-fiji-and-elsewhere/>

- Gibbs, P, Haley, N & Mcleod, A (2004). Politicking and voting in the Highlands: The 2002 Papua New Guinea National elections. *SSGM Discussion Paper 2004/1*, The Australian National University, Canberra.
<https://doi.org/10.25911/5f20043761440>
- Gonzalez-Ocantos, E, de Jonge, CK, Meléndez, C, Osorio, J & Nickerson, DW (2012). Vote buying and social desirability bias: Experimental evidence from Nicaragua. *American Journal of Political Science*, 56(1), 202–217.
<https://doi.org/10.1111/j.1540-5907.2011.00540.x>
- Haley, N & Zubrinich, K (2013). *2012 Papua New Guinea general elections domestic observation report*. Cardno Emerging Markets, Canberra.
- Haley, N & Zubrinich, K (2018). *2017 Papua New Guinea general elections: Election observation report*. Department of Pacific Affairs, Canberra.
<http://hdl.handle.net/1885/206709>
- Hanson, LW, Allen, B, Bourke, M & McCarthy, TJ (2001). *Papua New Guinea rural development handbook*. The Australian National University, Canberra.
https://www.researchgate.net/publication/320296353_Papua_New_Guinea_Rural_Development_Handbook
- Heilman, J (1999). *Pre-election technical assessment: Papua New Guinea*. International Foundation for Electoral Systems, Washington DC.
<https://www.ifes.org/publications/pre-election-technical-assessment-papua-new-guinea>
- Henderson, S & Boneo, H (2013). *Australian aid for electoral assistance in Papua New Guinea 2000–2012 — Independent evaluation*. Department of Foreign Affairs and Trade, Canberra. <https://www.dfat.gov.au/sites/default/files/png-electoral-assistance-ind-eval-mar2013.pdf>
- Hicken, A (2011). Clientelism. *Annual Review of Political Science*, 14(1), 289–310.
doi.org/10.1146/annurev.polisci.031908.220508
- Ivarature, H (forthcoming). The hidden dimension to political instability: Insights from ministerial duration in Papua New Guinea from 1972 to 2017. *Asia & the Pacific Policy Studies*.
- Lakhani, S & Willman, A (2014). *Trends in crime and violence in Papua New Guinea*. The World Bank Group, Washington DC. <http://hdl.handle.net/10986/18971>
- Laveil, M (2021, 5 May). PNG’s stand-out elections of 2002. *Devpolicy Blog*.
<https://devpolicy.org/pngs-stand-out-elections-of-2002-20210505-2/>

- Laveil, M & Wood, T (2019). The 2017 election in Papua New Guinea. *Development Policy Centre Discussion Paper No 83*, Development Policy Centre, Crawford School of Public Policy, Australian National University, Canberra. <https://devpolicy.org/publications/the-2017-election-in-papua-new-guinea-2019/>
- Laveil, M & Wood, T (2022). Do DSIP funds help PNG MPs win? *Development Policy Centre Discussion Paper No. 99*, Crawford School of Public Policy, The Australian National University, Canberra. <https://devpolicy.org/publications/do-dsip-funds-help-png-mps-win/>
- Marau, D (2010). The Devil's Night. *The Solomon Star*. Viewed 25 April 2013, <http://archives.pireport.org/archive/2010/August/08-06-fea1.htm>
- May, RJ (2003). Turbulence and reform in Papua New Guinea. *Journal of Democracy*, 14(1), 154–165. <https://doi.org/10.1353/jod.2003.0018>
- May, RJ (2008). The 2007 elections in Papua New Guinea. *SSGM Briefing Note 2008/7*, The Australian National University, Canberra. <https://doi.org/10.25911/5f2005a32184a>
- May, RJ, Anere, R, Haley, N & Wheen, K (eds) (2011a). *Election 2007: The shift to limited preferential voting in Papua New Guinea*. National Research Institute, Port Moresby. <http://hdl.handle.net/1885/133353>
- May, RJ, Haley, N & Wheen, K (2011b). Assessing the shift to limited preferential voting. In RJ May, R Anere, N Haley & K Wheen (eds), *Election 2007: The shift to limited preferential voting in Papua New Guinea* (pp. 177–189). National Research Institute, Port Moresby. <http://hdl.handle.net/1885/133353>
- Meki, T (2019, 4 December). Persistence pays: The case of PNG politician Julie Soso. *Devpolicy Blog*. <https://devpolicy.org/persistence-pays-the-case-of-png-politician-julie-soso-20191204/>
- Notarpietro, N, Talao, F, Morgan, J, Standish, B & Ketan, J (2003). *Review of Australia's electoral assistance program to PNG*. AusAID, Canberra.
- Papua New Guinea Electoral Commission (2009). *Report on the conduct of the 2007 national parliament election in Papua New Guinea*. Papua New Guinea Electoral Commission, Port Moresby.
- Papua New Guinea Electoral Commission (2017). *Report to the tenth national parliament on the conduct of the 2017 national election*. Papua New Guinea Electoral Commission, Port Moresby.

- Reilly, B (1996). The effects of the electoral system in Papua New Guinea. In Y Saffu (ed), *The 1992 PNG election: Change and continuity in electoral politics* (pp. 43–76). Department of Political and Social Change Monograph No. 23, The Australian National University, Canberra. https://openresearch-repository.anu.edu.au/bitstream/1885/132912/1/PSC_23.pdf
- Reilly, B (1997). The alternative vote and ethnic accommodation: New evidence from Papua New Guinea. *Electoral Studies*, 16(1), 1–11. [https://doi.org/10.1016/S0261-3794\(96\)00038-8](https://doi.org/10.1016/S0261-3794(96)00038-8)
- Reilly, B (2001). *Democracy in divided societies: Electoral engineering for conflict management*. Cambridge University Press, Cambridge. <https://doi.org/10.1017/CBO9780511491108>
- Reilly, B (2006). Political reform in Papua New Guinea: Testing the evidence. *Pacific Economic Bulletin*, 21(1), 187–194. <https://devpolicy.org/PEB/2019/06/10/political-reform-in-papua-new-guinea-testing-the-evidence/>
- Reilly, B (2021). *Assessing the shift to limited preferential voting in PNG*. Paper presented at the ‘Learning about Papua New Guinea and How it Works’ conference, The Australian National University, Canberra, 16 September 2021. 10.13140/RG.2.2.36510.05448
- Reilly, B & Santucci, J (2021). *Are ‘come-from-behind’ RCV winners different? A comparative analysis*. Paper presented at the Annual Meeting of the American Political Science Association, Seattle, Washington, 28 September to 3 October 2021.
- Rodrik, D (2007). *One economics, many recipes: Globalization, institutions, and economic growth*. Princeton University Press, Princeton.
- Saffu, Y (1989). Survey evidence on electoral behavior in Papua New Guinea. In M Oliver (ed), *Eleksin: The 1987 national election in Papua New Guinea* (pp. 15–36). University of Papua New Guinea, Port Moresby. <http://hdl.handle.net/1885/133355>
- Standish, B (2003). Papua New Guinea’s most turbulent election. *Catalyst*, 33(2), 130–148. <http://hdl.handle.net/1885/86498>
- Standish, B (2006). Limited preferential voting in Papua New Guinea: Some early lessons. *Pacific Economic Bulletin*, 21(1), 195–211. <https://devpolicy.org/PEB/2019/06/10/limited-preferential-voting-in-papua-new-guinea-some-early-lessons/>
- Vicente, PC & Wantchekon, L (2009). Clientelism and vote buying: Lessons from field experiments in African elections. *Oxford Review of Economic Policy*, 25(2), 292–305. <https://doi.org/10.1093/oxrep/grp018>

- Wiltshire, C, Batley, J, Ridolfi, J & Rogers, A (2019). *2019 Solomon Islands national general elections: Observation report*. The Australian National University, Canberra. <https://doi.org/10.25911/5f1ffef759235>
- Wood, T (2018). The clientelism trap in Solomon Islands and Papua New Guinea, and its impact on aid policy. *Asia & the Pacific Policy Studies*, 5(3), 481–494. <https://doi.org/10.1002/app5.239>
- Wood, T (2019). *Papua New Guinea Election Results Database*. Viewed 29 October 2020, <http://devpolicy.org/pngelections/>
- Wood, T, Laveil, M & Kabuni, M (2021, 10 September). Should PNG abandon limited preferential voting? *Devpolicy Blog*. <https://devpolicy.org/should-png-abandon-lpv-20210910/>
- World Bank (2021). *Worldwide Governance Indicators*. Viewed 8 February 2022, www.govindicators.org