

Letters to leaders: Political participation and punctuated equilibrium theory.

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Abstract

Is there a steady, smooth, consistent flow of public opinion to political leaders? Or are the public usually fairly quiet, with occasional periods of shouting from the rooftops? While extensive research has shown that policy agendas are high punctuated, with long periods of stasis and then short periods of major change, there is a paucity of research about the punctuation of public opinion and political participation. This paper advances punctuated equilibrium theory (PET) by applying this approach to individuals' decision to participate in politics. I do this using innovative new datasets of the volume and topic of letters to the Australian Prime Minister and American President. I find clear evidence that that individuals' decision to participate, by writing to political leaders, is punctuated, supporting theories of increasing friction as we move along the policy process. I also find that those topics with a high volume of letters have a higher level of punctuation, supporting the theory that punctuations can occur when the conflict is expanded, and public is drawn into the conflict. These results allow us to extend punctuated equilibrium further up the policy process chain than has previously been done.

Introduction

Every year, thousands of people participate in politics: writing letters; joining campaigns; attending protests. People participate because they want to have an impact on policy, (Verba & Nie, 1987) and policy is expected to be responsive, not just to this public opinion, but also to external environmental signals. ‘Perfect’ responsiveness would mean that policy responded proportionately to the plethora of changing input signals (whether those input signals be public opinion, or changes in unemployment rate, COVID case numbers, or farm gate prices), with policy being constantly tweaked in response to these stimuli. However, this does not occur. Instead, scholars have repeatedly found long periods of relative equilibrium, followed by sudden jumps/shifts, to ‘catch-up’ with the changes in the environment (Baumgartner et al., 2009). This is the ‘punctuated equilibrium’ pattern, predicted by Punctuated Equilibrium Theory (PET), based on the impact of individuals’ - and therefore institutions’ - inability to be comprehensively rational (Baumgartner et al., 2009; Eissler et al., 2016; Jones & Baumgartner, 2012; Koski & Workman, 2018; True et al., 2019; Workman et al., 2022). In this paper, I use letter writing to political leaders to examine whether the same patterns are present in political participation – is there a steady, smooth, consistent flow of public opinion to political leaders? Or are the public usually fairly quiet, with occasional periods of shouting from the rooftops?

PET seeks to be a “full theory of government information processing” (Workman et al. (2009), p75), in order to understand the pattern of policy change. While it was built on theories of individual decision-making (Jones & Baumgartner, 2005), it is yet to be extended to individuals’ decisions to participate in politics. This paper advances PET theory by applying this theory to individuals’ decision to participate in politics – often a key input into policy change. I also show that PET can be successfully applied using different time scales (weekly; fortnightly; and yearly). I do this using an innovative new dataset of the volume and topic of letters to the Australian Prime Minister, as well as leveraging existing data on letters to the American President. I argue that, theoretically, just as a political system must divide its attention between a myriad of policy issues, an individual must also divide their attention, except what is competing for attention isn’t necessarily specific policy issues, but rather politics itself, which is competing for attention with home repairs, buying the kids new clothes, demands from work, or a family health crisis. This results in the same punctuated equilibrium patterns.

This article firsts sets out punctuated equilibrium theory, then presents my theoretical expectations. I argue that the punctuated equilibrium pattern will be present in this example of the expression of public opinion, but will be less pronounced, compared to that found in institutional settings, such as Congress or parliaments. I then set out my data and empirical approach, present my findings and discuss their implications, and how it opens a range of new research opportunities to integrate political participation, policy process, public opinion, responsiveness and accountability theories.

Punctuated Equilibrium Theory – how bounded rationality impacts policy outputs

While policy is expected to be responsive, for ‘perfect’ responsiveness to occur, both individual decision-makers, and the institutions that they are part of, would need to be ‘comprehensively rational,’ (Lindblom, 1959) almost constantly reviewing the situation around them, completely renewing and reviewing the costs and benefits of each policy option, and be able to seamlessly change policies without search or transaction costs. The problems associated with these assumptions are extensively set out in the literature (Jones, 1999, 2003, 2017; Shannon et al., 2019) - people, institutions and the political process are not able to react smoothly and consistently to the environmental signals around them. Instead, individuals’ cognitive processes create limits, or “bounds” on their rationality. Both individuals and institutions have a limited attention scope - individuals and institutions are constantly bombarded with information that may be relevant to decisions, political opinions, and policy options – and we do not have the cognitive ability to collect, assemble, interpret and act on each one of those (Jones & Baumgartner, 2012). Even if the world around us is changing, we can only adapt when we pay attention to that issue. Neither people, nor institutions can deal with all the issues they face at any one time. Instead, issues need to be prioritised and addressed serially (only a few at a time).

Governments attempt to deal with this issue by creating sub-institutions (such as departments, committee systems, etc) which can handle issues in parallel, with each sub-institution dealing with their own issues serially. Most of the time, most of the issues are handled within the sub-system. While policy is controlled within a “policy subsystems,” existing players, interest groups and institutions manage the policy. In these periods, changes are likely to be minimal, as an ‘equilibrium’ has been established by the dominant player(s). These issues are unlikely to come onto the agenda of a Prime Minister/President, and instead are more likely to be managed by Ministers/Secretaries, or public servants. Similarly, the public are unlikely to be engaged in the issue (True et al., 2019).

However, occasionally a policy issue can break free of a subsystem and move from the micro to the macro – onto the public agenda, the legislative agenda, and the Prime Ministerial/Presidential agenda. These periods represent an opportunity for major policy change, or “punctuation”. A range of factors could lead to these punctuations, moving an issue from a sub-system to macro-politics. However, it is usually based around a change in *attention*, either due to an external shock (e.g. 9/11 or the Global Financial Crisis); when an issue is re-framed; or the conflict is expanded and new participants enter conflict (Eissler et al., 2016; Schattschneider, 1961).

An issue getting onto the agenda (‘attention allocation’) is only the first stage in what Jones and Baumgartner (2005) termed ‘the logic of choice’, which is then followed by ‘problem definition,’ ‘alternative generation’ and then finally ‘choice,’ with this model applying equally to individuals and systems. Each stage incurs decision and transaction costs, including the costs associated with the time and

opportunity cost of devoting attention to the issue, researching it, and developing proposed actions. When this model is applied to institutions, there are also “institutional costs”, which are based on the institutional rules and requirements for new decisions to be made. These costs will vary across stages of the policy process and institutional arrangements. The institutional costs of a choice about a budget decision are likely to be higher than the institutional costs of the choice to ask a question in PMQs, or the choice by an individual legislator to introduce a bill (Baumgartner et al., 2009; True et al., 2019). Similarly, across systems, rules around super-majorities or customs around party-line voting will also change institutional costs for any decision. These various costs create various types of “friction” and mean that there isn’t a linear response to changes in the environment (Jones & Baumgartner, 2012). As with friction in physical sciences, this means that the pressure coming into the system needs to be enough to overcome the friction before any movement occurs. The greater the friction/costs, the greater the force needed to start any sort of movement (Jones & Baumgartner, 2012).

Since being first identified in the United States of America (Baumgartner & Jones, 1991), the research has spread significantly: across countries and regions (e.g. USA, France, Hong Kong, Turkey, Russia and the EU – see (Yildirim, 2022)); across different regime types (Baumgartner et al., 2017; Chan & Zhao, 2016; Lam & Chan, 2015); across policy areas (tobacco (Givel, 2006), foreign policy (Joly & Richter, 2019), drug policy (Rychert & Wilkins, 2018) and policy disasters (Fagan, 2021)); and across stages in the policy process (election results, media coverage, party platforms, bill introductions, hearings, budgets – see Baumgartner et al. (2009).

Having set out the broad principles behind punctuated equilibrium, I now turn to why I expect to find punctuations in political participation in general, and in letters to leaders, in particular. As set out above, *attention* is the key causal mechanism of punctuated equilibrium theory (Koski & Workman, 2018). The scarcity of an *individuals’* attention, just like the scarcity of an *institutions’* attention, means that the same “logic of choice” applies to individuals who must juggle the many aspects of their lives. How much time and attention will be placed on each issue they need to deal with? While individuals don’t have congressional committees to delegate matters to, we do have our own sub-systems, which allow us to choose how much time to devote to issues. Food and nutrition; your children’s education; retirement savings; political involvement. Each of these are individual issues jockeying for our attention, but most of the time it is delegated to a sub-system. Do you cook every meal from scratch; use a meal-kit service like Blue Apron, or get fully cooked meals delivered from Snap Kitchen or Diet-to-Go? How involved are you with your child’s education? Home school? Carefully choose the best private school? Or simply send them to the local school? How are your retirement savings managed? Manage your own retirement savings? Leave it with all the default choices? Choose your own retirement fund provider like Vanguard? How involved are you in politics? Regular activist? Non-voter? Regular voter and occasional campaigner? With each of these, the second two options represent some level of delegation to an actor in a subsystem: Blue Apron, or your local school board, or Vanguard.

Regardless of your level of delegation, occasionally your attention may be forced back to that issue, to reassess your decisions. Like the political, this could either be because of a gradual drift means your existing ‘decision setting’ no longer aligns with the external environment, or because of an exogenous shock. Perhaps the quality of Blue Apron has been slowly slipping, or your vegetarian partner has moved in. Perhaps a school shooting has forced you to reconsider schooling choices. Or as you near retirement age, you need to reconsider your retirement savings approach. In each of these cases, an issue can break free of a subsystem and move to the macro – onto your personal agenda, forcing you to reconsider your choices and perhaps take action. An individual “cannot balance one’s checkbook, work out at the gym, pay attention to family, write a book, and teach a class all at the same time.” (Jones and Baumgartner (2005), p34)

The idea that people only pay limited attention to politics is unsurprising and uncontroversial, and indeed is a core assumption behind representative democracy, whether that be Schumpeter’s minimal democracy (Schumpeter, 1987), or more active conceptions of representative democracy – while still requiring more frequent engagement between representative and citizen, it is still limited (McCrone & Kuklinski, 1979; Pitkin, 1967; Plotke, 1997), with citizens becoming active at various times and for various reasons. However, democratic theorists haven’t engaged with the individual cognitive restrictions embedded in bounded rationality, and what that means for conceptions of democratic participation.

Once an individual’s attention is drawn to the political, they must then work through the “logic of choice,” to determine what, if any, action should be taken. For some, it will be joining an interest group, or signing a petition. For others, they will decide to write a letter to the President or Prime Minister. This decision by individuals can be conceived of in a similar way as a member of a legislature receiving a range of inputs from constituents, interest groups, etc, and then their attention shifting to the relevant topic and deciding to act on this input, by asking a parliamentary question, or drafting a bill. Both of these situations involve individual(s), or institution(s), “receiving” inputs that need processing – “collecting, assembling, interpreting, and prioritizing” (Workman et al. (2009), p78) under conditions of attention scarcity. These conditions lead to friction, and therefore we should see the same punctuated, leptokurtic patterns in letters to the Prime Minister and President, because the same underlying bounded rationality is at work.

The next issue is what level of punctuation would be expected. As explained previously, the level of friction is expected to increase along each stage of the policy chain. As Figure 1 (below) shows, there are four steps in the policy chain, moving from lowest friction, to highest, where policy outputs (such as budgetary changes, or the passage of legislation) occur.

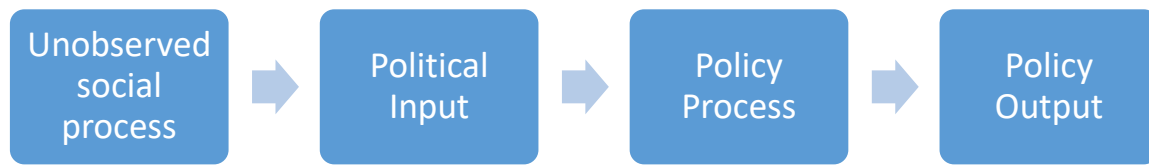


Figure 1: Adapted from Baumgartner et al. (2009)

The driving feature in determining the level of punctuation is the level of friction (Baumgartner et al. (2009)). Within political inputs, there is less friction in deciding to write a letter than participating in a demonstration. Both these acts have less friction than any actual government policy process, or policy output. This should lead to a lower level of punctuation in the letters compared to actions with a higher level of institutional friction (Baumgartner et al., 2009). While there is limited Australian-specific PET data (Dowding & Martin, 2017), my results can be compared to international results, which have displayed a high level of constancy (Baumgartner et al., 2009). For election results, across Denmark, Belgium and the United States of America, Baumgartner et al. (2009) found L-kurtosis scores of between 0.14 and 0.30, with increases in average L-kurtosis as you move from inputs, to policy processes, to budgetary outcomes.¹ I therefore expect a similar level of kurtosis to these election results.

Hypothesis 1a: The change in the total volume of letters follows a punctuated equilibrium pattern

Hypothesis 1b: The level of punctuation in the total volume of letters will be similar to other policy input processes, but will be less punctuated than policy processes or policy outputs

One dataset also includes the topics of the letters, which I have coded against an amended Australian version of the Comparative Agendas Project (CAP) topics (Bevan, 2019; Dowding & Martin, 2017). Finally, I examine the different kurtosis in each of the CAP topics. During periods of equilibrium, policy issues are usually not reflected on the public agenda and therefore it is less likely that people are writing letters on the topic. It is precisely when an issue comes onto the public's agenda that we may see a punctuation, as the issue gets reframed and new players (in this case, the public) enter the conflict (Schattschneider, 1961). Unlike budgets, committee hearings, or legislation, where the 'baseline' level of activity is non-zero, for letters on any particular topic, the baseline is likely to be very low, reflecting that the issue has not been on the public agenda. The existence of letters on a topic either reflect an issue *coming* on the public agenda (through the actions of other interest groups, the media, etc), or it could be reflecting a desire to *get* the issue onto the public agenda. Either way, an increase in the volume of letters on a topic is a demonstration of a change in public attention and an expansion of the conflict. Therefore, I expect to see changes in the volume of letters per subject, to also display a punctuated equilibrium pattern. Those topics with fewer letters are likely to have been a period of stasis during the period of my

¹ For more details on kurtosis measurement, see the data and methods section.

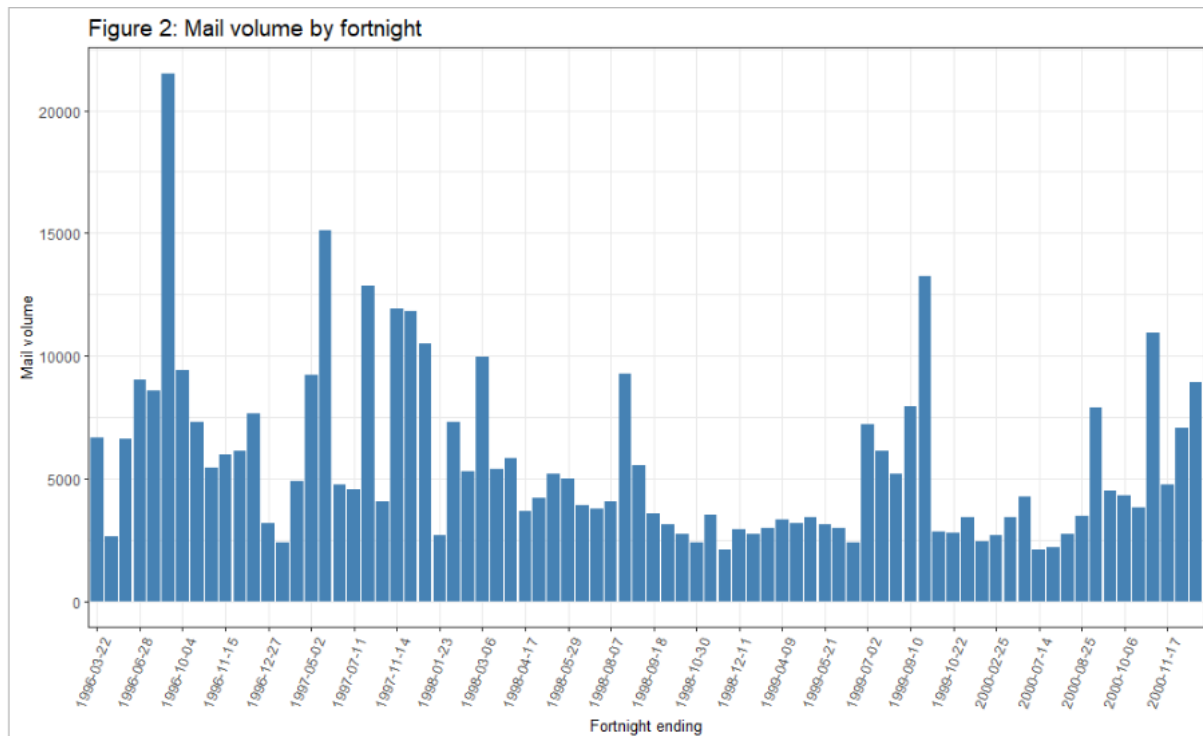
study and will exhibit lower levels of punctuation. This is consistent with the underpinnings of PET that change in attention is a key causal mechanism (Koski & Workman, 2018).

Hypothesis 2: Topics with a lower number of letters will display a lower level of punctuation, compared to those topics with a higher number of letters.

Context – letters to leaders

Contacting a politician or government official is a significant form of political participation (Claggett & Pollock, 2006; Verba & Nie, 1987) in both the United States of America and Australia (Cameron & Mcallister, 2019; Casey, 2021, 2022; Rottinghaus, 2006; Rottinghaus, 2012; Sussmann, 1963). Presidents, politicians, and policymakers use these letters as one way of understanding public opinion (Dexter, 1956; Rottinghaus, 2012; Sussmann, 1959), both by reading individual letters, but also by receiving statistics on the type, volume and subjects of letters being received (Casey, 2022; Rottinghaus, 2006; Rottinghaus, 2007). Given we know that policymakers utilise incoming mail as a source of public opinion, understanding the distribution and change in this input provides an important additional link in the chain to understanding why and how policy outputs behave. The Australian Prime Minister receives around 150,000 letters each year (a rate of ~110 letters per 10,000 adults) (Casey, 2022). While it is hard to ensure comparability, Sussmann (1963) reports that, for every 10,000 literate adults, President Truman received around 104 letters and President Eisenhower received 103 letters.

I focus on Prime Minister John Howard, who was Australia's 25th Prime Minister, serving almost 12 years in office for the Liberal Party (a centre-right party), from March 1996 to December 2007. This study covers the period from when he entered office until the end of December 2000. During this period, he received more than 500,000 letters from members of the public. As can be seen in Figure 2, below, the number of letters Mr Howard received per fortnight varied significantly, from a low of around 2,000 letters, up to a maximum of more than 21,000 letters, with a mean of around 5,600 letters per fortnight. The peaks (August 1996, May/June 1997, November/December 1997 and September 1999) relate to childcare; chicken meat imports; global warming; and the Indonesian invasion of East Timor, and subsequent UN intervention, which was lead by Australian armed forces.



Data and methods

This paper draws together three datasets of letters to political leaders. The main dataset is a new dataset, derived from archival research at the National Archives of Australia (NAA). Each fortnight, Mr Howard received a brief setting out the total amount of mail received in the previous fortnight, as well as details of the topics where he had received at least 30 items of correspondence. This research is based on 69 briefs across the period March 1996 to December 2000 (NAA: M4326, various).

Two additional datasets were used to further test the hypothesis across different timeframes and institutional settings. Firstly, an annual data series from the annual reports of the Australian Government's Department of the Prime Minister and Cabinet (PM&C) (Department of the Prime Minister and Cabinet, 1979-2021). These figures include all mail received by PM&C on behalf of its Ministers. This may create slight discontinuities, as certain functions have moved in and out of PM&C over the years. For example, between 2014 and 2019, indigenous affairs responsibility sat within PM&C, which means that data for those years includes letters to the Minister for Indigenous Affairs. Secondly, weekly data for Presidents Reagan, Carter and Ford (Rottinghaus, 2012). This data is slightly different to the Australian datasets, as it only includes items identified as "policy mail" and excludes letters wishing the President happy birthday, merry Christmas, or other "particularised contact" (Claggett & Pollock, 2006; Verba & Nie, 1987).

To test the first hypothesis, I use weekly (US Presidents), fortnightly (Mr Howard) and annual (Australian Prime Ministers) data, and across two jurisdictions with different institutional arrangements. This differs from the 'standard' punctuated equilibrium approach, of using annual data. However, as Dowding and

Martin (2017) note, the choice of timeframes is ultimately arbitrary. The benefit of my approach is that using different timeframes may help us to identify different patterns.

The dataset for Mr Howard contained 180 individual topics, for example “Tax treatment of capital gains” or “Greenhouse gas emissions” or “Pork meat imports.” These specific topics were coded against the Australian Policy Agendas Codebook, developed by Dowding and Martin (2017), which is based on the Comparative Agenda Project (Bevan, 2019). I added two additional topics, by splitting “Labour, employment and immigration” to form a stand-alone “immigration” topic, and splitting topic “public lands, water management, colonial and territorial issues” to form a stand-alone “indigenous affairs” topic. The high-level topics are:

Policy Agendas Codes

1. Macroeconomics
2. Civil Rights, Minority Issues, and Civil Liberties
3. Health
4. Agriculture
5. Labour, Employment
6. Education and Culture
7. Environment
8. Energy
10. Transportation
12. Law, Crime, and Family Issues
13. Social Welfare

14. Community Development, Planning and Housing Issues
15. Banking, Finance, and Domestic Commerce
16. Defence
17. Space, Science, Technology and Communications
18. Foreign Trade
19. International Affairs and Foreign Aid
20. Government Operations
21. Public Lands, Water Management, Colonial and Territorial Issues
22. Indigenous
23. Immigration and Refugee Issues

Note: Topic numbers 9 & 11 are deliberately blank, having been removed from earlier iterations of the international Comparative Agendas Project codebook.

A random sample of the topics was taken and coded by three coders to determine inter-coder reliability, based on Krippendorff's α . A threshold level of 80 per cent was established as sufficient (Mikhaylov et al., 2012; O'Connor & Joffe, 2020), and an alpha of 0.819 was obtained. As this met the threshold, I then completed the coding.

However, the briefs only include the topics of letters where more than 30 letters were received in that fortnight. This covers approximately 55% of the total volume of letters to Mr Howard. The remaining 45% are a split between letters seeking help/assistance on a personal issue (“particularised contact”) (Casey, 2022; Claggett & Pollock, 2006; Lyons, 2015); and letters on a policy matter, but less than 30 letters were received on that topic in that fortnight. To address this, where I have the brief for a relevant fortnight, and the brief does not contain any letters on a CAP topic, a random number between 1 and 29 has been inserted. These random numbers were only used to test hypothesis 2, which relies on topic-level data. Because of this, when analysing topic-level data, differences were initially calculated both numerically $[(Policy_t - Policy_{t-1})]$, and proportionately $[(Policy_t - Policy_{t-1})/Policy_{t-1}]$.

To test my propositions, I adopt two related approaches to measuring the distribution of attention. Traditionally the level of punctuation has been demonstrated by the level of leptokurtosis in the distribution, using the L-kurtosis score (Baumgartner et al., 2009). Kurtosis is a measure of the ‘fatness’ of the tails of a distribution, compared to a normal distribution, it therefore helps to identify if there is an excess of extreme observations. The higher the kurtosis, the greater the number of extreme observations. New research also suggests that the Gini co-efficient may be a useful additional statistical test for punctuated equilibrium, as it is an effective measure of dispersion, or inequality – in this case, the inequality in the size of the policy changes (Kaplaner & Steinebach, 2022). In the case of PET, a Gini co-efficient of 0 would reflect that every change was of an identical size (a uniform distribution), while a co-efficient of 1 would mean that all of the change observed occurred in 1 observation and the other observations would have zero change. However, there is no standard Gini co-efficient for a normal curve, as it varies based on the mean and standard deviation. A distribution would display a punctuated equilibrium pattern if the Gini co-efficient of the observed distribution was above the Gini co-efficient of the relevant normal distribution. Using the Gini co-efficient has the additional advantage of reducing the risk of type 1 errors in small samples (Kaplaner & Steinebach, 2022). Therefore, I will also report a Gini co-efficient ratio, of

$$\text{Gini co-efficient of the observed distribution} / \text{Gini co-efficient for the normal distribution for the relevant mean and standard deviation.}$$

Where this is above 1, it is evidence of punctuated equilibrium.²

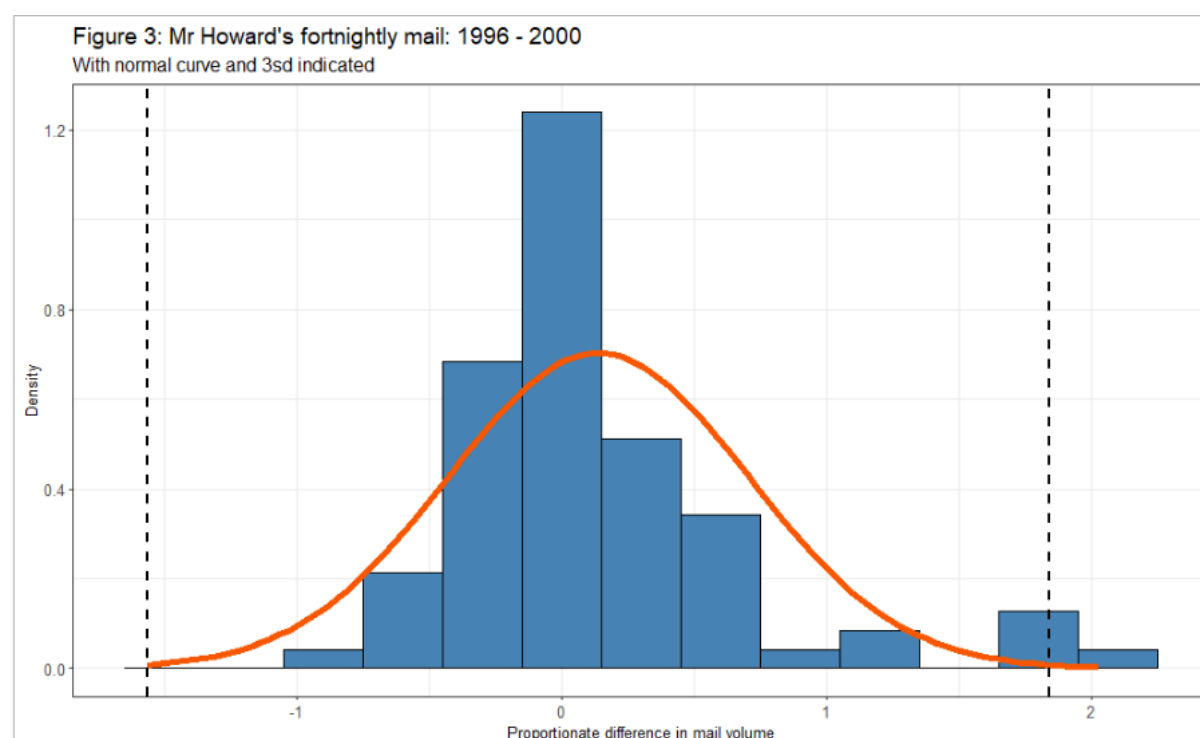
Results

Starting with hypothesis 1a, that the change in the total volume of letters follows a punctuated equilibrium pattern. Figure 3, below, plots the proportionate change distribution of the volume of letters received each fortnight. The proportionate change is calculated consistent with the method set out in Workman et al. (2022) of $(\text{Policy}_t - \text{Policy}_{t-1}) / \text{Policy}_{t-1}$. This creates a natural lower limit of -1. A normal distribution would have an L-kurtosis of 0.123 (Baumgartner et al., 2009), and a Gini ratio of 1.

As expected by hypothesis 1a, it demonstrates a very high peak, representing a high number of fortnights with minimal change, well above the expected by the normal distribution. Twenty-two observations (almost 30 per cent) have a change of less than 10 percent. However, there is also a very high standard deviation (0.568), which demonstrates the large number of large changes (Fernández-i-Marín et al., 2020), with 18 observations (almost 25%) with a change of more than 50 percent. Finally, there are three observations (out of 78) beyond 3 standard deviations from the mean, with a change of more than 187%,

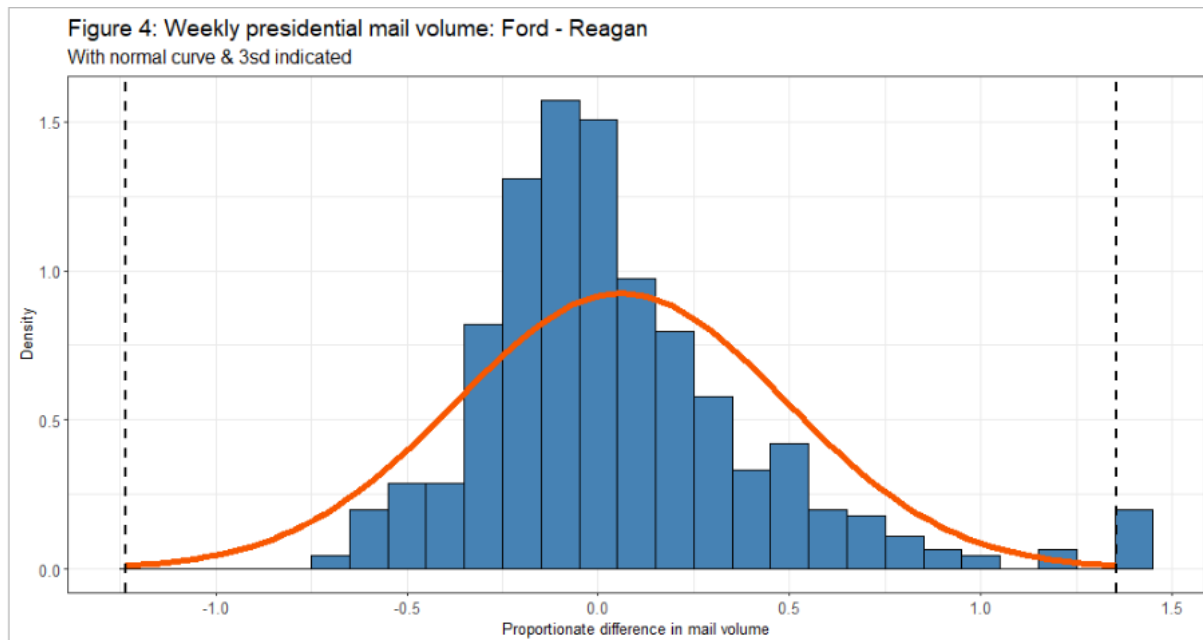
² Calculating the Gini co-efficient for the relevant normal distribution requires random number generation against the normal distribution. Kaplaner & Steinebach (2022) show that with a large sample size for the normal distribution, this is not an issue.

creating fat tails. This creates a leptokurtic distribution, with an L-kurtosis of 0.258 and a Gini co-efficient ratio of 1.471.



This supports hypothesis 1a, that the change in the total volume of letters follows a punctuated equilibrium pattern. To confirm these fortnight-based results, similar tests were undertaken on the other two datasets. Firstly, a more standard annual comparison was undertaken. This covers the period 1981 to 2021, which covers 9 different Prime Ministers. Approximately 45% of the period was Labor (centre left) governments, and the remainder was Liberal/National coalition (centre right) governments. The average volume of letters per 10,000 people is roughly similar across Prime Ministers. Separate analysis not reported here shows there is no statistically significant difference between Labor and coalition Prime Ministers, or between election years and non-election years, or early in a Prime Minister's term and later in that term (Casey, 2022). This dataset has an L-kurtosis of 0.255 and Gini co-efficient ratio of 1.17.

Finally, using weekly data from the White House for 1973 to 1984 produces an L-kurtosis of 0.254 and Gini co-efficient ratio of 1.17, which is evident in Figure 4, below. There are nine observations (out of 451) beyond 3 standard deviations from the mean, with a change of more than 135%, creating fat tails.



Note: for ease of visualisation, all observations beyond 3SD were aggregated at 3SD.

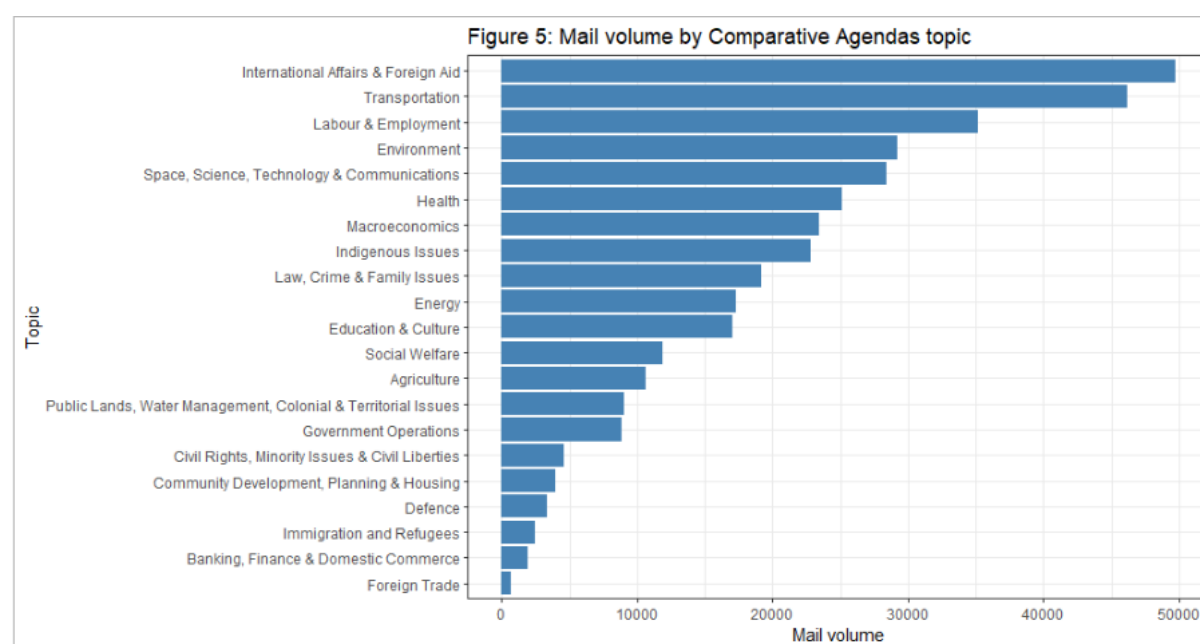
These findings are summarised in Table 1, below. All three of these datasets support hypothesis 1a, that changes in total volume of letters follows a punctuated equilibrium pattern. The consistency of this finding using weekly (presidential data), fortnightly (Mr Howard), and annual data (Australian Prime Ministers), is striking, especially given the significant institutional, cultural and behavioural differences between Australia and America. It demonstrates the potential of using different time intervals in PET research.

Next, we turn to comparing the leptokurtosis of these letters, compared to other policy processes. In hypothesis 1b, I suggested that letters from members of the public should be closer to normal (and therefore display a lower L-kurtosis and Gini co-efficient ratio) than other policy processes, which are further along the policy cycle. This is because letter writing has lower levels of friction (lower cognitive and decision costs) than activities undertaken by political and bureaucratic decision-makers. Thus, it is likely to be similar to other traditional modes of political participation, such as elections, but lower than more active forms of participation, such as protests. Existing research has found that election results have L-kurtosis scores of between 0.14 and 0.30 (Baumgartner et al., 2009). As Table 1 shows, all three datasets sit within this range, which supports hypothesis 1b.

Table 1: Summary of Kurtosis and L-kurtosis for changes in mail volumes

	L-kurtosis	Gini co-efficient ratio	N
Mr Howard – fortnightly (Australia)	0.258	1.47	78
Prime Minister annual (Australia)	0.255	1.16	40
Presidential weekly (USA)	0.254	1.17	504

We now turn to hypothesis 2 and the analysis the data at the level of Comparative Agenda Project topic. This analysis can only be done on the Howard dataset, as the others do not have topic codes. As set out above, to compare topics over time, and across jurisdictions, the original topics were then coded into 21 high level topics, consistent with the international Comparative Agendas Project. Figure 5, below, shows the total mail volume, by topic. The top three topics are international affairs, transportation, and labour & employment. Together, these three topics make up more than 35% of the letters that were allocated to a topic.



In each of these topics, the letters were driven by one or two specific issues (Table 2), leading to short spikes in the volume of letters, followed by long periods of quiet. For example, the international affairs topic was driven by the East Timor crisis in 1998-1999, while the transportation topic was almost exclusively driven by debates on where to place Sydney's second airport.

Table 2: Topics with highest amount of mail

Topic	Total volume	CAP topic
Reduction in Family Day Care funding - Anti	34,000	Labour & employment
Alternative site for Sydney's second airport - Pro	30,000	Transportation
Cuts to the ABC - Anti	26,000	Space, Science, Technology & Communications
East Timorese refugees	18,000	International affairs & foreign aid

Only a few topics are on the public's radar at any one time, with topics appearing and then just as quickly disappearing. Of the 180 unique topics, half appeared only twice, with 75 per cent appearing 5 times or less (Casey, 2022). The lack of consistency across the period shows that what activates, or engages the public, can dramatically change from fortnight to fortnight.

As set out in the methods section, where a brief did not include any letters in a CAP topic, a random number between 1 and 29 was inserted. Because the briefs would not include topics with less than 30 letters, as such, the true number of letters was between 0 and 29. Zeros were not used, as that would create problems in the calculation of proportional differences between periods. The number of times this occurred for each topic is in Table 3. This randomisation lead to significant proportionate changes; however, the numerical changes generated by the randomisation process are not significant compared to numerical changes in non-randomised observations. This is evident in the high correlation between the number of randomised observations and the L-kurtosis and Gini co-efficient ratio on a proportionate basis (Spearman's ρ of -0.55 and -0.62 respectively). However, there is no correlation between the number of randomised observations and the L-kurtosis and Gini co-efficient ratios on a numerical basis (Spearman's ρ of 0.07 and -0.09 respectively). Therefore, for topic-level analysis, I have only used L-kurtosis and Gini co-efficient ratios calculated on a numerical basis.

Table 3: Gini co-efficient ratio and L-Kurtosis scores for CAP topics

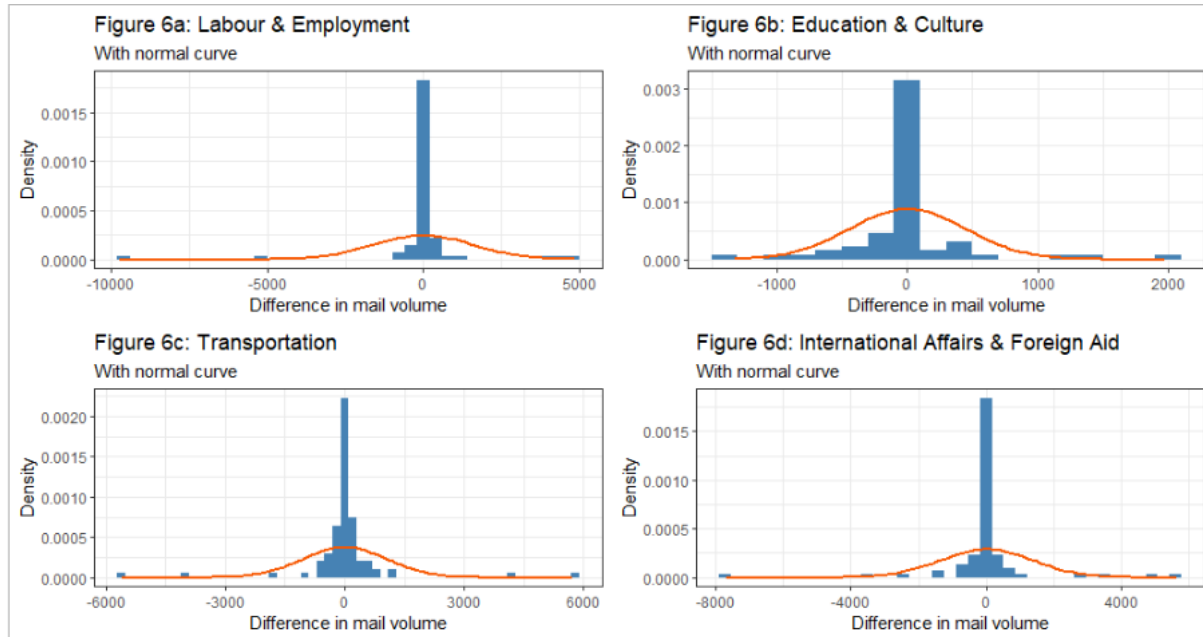
CAP Subject	N	L kurtosis	Gini ratio	N randomised	Total number of letters	Mentions of topic in briefs to Mr Howard
Agriculture	66	0.71	1.95	25	10633	37
Banking, Finance & Domestic Commerce	46	0.54	1.68	36	1918	8
Civil Rights, Minority Issues & Civil Liberties	47	0.64	1.91	34	4604	17
Community Development, Planning & Housing	50	0.55	1.69	35	3366	14
Defence	59	0.47	1.54	29	17028	25
Education & Culture	65	0.54	1.80	24	17276	40
Energy	71	0.62	1.76	20	29235	51
Environment	55	0.75	2.10	29	682	27
Foreign Trade	45	0.69	1.75	39	8834	5
Government Operations	61	0.47	1.67	26	25083	42
Health	64	0.76	1.99	18	3953	52
Immigration and Refugees	45	0.68	1.90	33	2418	12
Indigenous Issues	74	0.6	1.88	15	22789	124
International Affairs & Foreign Aid	87	0.67	1.83	6	49749	119
Labour & Employment	71	0.77	2.16	28	35126	51
Law, Crime & Family Issues	65	0.82	2.34	29	19189	37
Macroeconomics	50	0.82	2.09	32	23466	20
Public Lands, Water Management, Colonial & Territorial Issues	67	0.56	1.77	26	9051	50
Social Welfare	53	0.6	1.93	26	28439	27
Space, Science, Technology & Communications	81	0.62	1.94	27	11872	53
Transportation	101	0.61	1.88	9	46187	112

N is number of fortnights that topic appeared in the mail.

Table 3, above, shows the L-kurtosis and Gini co-efficient ratios for all 21 CAP topics calculated on the basis of numerical change, sorted by Gini co-efficient ratio. Every topic displays a leptokurtic pattern, regardless of which measure is used (this also holds using the standard proportionate measures).

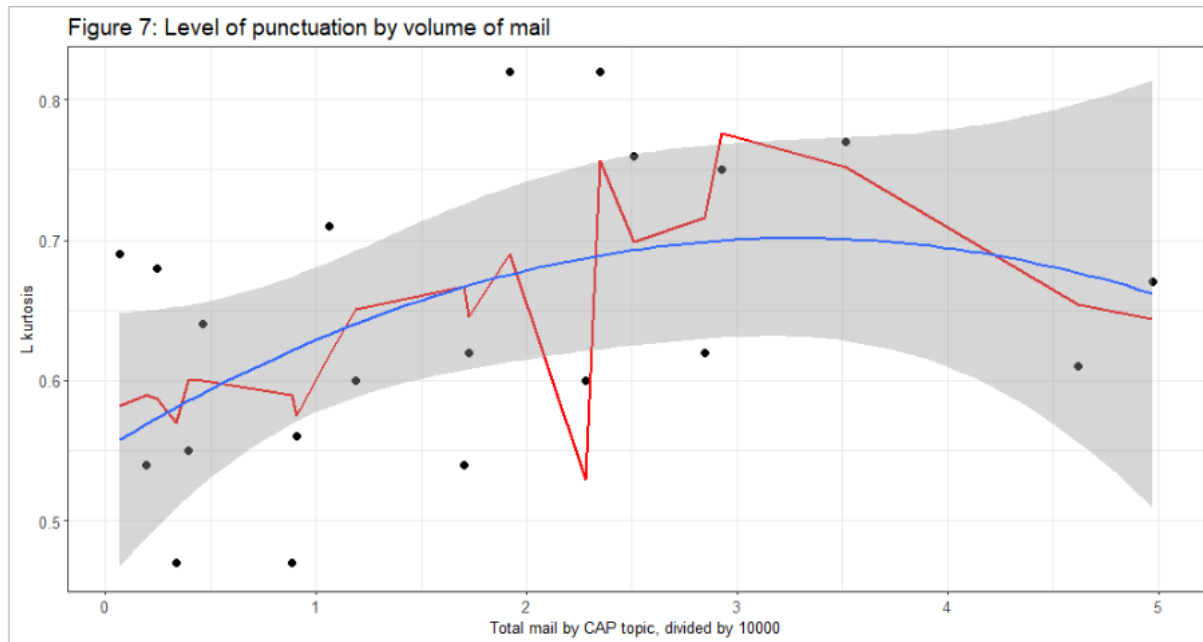
L-kurtosis varies from 0.47 (government operations) to 0.82 (macroeconomics), well above the threshold of 0.123. Similarly, the Gini co-efficient ratio ranges from 1.54 (defence) to 2.34 (law, crime and social control), well above the threshold of 1.

Figure 6 shows the histogram of numeric change, as well as the relevant normal curve to demonstrate the leptokurtic pattern for a selection of CAP topics. Each show very clear high central peaks, well above the normal curve, as well as extreme outliers at both the positive and negative end of the distribution.



The existence of large variations in L-kurtosis scores between CAP topics is consistent with Yildirim (2022), who found similar punctuated equilibrium patterns in responses to the ‘Most Important Issue’ questions in American opinion polling. However, when we look at which topics demonstrated the highest and lowest kurtosis, there are significant differences between these findings and those of Yildirim. He found that macroeconomics, education, and social welfare demonstrated lowest L-kurtosis, while civil rights, agriculture, and international affairs/foreign aid had the highest L-kurtosis values. In my dataset, government operations, defence and education have the lowest L-kurtosis, while macroeconomics, law and labour/employment have the highest values.

Hypothesis 2 suggested that topics with a higher number of letters will be more punctuated, than those lower on the public agenda. The Gini ratio was used for this purpose, as it is more robust to small sample sizes (Kaplaner & Steinebach, 2022). As can be in Figure 7, consistent with the hypothesis, as the volume of mail increases, the level of punctuation also increases. However, the top two topics (international affairs and transportation) show a much lower level of punctuation, inconsistent with the hypothesis.



To better model the relationship, a squared term (total mail^2) was added, and is shown in the blue line, and indicated by model 1, below. The red line includes the addition of the “mentions” variable (model 2, below). This indicates the number of times the topic appeared on Mr Howard’s briefs, and thus provides a proxy for the consistency of the issue on the public agenda. Some topics, even though they had a high volume of mail, only appeared infrequently. Others appeared more consistently, but at a lower average volume. For example, transportation appeared very frequently, while international affairs appeared much less frequently. Once this additional variable is added, the model is statistically significant at 0.01, with an adjusted R^2 of 0.465 (see model 2, below).

	Model 1 (Blue line)			Model 2 (Red line)		
<i>Predictors</i>	<i>Estimates</i>	<i>CI</i>	<i>p</i>	<i>Estimates</i>	<i>CI</i>	<i>p</i>
(Intercept)	1.66 ***	1.50 – 1.81	< 0.001	1.70 ***	1.56 – 1.85	< 0.001
Total Mail / 10000	0.25 **	0.09 – 0.41	0.004	0.28 ***	0.13 – 0.43	0.001
(Total Mail / 10000)^2	-0.04 *	-0.07 – -0.01	0.017	-0.04 *	-0.07 – -0.01	0.020
Mentions / 10				-0.03 *	-0.06 – -0.00	0.045
Observations	21			21		
R ² / R ² adjusted	0.420 / 0.355			0.545 / 0.465		
* <i>p</i> <0.05 ** <i>p</i> <0.01 *** <i>p</i> <0.001						

The significance and negative beta for both the squared term and “mentions,” shows that if a topic stays on the public’s agenda, it reduces the level of punctuation.

The top two topics (transportation and international affairs) both had so much more mail than the next highest topic, that there has been a step-change. These topics were consistently in Mr Howard's mailbag, throughout the period under study, reducing the level of punctuation. This is consistent with other CAP-based punctuated equilibrium research (Dowding & Martin, 2017; Yildirim, 2022), which has found less punctuations in macroeconomics, because of it is more consistently on the agenda, reducing the capacity for high levels of fluctuation. Once a topic is more consistently on the political agenda, it is likely to be easier for an individual to pay attention to it – there is more information available, reducing the transaction costs. While those topics that received very little mail (and also displayed low levels of punctuation), it may that the narrow time-window of this study meant that no relevant issues arose, and a different pattern may emerge over a longer time period. Thus, further work is required to better understand what drives people to write on particular issues. The small sample size in some topics is also a limitation of this aspect of the research.

Discussion

I have shown evidence that extends the punctuated equilibrium theory at the start of the policy process chain, by demonstrating that letters from members of the public to both the Australian Prime Minister and the President of the United States of America demonstrate a punctuated equilibrium pattern. This is the first time that PET has been applied to the decision to participate in politics. Existing PET research has, to some extent, ‘hand-waved’ over the public opinion inputs, relying on the central limit theorem to assume normality (Baumgartner et al., 2009). This research has identified one aspect of those inputs which are not normal. While this research supports the hypothesis that bounded rationality, and the “bottle-neck of attention” impacts individuals’ decisions to participate in politics, this does not answer

precise causal questions about what drives these attention shifts in the public. Is it interest group mobilisation? Is it a response to government outputs and announcements?

While significant research has been devoted to different aspects of the policy process, at different jurisdictional levels and in different countries, much less research has been dedicated to whether similar cognitive limitations impact how individuals make policy demands. Given the normative expectation that policy be responsive to public opinion, it is important to understand how, and under what circumstances, the public express these opinions. Political leaders can only be responsive to public opinion if that public opinion is expressed. If friction means that expressed opinion does not adequately reflect underlying public opinion, this creates a hinderance to political responsiveness.

The development of this new dataset which includes both the volume and topic of letters to the Prime Minister opens a range of new research opportunities to integrate political participation, policy process, public opinion, responsiveness and accountability theories. The dataset also provides a vital new piece in the CAP jigsaw puzzle, which currently only has one dataset on its website on political participation (Swiss direct democracy votes). This will allow us to improve our understanding of the role of political participation and public opinion in agenda-setting and attention allocation.

The punctuated pattern for both the overall letters, and each individual CAP topic may also help us consider the role of constituent contact, and how it fits into the broader political participation and accountability frameworks (Aars & Strømsnes, 2007; Dubrow et al., 2022; Henderson et al., 2021). As explained above, these patterns of behaviour arise due to the cognitive limitations of individuals and institutions. These same limitations have been identified as leading to “fire-alarm” approach to oversight by the US Congress of executive activities (McCubbins & Schwartz, 1984; Shaffer, 2017). The “fire-alarm” model of oversight is “crisis-based”, with oversight in each area “languish[ing] for long periods until third-party actors (usually, citizens or interest groups) draw attention to particular problems.” (Shaffer (2017), p90). McCubbins and Schwartz (1984) emphasised that this “fire-alarm” model relied on citizens and interest groups drawing attention to problems. The volume of the letters, and in particular, the volume of the letters on a particular topic, may be one of these theorised fire-alarms.

Further research is also required to better understand whether these punctuations in the expression of public opinion correlate with actual policy punctuations, and if so, in which direction is the causal mechanism. It is not clear from this data whether punctuations in the expression of public opinion precede policy punctuations, or whether the letters are a result of elite agenda setting (Manza & Cook, 2002). It could suggest that certain types of political participation, particularly in niche subject areas, could be highly effective.

Conclusion

In this study I examined whether punctuated equilibrium theory applies to individuals’ decision to participate in politics. This was achieved through creating an innovative new dataset on the volume, and

topics, of letters to an Australian Prime Minister, on a fortnightly basis. This was then compared to data on the annual volume of letters to Australian Prime Ministers and weekly volume of letters to the America President. My analysis concluded that the total volume of letters follows a punctuated equilibrium pattern, and that the level of punctuation was similar to other policy inputs, and lower than policy processes or policy outputs. This extends and supports the general punctuation thesis (Jones & Baumgartner, 2012) and these findings were consistent across both the Australian and American datasets, and across the weekly, fortnightly and annual datasets.

Punctuated equilibrium theory advocates stress that PET is designed as a “unified theory of information processing” (Koski & Workman, 2018), and has been built by applying individual bounded rationality theories onto political institutions. However, PET scholars had not previously applied those same principles to the individual *qua* citizen, as opposed to the individual *qua* decision-maker. My research brings greater clarity to the unobserved social process found in existing PET research by focusing attention on the *expression* of public opinion, by treating the expression of public opinion as a political input. This is an important gap that has been filled, both because “the relationships between organizational decision making and individual decision making are causal” (Jones, 2003) and because any theory of information processing needs to consider the “sender” of the information (the public) just as much as the “receiver” (politicians and the bureaucracy) (Jones, 2003). These findings point to the broader application of the punctuated equilibrium theory, beyond what has been studied to date.

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