Order Effects of Ballot Position without Information-Induced Confirmatory Bias

Andrew. J. Johnson (*Coventry University*) and Chris Miles (*Cardiff University*)

Abstract

Candidate list positions have been shown to influence decision making when voters have limited candidate information (e.g. Miller and Krosnick, 1998; Brockington, 2003). Here, a primacy advantage is observed due to a greater number of positive arguments generated for early list candidates (Krosnick, 1991). The present study examined list position effects when an absence of information precludes such a confirmatory bias heuristic. We report the first large scale low-information experimental election where candidate position is fully counterbalanced. Seven hundred and twenty participants voted in a mock election where the position of 6 fictitious and meaningless parties was counterbalanced across the electorate. Analysis by position revealed that significantly fewer votes were allocated to the terminal parties (Experiment 1). In addition, Experiment 1 reported preliminary evidence of an alphabetical bias (consistent with Bagley, 1966). However, this positional bias was not present in a methodological replication using six genuine UK political parties (Experiment 2). This suggests that in situations of pure guessing, the heuristic shifts from the primacy benefiting confirmatory bias to an alternative heuristic that prejudices the first and last parties. These findings suggest that whilst the UK general electoral process may be largely immune to positional prejudice, English local elections (in which there can be multiple candidates from the same party) and multiple preference ranking systems (Scottish Local Government and London Mayoral Elections) could be susceptible to both positional and alphabetical biases.

Introduction

The effect of candidate list position on vote allocation has been examined across a number of elections where partial positional randomization is performed (e.g. Koppel and Steen, 2004; Miller and Krosnick, 1998). Across such studies a benefit for candidates positioned early in the candidate list has been reported (Brockington, 2003; Ho and Imai, 2008; Miller and Krosnick, 1998). For example, Miller and Krosnick (1998) analysed the results for 118 different 1992 elections across the US state of Ohio and found a first candidate advantage in 48 per cent of cases. In this study, candidates experienced an average 2.5 per cent increase in vote when first, relative to other list positions. Similarly, Koppel and Steen (2004) reported a first candidate advantage in 71 out of 79 of the New York Democratic primaries analysed; in 10 per cent of those instances, the first candidate advantage was greater than the margin of victory, indicating that positional effects could determine the outcome. In contrast, Ho and Imai (2008) examined a series of state-wide elections across California from 1978 to 2002. They concluded that the first candidate advantage was limited to minor parties and emerged from uninformed voters in non-partisan elections (for similar conclusions see also Darcy and McAllister, 1990).

This first-item list advantage has precedent within the cognitive psychology literature: early items have been shown, for example, to have greater influence on online clicking behaviours (Ansari and Mela, 2003), advertisement choices (Lohse, 1997), jury decisions (Stone, 1969), taste preferences (Mantonakis, Rodero, Lesschaeve, and Hastie, 2009), survey responses (Krosnick and Alwin, 2001), and memory (e.g. Rundus, 1971; Avons, 1998), compared to later list items. In such situations it is argued that early list items possess greater significance as they are used as cognitive markers for subsequent list-item comparisons (e.g. see Henson,

1998, for memory modelling). As a consequence, these early items receive more elaborate processing, and this results in an increase in their salience.

Krosnick (1991) proposed that the first-candidate benefit in voting behaviour is underpinned via the employment of a confirmatory bias heuristic This process involves voters positively evaluating each candidate sequentially, in order to identify reasons to select that candidate. As voters proceed through the list, they allocate increasingly fewer resources to each candidate due to cognitive fatigue. As a consequence, a greater number of positive evaluations are identified for early list candidates, thereby increasing the probability that early list candidates will be selected and latter list candidates will not, i.e. negative recency. However, Miller and Krosnick (1998) speculate that if a voter fails to generate evaluations in support of candidates, and only generates evaluations against the candidates, this effect will be reversed, such that the final list candidate benefits, i.e. a recency advantage. In such a situation, voters allocate more time generating negative evaluations about early list candidates. As a consequence, fewer negative evaluations are produced for latter list candidates due to cognitive fatigue, thereby increasing the probability that such candidates will be selected. However, the conditions under which such an arbitrary shift from a confirmatory to a dis-confirmatory strategy bias occur are not specified.

The strength of the confirmatory bias heuristic is determined by the absence of alternative decision making heuristics, e.g. political affiliation, political awareness, opinion polls (Krosnick, 1991; Miller and Krosnick, 2004; Coombs, Peters, and Strom, 1974). Indeed, Brockington (2003) has argued that politically uninformed individuals who vote due to citizenship obligations experience a high level of cognitive fatigue resulting from the uncertainty of which candidate to select. These individuals cannot rely upon selected

heuristics (e.g. political affiliation) and are, therefore, cognitively overwhelmed by the decision. This decision making impasse, together with limited knowledge of the candidates, promotes the employment of a position-driven heuristic, i.e., without substantive information to guide selection, voters are influenced by the position in which the candidates are placed.

Lack of candidate knowledge might plausibly encourage positional biases in a number of British voting systems. Consider, for example, the preferential voting systems employed for the Local Government Elections in Scotland (Single Transferable Vote: also employed for the Northern Irish European, Local Government, and Assembly elections) and London Mayoral Elections (Supplementary Vote). For these voting systems it is conceivable that voters possess reduced information about (or greater apathy towards) subordinate preferences. These subordinate preferences are likely to be influenced by positional factors (e.g. confirmatory bias) and could, ultimately, affect the outcome of the vote if later rounds are required.

Paradoxically, although a reduction in candidate knowledge increases the probable employment of the confirmatory bias heuristic (Krosnick, 1991), an absence of any candidate knowledge may preclude employment of this heuristic. It is intrinsic to the confirmatory bias argument that the voter is able to generate some arguments (either for or against the candidates), i.e. in order to bias early list information, this information must first be generated. However, an absence of candidate knowledge prevents this process. Consequently, a threshold must exist in the inverse relationship between candidate knowledge and probability of using the confirmatory bias. If this threshold is passed (and voters have insufficient knowledge to generate supportive arguments for each candidate), the confirmatory bias strategy becomes redundant and must be abandoned. Indeed, if this

situation was taken to extremis and the voter had no rudimentary information (except candidate names) by which to direct decision making, then a pure guessing strategy must be employed In summary, the less candidate knowledge a voter possesses, then the more probable it is that they will utilise the confirmatory bias heuristic. However, this correlation terminates when there is a complete absence of knowledge about the candidates, i.e. the voter is choosing by blind guessing only.

A pure guessing strategy might conceivably be applied to the English Local Elections. Consider, for example, the scenario wherein multiple candidates from the same party are listed. In this instance, partisan heuristics would act to narrow the candidacy options but would be a deficient strategy in terms of final candidate selection. Indeed, the compounding effect of disengagement with local elections coupled with individuals voting due to reasons of citizenship might result in a strategy of pure guessing (i.e. participants have insufficient information on the candidates to even employ the confirmatory bias strategy).

In terms of how guessing may manifest itself on the ballot paper, a clear rationale exists with respect to why an advantage for the first named candidate may be observed in situations where the voter possesses only rudimentary knowledge of the candidates, i.e. that voters allocate more time generating positive evaluations for early list candidates (Krosnick, 1991). However, employment of a pure guessing-based strategy does not, a priori, lead to the same primacy prediction. Indeed, research from our laboratory suggests that guessed responses in a memory order task are less prevalent for the first item in the sequence (Johnson and Miles, 2009). Furthermore, in a mock election, where participants were asked to select one surname from a list of named candidates, participants were more likely to select the middle list candidate for three-name lists and the third item for four-name lists (Bagley, 1966). For both

list-lengths negative recency was also reported (see also Nanda, 1975, who found a benefit for the third candidate but not negative recency). However, since neither of these studies employed systematic rotation on the list order of names, there exists the possibility that the effects were influenced by specific list orders/configurations. In addition, Bagley (1966) broadly replicated these findings with identically named candidates (all called 'Jones' with no supplementary information). In contrast to the confirmatory bias-driven primacy advantage reported earlier, Bagley (1966) proposed that, in the absence of candidate knowledge, there are two competing biases in the voting paradigm: the first is selecting candidates with names at the beginning of the alphabet (a letter bias) and the second is a bias for candidates in the middle of the list (a positional bias).

Experiment 1

There are a number of caveats to Bagley's conclusions which stem from experimental design features. First, a single list-order for candidates' names was used, i.e. the list position for candidate names was not counterbalanced. Any order effects may therefore be an artefact of a specific candidate name appearing in a particular list position. To examine the role of order without this caveat, candidate names must appear at each list position an equal number of times. Second, Bagley employed a relatively small sample for the 3- and 4-candidate name elections (n= 50 in both). Third, a 4-item ballot paper has less analogy to the UK electoral system where (not including the nationalist parties of Plaid Cymru, SNP etc) there are six main political parties (i.e. British National Party, Conservative Party, Green Party, Labour Party, Liberal Democrat Party, and United Kingdom Independence Party) (indeed Bagley, 1966, suggested that that list length can qualitatively determine positional effects).

The current study, therefore, was designed to examine positional biases in voting behaviour when participants have no prior information of the candidates and it ensures that candidate name list-position is systematically rotated. Together, these manipulations enable the examination of response patterns when voters are guessing. The study employs six fictitious political parties with no obvious political affiliation. For the current study the 720 different positional configurations for the 6 political parties were generated and each of the different orders given to one member of the mock electorate (n=720). Perfect positional counterbalancing of order is not achieved in some of the reported natural experiments (e.g. Miller and Krosnick, 1998, where the order remained alphabetical but the list began at different junctures within that order) nor in mock experimental elections (e.g. Bagley, 1966; Taebel, 1975; Nanda, 1975). Precise counterbalancing in the present study controls for any contamination effects of one particular candidate on another within the list.

Since each political party occurs at each of the 6 list positions an equal number of times (i.e. 120) the analysis will focus on the number of votes allocated to each position in the list, rather than the number of votes allocated to each party/candidate. An additional analysis by candidate name will be conducted to examine the proposition of a competing preference for names appearing early in the alphabet (Bagley, 1966).

Method

In a between-participants counterbalanced design, 720 (552 females and 168 males; mean age = 21 years 10 months) Coventry University undergraduates recruited via undergraduate lectures selected a single party on a mock ballot paper containing six vertically ordered fictitious political parties. Participants were instructed to select a single party by placing an

'X' in the box next to the party. If unsure as to which candidate to select, participants were instructed to guess.

The parties were created through the arbitrary combination of three randomly generated consonants (i.e. The CTN Party, The HTB Party, The JFZ Party, The VPF Party, The WBQ Party, and The XBJ Party), with the proviso that the same consonant was not repeated within a party name. This process was intended to create meaningless acronyms with no obvious political (or more general semantic) connotation.

The 720 different positional configurations of the six parties were produced in order that each party was presented at each ballot position an equal number of times. Each of the 720 participants received a different positional configuration of the six parties. Consequently, any preference for a particular party is balanced across the six positions. Therefore, in our analysis, ballot position is coded as the recipient of votes rather than the 'candidates/parties'. An additional analysis by candidate name is also reported.

Ethical approval for the study was obtained from the Coventry University Ethics Committee.

Results and Discussion

An uneven distribution of votes across the 6 list positions was observed ($X^2(5) = 23.89$, $p<0.001$); more votes were allocated to the middle list positions at the expense of the terminal list candidates (see Figure 1a). Post-hoc pairwise chi-square analysis (with an extremely conservative Bonferronni correction) supported this observation. The number of votes allocated to positions 1 and 6 was significantly lower than that allocated to positions 2 to 4.

Figure 1 about here please

The distribution of votes across the six positions is consistent with the findings of Bagley (1966) who reported that for three and four candidate lists (organised non-alphabetically) there was a bias for the middle and third position, respectively. Unlike the current study, the sample sizes each comprised 50 participants using a single list order for candidate names. The present experiment reinforces this finding to include six candidates with a large sample size with complete randomisation of candidate order.

Bagely (1966) additionally hypothesised that a second bias exists in favour of names beginning with the letter occurring early in the alphabet. This bias was examined in the current data set through analysing the number of votes allocated by candidate name, rather than position in list. This revealed a significantly uneven distribution of votes, $X^2(5) = 96.62$, $p<0.001$ (see Figure 1b). Specifically, post-hoc pairwise chi-square analysis revealed that CTN (the alphabetically earliest party) received a significantly greater number of votes than the other parties. Furthermore, the number of votes allocated to the top three alphabetic parties, i.e. CTN, HTB, and JFZ (number of votes=457) was significantly greater than the number of votes allocated to the bottom three alphabetic parties, i.e. VPF, WBQ, and XBJ (number of votes=263); $X^2(1) = 52.27$, $p<0.001$. Both of these analyses are in line with Bagley's (1966) finding of a bias for party labels occurring earliest in the alphabet.

This experiment has shown that in a situation of guessing (and/or low interest) voters are influenced by the position of items within the list and/or the position of the first letter in the alphabet. This finding has clear implications to situations in the British voting system where

blind voting might be employed (e.g. when there are two or more candidates from the same party in English Local Government Elections). In the aforementioned situation, one might expect candidates at the beginning or end of the list to be rejected.

Experiment 2

The results of Experiment 1 supported both positional and alphabetical biases for six fictitious parties following full counterbalancing across a large sample. However, these fictitious parties carry no semantic information. One might predict therefore, that when participants have the heuristic of political knowledge (e.g. in a General Election), such biases are attenuated (e.g. Brockington, 2003). Therefore, we conducted a further experiment employing the names of six genuine UK political parties (i.e. The British National Party, The Conservative Party, The Green Party, The Labour Party, The Liberal Democrat Party, and The United Kingdom Independence Party). Experiment 2 therefore examines whether the list position might influence voting patterns in an election analogous to the UK General Election.

Method

The methodology was as described above such that 720 Coventry University and Cardiff University volunteer undergraduates (201 male, 519 female; mean age = 22 years and 10 months: none had participated in Experiment 1) selected a single party on a ballot paper. The list position of each party was counterbalanced as in Experiment 1.

Results and Discussion

In contrast to the findings of Experiment 1, no positional bias was observed, ($X^2(5) = 3.0$, $p=0.70$ (see Figure 2a). In fact the distribution of votes was statistically equivalent to that predicted by chance. Experiment 2 has shown that with the introduction of semantic

knowledge (i.e. politically partisan cues) any effects of order are diluted. Furthermore, although there was an uneven distribution of votes across the parties ($X^2(5) = 316.63$, $p<0.001$), as shown in Figure 2b, there is not a benefit for the party occurring earliest in the alphabet (i.e. BNP). Taken together these findings support past research that indicate the attenuation of more basic biases following the introduction of higher order heuristics (i.e. political knowledge).

Figure 2 about here please

General Discussion

The current study has shown that in a mock voting situation where voters are told to imagine that they have to vote for a party within an election but have no information on which to base their decision, a cognitive bias exists against the terminal candidates. This finding suggests that such a strategic shift may occur when individuals have insufficient information to employ the confirmatory bias heuristic (see Krosnick, 1991; Brockington, 2003). In such conditions, the move to guessing shifts the preference from primacy to non-terminal list candidates. This is contrasted with our control data (involving genuine UK political parties, Experiment 2), which showed no such effect. Furthermore, the full counterbalancing of candidates by position has also demonstrated evidence for an alphabetical bias when voters have no information about the candidate (consistent with Bagley, 1966).

The present findings indicate that the UK General Election may not be susceptible to positional or alphabetical biases; higher order knowledge of the parties/candidates will usurp

the more rudimentary biasing heuristics (e.g. position). However, when voters are purely guessing (e.g. a locally disinterested individual votes in English Local Elections when there are multiple candidates from the same party) position may affect the final selection. In that instance, the findings of Experiment 1 suggest that voters will be biased against those candidates positioned at the start and end of the list. In preferential votes (Supplementary Vote and Single Transferable Vote), as used in Scotland and London, it is conceivable that subordinate preferences may be premised on less information and/or less interest. As a consequence one might rely upon the confirmatory bias heuristic (Brockington, 2003) to guide later preferences, resulting in a primacy bias. Alternatively, if voters possess a complete absence of knowledge about later preferences (e.g. independent candidates with no partisan affiliation) voters may revert to guessing characterised by the bias against candidates at the start and end of lists.

Our finding for a bias against non-terminal candidates in Experiment 1 is consistent with that reported by Nanda (1975) for sequences of 4 candidate names and Bagley (1966) when employing identical or different (yet meaningless) candidate names. Furthermore, it should be noted that when Bagley (1966) rotated the order in which names appeared in the list, so that position was no longer alphabetical, first candidate selection fell dramatically (39%-15% and 28%-10% for lists of three and four candidates, respectively: although this did not reach significance). Bagley (1966) argued that the first item benefit in his earlier experiment was an alphabetical, rather than a positional effect. The present data broadly support that observation. The preliminary alphabet effect reported in Experiment 1 is, however, speculative in that the exact mechanism is unclear (although the availability heuristic is likely to play a role in this bias, e.g. Tversky and Kahneman, 1982). Any benefit for candidate names beginning with letters early in the alphabet may derive from the specific configuration

of letters rather than alphabetical position per se. Such a finding requires more controlled examination.

Employing a bigger sample and full counterbalancing procedures, we have shown that a positional bias exists against the first and last list candidate when guessing. The exact mechanism underpinning this bias against the first and last candidates is unclear. However, the lack of primacy bias in the present data further supports abolition of the confirmatory bias heuristic when there is insufficient information. In contrast, the absence of positional effects in the control data is consistent with the premise that alternative information-based heuristics (e.g. political knowledge) will usurp strategies based upon position (e.g. Brockington, 2003).

Brockington (2003) states that primacy effects are accentuated when information is low. However, the current data identify a bias beyond the low information model (i.e. confirmatory bias) and are therefore only of relevance when insufficient information precludes generation of any supportive arguments for the candidates. This bias may therefore only be applicable to certain voting contexts, for example, where the voter does not possess any knowledge of the candidates (non-partisan elections selections). Alternatively, the findings of Experiment 1 might relate to abject disinterest in the candidates. Indeed, it is an empirically testable question whether profound apathy in the candidates (despite the possession of knowledge about the options) might induce similar positional biases. Such issues are pertinent to both UK national and local elections (if indeed such individuals opt to turn out to the polling station). Moreover, the absence of compulsory voting in UK elections (compared to Australia, for example) (1) potentially limits the effect of apathy/ignorance on positional biases, since such individuals may lack the motivation to vote and (2) illustrates how profound heuristics such as position might be in determining the result if compulsory

voting was introduced (one third of the electorate failed to vote in the 2010 UK General Election illustrating widespread apathy/ignorance/disillusionment).

Analogous to the confirmatory bias, this non-terminal bias may be attenuated by the introduction of other heuristics (Brockington, 2003; Miller and Krosnick, 1998), e.g. increased political knowledge. Notwithstanding the null effect on General Elections, there are a number of instances where the reported effects may be applicable in UK politics. First, as stated above, local elections often contain multiple candidates from the same political party. If an individual has no knowledge of the candidates but desires to vote purely on partisan grounds, the choice of candidate may be influenced by positional or alphabetical cues. Second, subordinate choices in preferential votes (particularly for independent candidates) may be susceptible to guessing. Indeed, although the Alternative Vote referendum was rejected by the UK electorate in 2011, the influence of positional biases might have provided additional discussion in respect to the merits of such a system. Third, one might speculate that with a push to the central ground by the major parties, Orwellian control of media sound-bites by political parties, and a UK coalition government between a centre-right and centre-left party, a new generation of electorate without the historical party prejudices may be more susceptible to positional effects due to a lack of overt ideological differences. Fourth, in elections where the voter perceives an obligation to vote but has insufficient time to research the candidates (e.g. Trade Union elections), the aforementioned heuristics may become important.

In summary, the present study represents the first large scale low-information experimental election where candidate list position is fully counterbalanced. Contemporary studies examining positional effects in voting have focussed on a confirmatory bias induced primacy

advantage. However, Experiment 1 suggests that when there is insufficient information to employ the confirmatory bias heuristic, two alternative strategies are employed. The first strategy results in advantage changing from the primacy item (e.g. Miller and Krosnick, 1998) to a bias against the first and last candidates. In contrast, the second strategy results in a bias for those candidates whose names appear earlier, rather than later, in the alphabet. Both of these findings are consistent with the early work of Bagley (1966). It has been described how these guess-based strategies might be applicable to specific instances in UK elections. However, this experimental observation now requires field investigation; for example, one might examine whether a positional advantage is indeed observed for multiple candidates from the same party in English Local Elections. If such a finding is corroborated, the pertinent question follows as to if/how one might mitigate this bias. Full positional counterbalancing would be both logistically and financially problematic; especially considering the potential limited scope of the problem (although partial positional randomisation is employed in California). One speculative approach might involve the admittance of candidate information to the voting station, wherein individuals who have not engaged with the electioneering (but are voting on grounds of citizenship) have one final opportunity to engage with the options available.

References

Ansari, A., and Mela, C.F. (2003). E-customization. *Journal of Marketing Research, 40* (2): 131-145.

Avons, S.E. (1998). Serial position and item recognition of novel visual patterns. *British Journal of Psychology,* 89(2): 285-308.

Bagley, C.R. (1966). Does candidates' position on the ballot paper influence voters' choice? A study of the 1959 and 1964 British General Elections. *Parliamentary Affairs,* 74: 162-174.

Brockington, D. (2003). A Low Information Theory of Ballot Position Effect. *Political Behaviour,* 25(1): 1-27.

Coombs, F.S., Peters, J.G., and Strom, G.S. (1974). Bandwagon, ballot position, and party effects: an experiment in voting choice. *Experimental Study of Politics,* 3: 31-57.

Darcy, R. and McAllister, I. (1990). Ballot Position Effects. *Electoral Studies,* 9(1): 5-17.

Henson, R.N.A. (1998). Short-term memory for serial order: The start-end model. *Cognitive Psychology,* 36: 73-137.

Ho, D.E., and Imai, K. (2008). Estimating causal effects of ballot order from a randomised natural experiment: the California alphabet lottery, 1978-2002. *Public Opinion Quarterly,* 72(2): 216-240.

Johnson, A.J., and Miles, C. (2009). Single-probe serial position recall: evidence of modularity for olfactory, visual and auditory short-term memory. *Quarterly Journal of Experimental Psychology,* 62(2): 267-275.

Koppel, J.G.S., and Steen, J.A. (2004). The Effects of Ballot Position on Election Outcomes. *Journal of Politics,* 66(1): 276-281.

Krosnick, J.A. (1991). Response strategies for coping with the cognitive demands of attitude measures in surveys. *Applied Cognitive Psychology*, 5: 213-236.

Krosnick, J.A. and Alwin, D.F. (2001). An evaluation of a cognitive theory of response-order effects in survey management. *Public Opinion Quarterly*, 51: 201-219.

Lohse, G.L. (1997). Consumer eye movement patterns on Yellow Pages advertising. *Journal of Advertising*, 26(1): 61-73.

Mantonakis, A., Rodero, P., Lesschaeve, I., and Hastie, R. (2009). Order in choice: effects of serial position on preferences. *Psychological Science*, 20(11): 1309-1312.

Miller, J.M., and Krosnick, J.A. (1998). The impact of candidate name order on election outcomes. *Political Opinion Quarterly*, 62: 291-330.

Nanda, K. (1975). An experiment in voting choice: who gets the blind vote? *Experimental Study of Politics*, 4: 20-35.

Rundus, D. (1971). Analysis of rehearsal processes in free recall. *Journal of Experimental Psychology*, 89(1): 63-77.

Stone., V.A. (1969). A primacy effect in decision making by jurors. *Journal of Communication*, 19(3): 239-247.

Taebel, D.A. (1975). The effect of ballot position on electoral success. *American Journal of Political Success,* 19(3): 519-526.

Tversky, A. and Kahneman, D. (1982). Judgment under uncertainty: heuristics and biases. In Kahneman, D., Slovic, P., and Tversky, A. (eds). *Judgment under Uncertainty*. New York: Cambridge University Press.

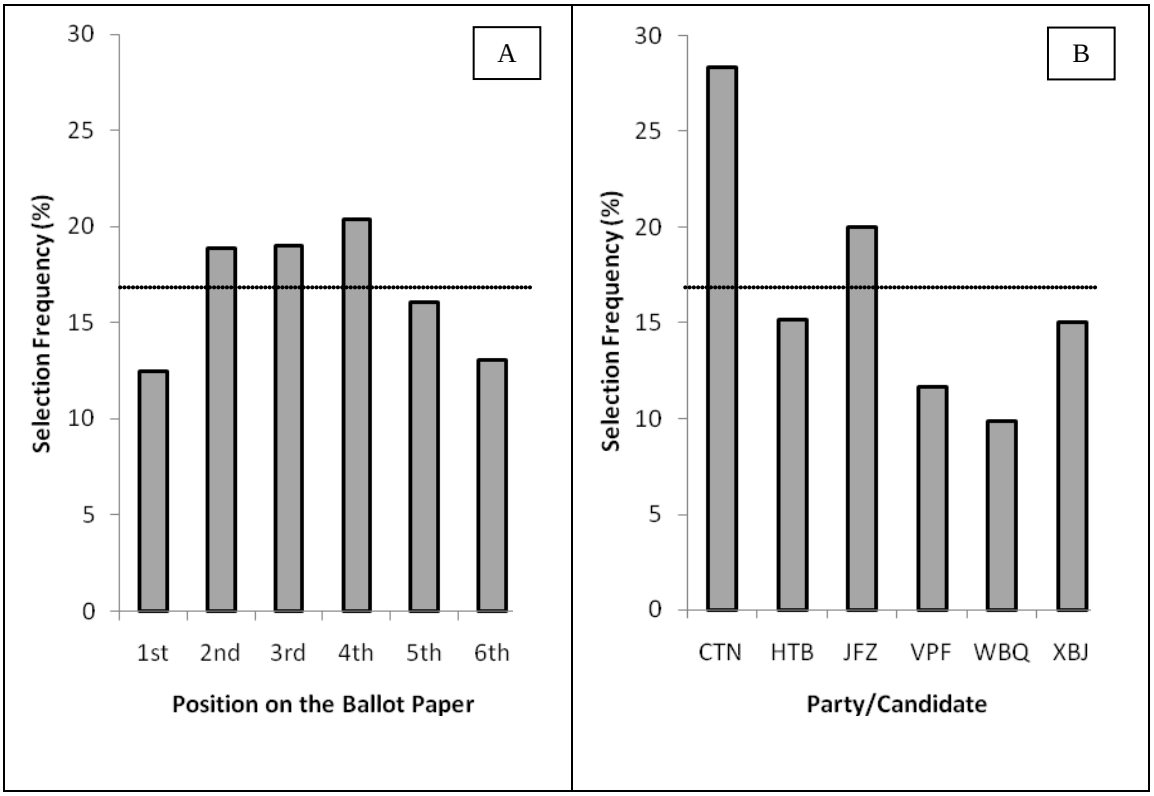

Figure 1 (a-b): Mean percentage selection frequency (a) by position irrespective of fictitious party/candidate label and (b) by fictitious party/candidate label irrespective of position. The dotted line denotes an equal distribution of responses.

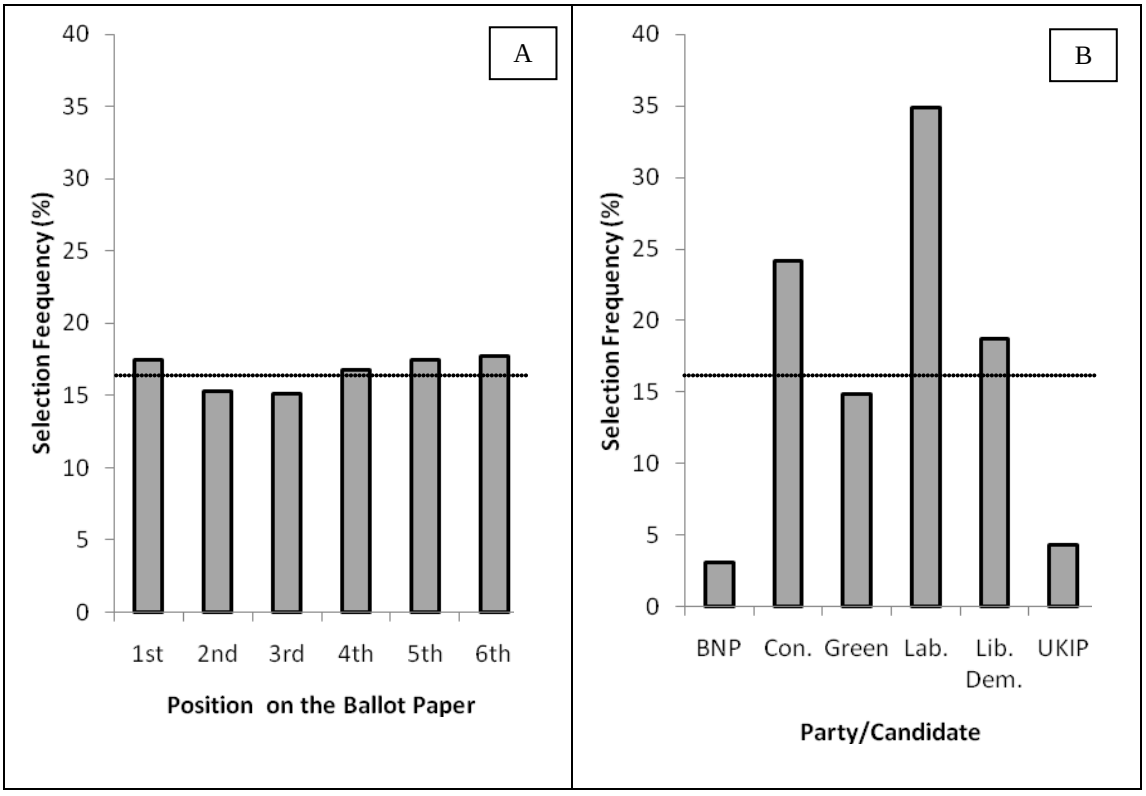

Figure 2(a-b): Mean percentage selection frequency (a) by position irrespective of genuine party/candidate label and (b) by genuine party/candidate label irrespective of position. The dotted line denotes an equal distribution of responses.