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Abstract
Debates about electoral reform revolve around giving voters more choice. Consequently, reformers often favor adopting the single transferable vote, a candidate-based system that allows voters to rank order candidates. Nonetheless, studies about whether lower preferences (transfers) influence STV election outcomes remain scant. To address this gap, our comparative multivariate approach tests transfers' impact on election results in Ireland, Malta, Northern Ireland, and Scotland. We find that, on average, transfers are pivotal in the election of about one in 10 elected candidates. Hence, their impact is the exception rather than the norm. We show that when lower preferences are decisive at the candidate level, they benefit smaller and moderate parties and non-incumbents and, in Malta and Ireland, female candidates. Our results have implications for understanding the extent to which multiple preferences influence election outcomes and for debates on electoral reform.

Introduction

Citizen disenchantment with politics is *en vogue*. Participation in elections cross-nationally is lower today than in recent decades and citizens express low levels of trust in political institutions. Concurrently, we see the rise of anti-establishment parties globally and increased voter volatility. The question of whether institutional change might address these challenges has generated research

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on electoral reform (e.g. Bowler and Donovan, 2013; Renwick and Pilet, 2016). Among the central planks of reform is choice: giving citizens more options in choosing elected representatives. This comes in many forms, including increasing citizen involvement in selecting certain positions and enabling voters to choose parties and candidates (e.g. Renwick and Pilet, 2016). Another option is offering voters preferential voting, which permits electors to rank-order candidates. Our focus is on this. Our interest is to understand whether allowing voters to express several preferences impacts election outcomes decisively. We break new ground by focusing on the classic preferential voting system: the single transferable vote (STV) or choice voting as it is referred to in the United States. Our analysis builds on a wide-ranging literature exploring the impact of electoral systems on voter behavior and election outcomes (e.g. Carey and Shugart, 1995; Gallagher, 1991).

STV merits focus as scholars have evaluated it as the second 'best' electoral system, just behind mixed-member proportional systems (Bowler et al. 2005). Moreover, many proponents of electoral reform herald it as the preeminent system to adopt (e.g. British Columbia Citizens' Assembly on Electoral Reform, 2004). Not surprisingly, therefore, STV has been an option offered to voters in several plebiscites on electoral reform—for example, the 2009 referendums in British Columbia, the 2011 vote in New Zealand, and the 2016 vote in Prince Edward Island, Canada. Additionally, the majoritarian version of STV—the alternative vote (AV)—was offered as an option to British voters in 2011. STV's prominence in the electoral reform arena has coincided with a growth in candidate-centered electoral systems in Europe (Renwick and Pilet, 2016). STV could legitimately be described as a classic candidate-centered system as voters have no option but to vote for candidates. Therefore, understanding whether a central plank of this system, namely being able to cast lower preferences for candidates influences the results, can offer new insights into the debate concerning electoral reform.

Additionally, many have pointed to the vast choice STV multi-preferences offers to voters (e.g. British Columbia Citizens' Assembly on Electoral Reform, 2004: 5; Farrell et al., 1996), its promise to provide broader representation of the electorate, and for reducing wasted votes compared with non-preferential systems. STV voters favor its retention (Farrell et al., 2016), and research also shows that preferential voting systems (including STV) foster a greater sense of fairness among citizens, which leads to higher voter satisfaction with democracy (Farrell and McAllister, 2006). Putting all of this together, STV is of interest to electoral scholars and is pertinent to the debate on electoral reform, thus warranting further investigation.

In STV systems, the voter votes in a multi-seat district. A list of candidates is presented to the voter, which they rank in descending order of preference. Voters have one vote which is transferred from one candidate to another, depending on the rank order. A candidate is required to reach a quota to guarantee election.[1] The counting of votes begins with the tabulation of voters' first choices. A candidate who reaches or exceeds the threshold is elected. If a candidate exceeds the quota, their *surplus* votes are transferred following the voters' next preference. If no candidate reaches the quota, the elimination of candidates with the fewest votes occurs, and these votes are distributed to the voters' subsequent preference. This process continues until all seats are filled (for a review of STV, see Farrell and McAllister, 2000 & Farrell and Sinnott, 2018).

Thus, there are two types of preference votes[2] in STV: the *first preference*, which we assume reflects the voters' sincerest wish about the outcome, and *lower preferences*, which reflect their subsequent choices (often termed transfers).[3] Political actors make great efforts to earn lower preferences (e.g. Ahern, 2010: 257; Burke et al., 2016). Conventional wisdom, especially in the media, holds that these votes have a decisive role in deciding elections (Coghlan, 2002; Collins, 2015). However, we lack a systematic test of this vital component of STV. While literature exists examining their impact on party and campaign behavior (e.g. Katz, 1985) and how voters use them (e.g. Marsh, 1985; Marsh et al., 2008), remarkably few studies have explored the mechanical

dimension, a vital omission considering that many electoral reformers advocate STV. Those few studies that have examined the issue (Gallagher, 1979; Green, 2014; Jesse, 2000) were embryonic, country-specific, and are dated. In sum, we require a new analysis.

Our article makes two contributions. First, our focus on the mechanical dimension of lower preferences, is itself novel, becomes even more original due to its comparative and multivariate approach. We have created a unique dataset which encompasses data on the impact of lower preferences on election outcomes in 62 elections over 60 years and across a near-universe of STV cases.[4] Second, we develop the study of preference voting by exploring in what circumstances lower preferences matter decisively at the candidate level. Our analysis shows that on average one in 10 candidates' election decisively depends on transfers (mean country range = 6–13%). Hence, giving more choice to voters through lower preferences can and does influence election results. However, we should not exaggerate their impact—their decisiveness is the exception rather than the norm. Our study also demonstrates that incumbents rely less on transfers to guarantee election and that lower preferences benefit smaller and moderate parties.

Lower preferences and decisiveness in STV systems

Preference voting: State of the art

We can split the literature on preferential voting into three strands, namely the supply side, the demand side, and the mechanical side.

The supply-side explores the impact of preferential systems on political actors. Richard Katz' (1985) trailblazing studies on preferential voting in Italy shows that it influenced intra-party competition and campaign finance. Other research shows that excessive personalism—candidates emphasizing their personal record and personality rather than their party affiliation—is prevalent in preferential systems (Carey and Shugart, 1995). Additionally, and unique to STV, the preferential dimension has been linked to candidates extensively focusing on local issues (e.g. Farrell et al., 2016).

The demand side literature focuses on preference votes and voters. In PR-list systems, research on which voter is likely to cast a preference vote (e.g. Marsh, 1985), has been developed by Andre et al. (2012), who establish that preference votes are most likely to be cast by politically sophisticated individuals. Studies concerning STV have explored how many preferences a voter is likely to express, with evidence from Ireland suggesting the mean number of preferences expressed is 3.9 (Marsh et al., 2008). Elsewhere, research focuses on what transfers tell us about voters' loyalty to a party (e.g. Sinnott and McBride, 2011).

Research on the mechanical side, namely how preference votes impact election outcomes, has concentrated on quirks that can arise with the counting procedures, with many studies highlighting STV. One issue is monotonicity, which has particularly excited social choice theorists. They have bemoaned that STV can lead to the perverse situation where a candidate that gains more votes can lose the election (Doron and Kronick, 1977). There is also the surplus/bundle problem, which relates to the selection of papers for surplus vote (e.g. Farrell and McAllister, 2003; Sinnott and McBride, 2011). Meanwhile, taking a broader conception of preference voting, Renwick and Pilet (2016, Chp. 9) investigate whether enabling voters in PR systems to choose candidates as well as, or instead of, parties—what they classify as preference voting—influences election outcomes. Concerning their pivotality, the results are mixed.

Our interest is how lower preference votes shape electoral outcomes in STV systems. The literature on this is relatively scant with only two published articles and one parliamentary submission addressing this topic.[5] The first and most recent is confined to Australia's use of STV for upper

house elections. In Australian Senate elections, voters can vote for a pre-ranked list ('above the line' voting), something which the vast majority of voters do.[6] Green (2014) demonstrates that this can result in 'preference harvesting', whereby parties with very few votes have considerable influence on preference vote distributions and, thus, the result. The second is Gallagher's (1979) seminal analysis of preference voting in four Irish general elections. His work concluded that transfers matter much less than is often assumed, but that when they have counted, they were more likely to have been decisive in constituencies with more seats and, in the Irish case, benefitted Fine Gael. It was another two decades before the issue was taken up again, this time by Jesse (2000). He examined preferential voting's impact on election outcomes in Ireland (STV) and Australia's (AV) lower house elections. His work found that preference votes were more decisive in STV elections and were more likely to influence outcomes in districts with more seats.

While all three analyses provide a useful starting point, Green's analysis is confined to Australian 'above the line' voting. The other two, which deal with STV in circumstances where it operates conventionally, rely on a small number of cases and are descriptive. To our knowledge, no existing studies have explored the issue cross-nationally across multiple elections and electoral levels and through a multivariate analysis. Our research fills this space. In this paper, we have two research questions:

> RQ1: To what extent are lower preferences decisive in STV elections?

> RQ2: In what circumstances are lower preferences decisive in STV elections?

Conceptualizing the decisive impact of lower preferences on election outcomes in STV systems

Decisiveness can be measured at two levels: the candidate level and the electoral body composition level.[7] Our interest here is the candidate level, and thus we look at elections in districts. Lower preferences in STV can be said to have had a conclusive impact on the election outcome at the candidate level when the distribution of transfers results in a 'decisive' change in the result in a district compared with a situation had lower preferences not been distributed. Fundamentally, decisiveness depends on candidates who do not occupy a winning position (defined as occupying one of the n-slots on count 1 in a district with n-seats) winning election after the distribution of lower preferences. Put another way, transfers are *not* decisive if the candidates who occupied the winning positions on count 1 are ultimately those elected after the distribution of lower preferences (see the seminal study by Gallagher, 1979: 19–20 for an identical definition of decisiveness; also, Jesse, 2000).

Table 1 helps us illustrate this with examples from two different districts. We list the results of the 2016 Northern Ireland assembly elections in North Antrim on the left. We show the results of the 1989 Irish general election in Cork South Central on the right. The table lists the candidates, their party affiliation, their position on count 1 in descending order of first preferences, and whether after the distribution of transfers they won the election. In North Antrim, we see that all candidates who occupied the winning positions on count 1 were elected after the distribution of lower preferences. Thus, we can say that the distribution of lower preferences did *not* change the outcome. However, in Cork South Central, we observe that two candidates on count 1 (O'Keefe and Corr) were not subsequently elected after the distribution of transfers. Instead, candidates Dennehy and Wyse, who occupied sixth and seventh positions on count 1 were elected. Here the distribution of transfers had a *decisive* impact on the result, as the allocation of lower preferences allowed Dennehy and Wyse to overtake O'Keefe and Corr to win.

Table 1. Examples of instances where lower preference votes are decisive and not decisive in STV systems at the candidate level.

Northern Ireland: Antrim North 2016 (six seats)				Ireland: Cork South Central 1989 (five seats)			
Candidate name	Party	Position on count 1 before distribution of lower preferences	Elected after distribution of lower preferences	Candidate name	Party	Position on count 1 before distribution of lower preferences	Elected after distribution of lower preferences
Frew	DUP	1	Yes	*Barry*	FG	1	Yes
McAllister	TUV	2	Yes	*Martin*	FF	2	Yes
Storey	DUP	3	Yes	*O'Sullivan*	Lab	3	Yes
McKay	SF	4	Yes	O'Keefe	FF	4	No
Logan	DUP	5	Yes	Corr	FG	5	No
Swann	UUP	6	Yes	Dennehy	FF	6	Yes
McIlveen	DUP	7	No	Wyse	PD	7	Yes
Duncan	SDLP	8	No	Lynch	WP	8	No
Gaston	TUV	9	No	Cogan	FF	9	No
McFarland	APNI	10	No	Coleman	PD	10	No
Anderson	UKIP	11	No	Fitzsimon	NP	11	No
Wright	UUP	12	No				
Breslin	GPNI	13	No				
Johnston	NILP	14	No				
Wright	NIC	15	No				
Lower preferences decisive: **NO**				Lower preferences decisive: **YES**			

Note: Party abbreviations in Appendix C.
Candidates in italics occupied a winning position on count 1.

In sum, implicit in our definition of decisiveness is that a candidate is elected primarily based on lower preferences and that first preferences alone would have been insufficient to ensure victory. We do not claim that transfers do not have a function in ensuring some candidates reach the quota—after all, most candidates contesting STV elections do not reach the necessary threshold on count 1. More critically, we recognize that in circumstances where actors knew beforehand that only first preferences would count in determining the allocation of seats, parties, candidates, and voters might have behaved differently. Thus, we do not assume that the results would have been the same as in the circumstances outlined above. We make no inference regarding the motivations or behavior of actors in alternative electoral rule scenarios. Instead, our interest lies in exploring the mechanics of the electoral system that faces actors in reality—that is, how much transfers exclusively influence the election of particular candidates?

The correlates of lower preference decisiveness in STV systems

Our second research question breaks new ground by testing *in what circumstances* lower preferences might be decisive in STV elections. We test four potential criteria: whether candidates' incumbency status, their gender, party affiliation, and district magnitude correlate with transfers being pivotal.

Incumbency effects assume that challengers are at a disadvantage compared to serving members (e.g. Cox and Katz, 1996). Incumbents have name recognition, have built up track records

for voters to evaluate, and have the benefit of pork-barrel projects to potentially brag about delivering to their districts. Moreover, incumbents in candidate-centered systems like STV can cultivate a personal vote (Carey and Shugart, 1995; Marsh et al., 2008) through direct contact with voters via constituency representations. Evidence suggests that incumbency effects in STV systems are sizeable (e.g. Redmond and Regan, 2015: 247). With these in-built advantages, STV incumbents can be expected to have a higher chance of obtaining more first preference votes than non-incumbents. It increases the chances of an incumbent occupying a winning position on count 1 and, hence, the likelihood of transfers playing a decisive impact in their election is less probable. Linked to this is that incumbents will have built up an electoral record through their years of service and thus aggravated some voters, leading us to assume incumbents would be less likely to draw lower preferences. Furthermore, challengers can be expected to try and counteract the STV incumbency advantage by assuming that incumbents will likely obtain a more considerable first preference vote and thus make additional efforts to gain lower preferences. Thus, we assume that:

> *H1: Incumbents are less likely to be decisively elected by lower preferences in STV elections than non-incumbents.*

Female parliamentary representation lags globally. Investigations into possible reasons have focused on cultural norms, a state's electoral context, and election rules. We know women do better in proportional systems than in plurality systems as the district magnitude is larger, reducing the threshold to achieve election victory (e.g. Matland, 1993). Additionally, when fewer incumbents recontest an election, women's chances of election are higher (Schwindt-Bayer, 2005). Women also have a higher chance of winning when their party is likely to win more than one seat (Matland, 1993).

Previous studies (Shugart, 1994) have implied that preferential voting systems should encourage female representation, as women candidates can foster 'gender voting' (e.g. Holli and Wass, 2010).[8] However, the evidence for STV is decidedly mixed. Studies from Malta and Ireland cast considerable doubt on its ability to promote female representation (e.g. Hirczy, 1995). Schwindt-Bayer et al. (2010) find that STV's ability to benefit women's chances of winning varies by country. Others argue that cultural and party-political factors exert a more significant influence than the machinations of STV (McGing, 2013). A more positive view is championed by Kaminsky and White (2007: 194), who, in their study of Australia, concluded that STV is 'clearly a real and viable option for countries looking to increase women in their parliaments'.

The mechanism by which STV encourages female representation directly remains unexplored. Lower preferences may be an important dynamic with female advantages filtering through several potential pathways. The first is that transfers reduce the need for a female candidate to achieve as high a first preference vote, especially when contesting against incumbents, who tend to be male. Second, as STV fosters localism, with candidates developing local pockets of support ('bailiwicks'), women candidates need to have a strong local reputation to win (Curtin, 2013). This takes resources which research suggests are more accessible to men (e.g. Randall and Smyth, 1987: 204–205). Lower preferences offer a potential pathway for women not to rely on bailiwicks, drawing support instead from the whole district, including voters who gave their first preference to a bailiwick candidate. Third, Shugart (1994) argues that preferential voting systems offer female candidates the opportunity to increase gender voting as lower preferences assist this by partially circumventing female barriers like incumbency and running mates. Taking these potential pathways together, we assume that:

H2: Women candidates are more likely to be decisively elected by lower preferences in STV elections than male candidates.

Particular types of electoral systems can privilege certain parties (e.g. Duverger, 1954). STV is designed to ensure minority representation (Reilly, 2001). There is little surprise then that research on lower preferences in STV systems has hinted that transfers may benefit some parties more than others.

In functioning democracies, the empirical literature is based on a small number of data points. The little research available suggests that lower preferences help smaller parties and independents. Jesse (1998) suggests that it is the second and third parties that benefit from transfers because these parties often encourage transfer swapping between each other to counter the first preference strength of the largest party. In his seminal study of Ireland, Gallagher (1978: 31) found Fine Gael derived the greatest benefit from transfers. Other research has suggested that preferential systems and lower preferences facilitate the election of non-party candidates, the mechanism being that independents are more likely to pick up these votes because they lack partisanship (Brancati, 2008). Thus, we posit that:

H3a: Candidates of smaller parties or non-party candidates are more likely to be decisively elected by lower preferences in STV elections than candidates of larger parties.

In divided societies, STV is thought to encourage moderation, with ethnic groups tending to be represented by moderate and radical actors. The idea is that STV promotes vote pooling where actors will not merely seek first preference votes but are also incentivized to seek lower preferences. Thus, actors from different ethnic groups looking to maximize their votes will widen their appeals to attract the support of others by moderating their stances—a process called centripetalism (Horowitz, 1991; Reilly, 2001). Voters from different ethnic groups will also have motivation to use their lower preference votes to support moderates, even if they have used their first preference to vote for radicals. One rationale is to increase the power of their ethnic group by supporting their own moderates. Another motivation is to traverse the ethnic divide and give a lower preference to moderates in the opposing ethnic group to ensure more moderates. The implication of this is that in divided societies we might see moderate parties decisively benefitting from transfers. Impressionistic analysis suggests that transfers have had a moderating impact in Northern Ireland with some inter-ethnic vote pooling (Mitchell, 2014) in the 1998 assembly elections, reducing the share of seats of hardline unionists (Evans and O'Leary, 2000: 79). Thus, we assume that:

H3b: Candidates of moderate parties are more likely to be decisively elected by lower preferences in STV elections in Northern Ireland than candidates of non-moderate parties.

District magnitude has a major impact on how electoral systems influence the party system and proportionality of results (e.g. Gallagher, 1991). Proportional systems with larger district magnitudes facilitate greater proportionality. This might be due to more parties contesting the district as more seats mean a lower quota. Concerning transfers, the carryover assumption is that with more parties contesting constituencies of greater magnitude, lower preferences will be more critical. Existing research on the pivotal impact of lower preferences has highlighted district magnitude is an important determinant as to when transfers come into play. In his study of Ireland, Gallagher (1978: 22) concluded: 'transfers have affected results more frequently in large constituencies than in small ones'. Further, 'it has proved unusual for transfers not to affect the result in a constituency

Table 2. Decisive impact of lower preferences on the election of candidates in STV elections.

In the election of candidates. . .	N	%
Lower preferences were decisive	1,653	9.6
Lower preferences were not decisive	15,527	90.4
Total	17,180	100.0

returning more than five members' (1978: 22). Jesse's (2000) research reaffirmed this view. Thus, we posit that:

> H4: The larger the district magnitude, the more likely candidates are decisively elected by lower preferences in STV elections.

Research strategy

We base our analysis on countries that use STV to elect a significant legislative body by popular vote, namely Ireland, Malta, Northern Ireland, and Scotland.[9] We created a unique dataset of election results from these polities, dating back over 60 years. In total, we have data from 62 elections—25 general elections and 37 regional/local elections. We offer an overview of our data in Appendix A.

Our analysis consists of two components. Our unit of analysis is elected candidates, yielding 17,180 observations for study. We tabulate the number of candidates decisively elected by lower preferences following the operationalization detailed earlier. It forms our dependent variable—*transfers being decisive*—in the election of a candidate in a district. We code this 1 for candidates decisively elected by lower transfers in a district and 0 for all other elected candidates.

RQ2 focuses on the *circumstances* in which lower preferences are decisive. To assess this, we take a multivariate strategy by estimating logit regression models for each country with robust standard errors to account for the clustering of observations. We estimate separate regression models for each state, acknowledging that the data for each country differ by the number of observations, election type, the period under scrutiny, and the district magnitude. Moreover, we recognize macro heterogeneity regarding the operation of STV (Farrell et al., 1996), making it challenging to pool country-level data and arrive at generalizations applying to all STV cases. Due to missing data, our *n* reduces to 15,821.[10] We include variables measuring the elected candidate's incumbency status, their gender, and their party, as well the district magnitude where the candidate is contesting. Our models also control for the number of candidates standing in the district and whether a candidate had a running mate.[11] We detail variable operationalizations and summary statistics in Appendix B.[12]

Empirical analysis

Do lower preference votes influence STV election outcomes?

To answer RQ1, we tabulated the number of candidates decisively elected by lower preferences and our results are detailed in Table 2. Of the 17,180 cases investigated, transfers played a pivotal role in electing 9.6% of candidates. Thus, 1,653 candidates won election because of the distribution of lower preferences. While a notable impact, we should recognize that in nine out of 10 cases (15,527 candidates), transfers had no significant impact—their influence is the exception rather than the norm.

Figure 1. Proportion of candidates decisively elected by lower preference votes in STV elections in Ireland, Malta, Northern Ireland, and Scotland 1947–2017 (%). *Base*: Elected candidates.
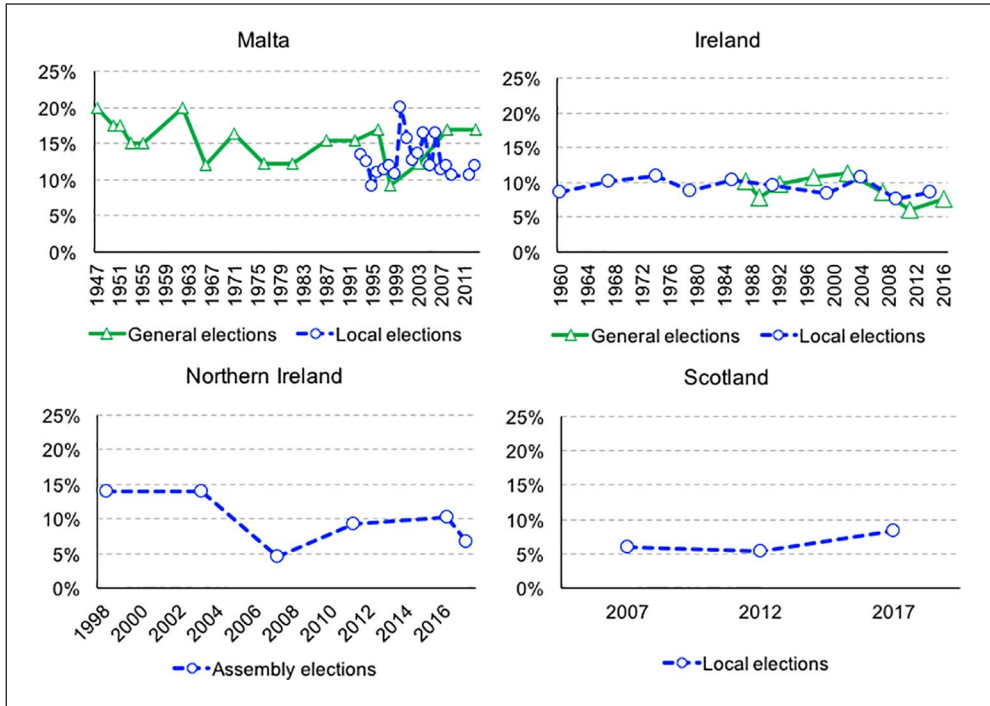

Figure 1 breaks down the results by polity and election type over time. Our results are in line with our expectation that there is macro-diversity, with transfers having a more pivotal impact in some polities compared with others. Malta (top-left quadrant of Figure 1) is where transfers matter most. The average number of candidates elected decisively by transfers is 13.3% (*n*=3,803 elected candidates, 35 elections). It equates to about one in 7 Maltese candidates owing their election to transfers, above the overall average of 9.6%. In Malta, there is variability over time, ranging from a low of 9% (1998) to 20% (1963) for general elections, with a mean of 15.1%. The average for local elections is 12.3%, implying that in local elections, lower preferences are less pivotal. Despite this variability, we observe no definitive time trend in Malta.

In Ireland (top-right quadrant of Figure 1), the mean number of candidates decisively elected by transfers is 9.3% (*n*=9,084 elected candidates, 18 elections), close to the overall average of 9.6%. We find little difference in the decisiveness of transfers in different elections (9% for general elections and 9.4% for local elections), and we see remarkable consistency over time, with transfers having a significant impact in between 9 and 12% of cases.

In Northern Ireland (bottom-left quadrant of Figure 1), the mean number of candidates decisively elected by transfers of 9.8% (*n*=630 elected candidates, 6 elections) is close to the overall average. Figure 1 shows us that this score varies from election to election, with 14% of candidates decisively elected by transfers in the first two assembly elections (1998 and 2003) but as few as 5% elected by transfers in 2007. Northern Ireland is the only polity in our sample where a time trend of possible reduction in transfer impact is emerging.

Meanwhile, the bottom-right quadrant of Figure 1 shows that lower preferences have had the least pivotal impact in Scotland. The average number of candidates decisively elected by transfers

here is 6.6% (*n*=3,663 candidates, 3 elections), less than the overall mean of 9.6%. While 2017 saw a small increase in the proportion of winners relying decisively on transfers (8%), the overall proportion in Scotland lags behind the other three countries.

Our results show that lower preferences at the candidate level have a decisive impact on election outcomes in STV systems. Thus, the more extensive choice afforded to the electorate matters. However, we should avoid overestimating their importance—their pivotal effect is the exception and not the rule. Also, we observe country-level differences with transfers more decisive in Malta and less decisive in Scotland, and more recently in Northern Ireland. However, we find no substantial evidence that decisiveness varies by election type, and besides a recent trend emerging in Northern Ireland, there is no consistent over-time pattern.

When do lower preference votes have a decisive influence in STV systems?

We begin with some descriptive analysis (see Figure D1 in appendix). In all four countries incumbent winners are less likely to rely on transfers to secure election. In Ireland, for example, we see that only 6% of winning incumbents were decisively elected by transfers. The corresponding figure for non-incumbents is 15% (χ^2= 192.75, *p*=0.000). The difference between incumbents and non-incumbents in Northern Ireland is also 9-points (χ^2= 12.75, *p*=0.000), while the gap in Malta (χ^2= 46.109, *p*=0.000) and Scotland (χ^2= 48.217, *p*=0.000) is 7-points. All are statistically significant at *p*<0.05, implying preliminary support for H1. Gender differences appear less acute and vary by polity. In Northern Ireland and Scotland, we see no gender difference. However, in Ireland, while only 9% of elected male candidates relied on transfers to win, 14% of elected females did so (χ^2= 27.126, *p*=0.000). In Malta, a similar pattern emerges: 13% male, 17% female, χ^2=7.941, *p*=0.005. The bivariate analysis suggests in Ireland, Northern Ireland, and Scotland, at face, some parties benefit more from transfers. In Ireland, elected candidates of smaller parties, especially the Greens, owe their victory more to lower preferences, as do candidates of the Labour Party, and, to a lesser extent, independents. Independents are also more likely to rely on transfers to win seats (χ^2= 192.75, *p*=0.000) in Scotland, while the Liberal Democrats and Scottish Greens also benefit, implying preliminary support for H3a. In Northern Ireland, the data suggests moderate parties like the SDLP and Ulster Unionists benefit more from transfers, which fits with H3b. In Malta, no meaningful pattern is observable beyond Labor having a slight advantage. Finally, the descriptive analysis shows no distinct pattern to transfer decisiveness and district magnitude. But this analysis is descriptive - to stand on firmer ground, a multivariate analysis is required.

Table 3 details our multivariate analysis. A consistent finding is that incumbents are less likely to decisively rely on lower preferences for their election (H1), illustrated by the statistically significant negative coefficients across all models. Figure 2 plots the average predicted probabilities for each polity. The diamonds illustrate the average predicted probability of non-incumbents being decisively elected by transfers while the circles do likewise for incumbents, with the vertical lines around these shapes representing 95% confidence intervals. In Ireland, the estimated likelihood of relying on lower preferences for challengers was 15% compared with just 6% for incumbents. In Scotland, the likelihood of being decisively elected by transfers is estimated to be 4% for incumbents but 12% for non-incumbents (see bottom-right quadrant of Figure 2). In Malta and Northern Ireland, non-incumbents are twice as likely to rely on transfers to win vis-a-vis incumbents. In sum, there is strong support for H1.

The impact of gender is less robust. There is no evidence of any effect in Northern Ireland or Scotland, but in Malta and Ireland, gender does have a statistically significant impact. Estimating the average predicted probabilities of gender's impact on transfer decisiveness, the effects are modest, with a 3-point difference in Ireland and a 4-point difference in Malta in favor of women

Table 3. Logit models with robust standard errors exploring in what circumstances lower preferences decisively elected a candidate in STV elections by polity.

*Dependent variable*: Candidate decisively elected by lower preference votes or not

	Ireland	Malta	N. Ireland	Scotland
Intercept	−3.494*** (0.269)	−3.270*** (0.347)	−2.954** (1.021)	−3.271*** (0.521)
Incumbent candidate	−0.986*** (0.076)	−0.733*** (0.102)	−0.875** (0.297)	−1.410*** (0.184)
Female candidate	0.402*** (0.099)	0.338** (0.129)	0.130 (0.377)	0.012 (0.188)
Running mate	1.063*** (0.175)	1.152*** (0.276)	−0.325 (0.332)	1.194*** (0.297)
Number of candidates	0.022* (0.011)	0.023** (0.009)	0.063 (0.067)	−0.013 (0.043)
Party of candidate ref: (varies by polity)[a]				
Party IE: Fine Gael	0.172 (0.091)	–	–	–
Party IE: Labour	0.847*** (0.122)	–	–	–
Party IE: Green Party	1.466*** (0.334)	–	–	–
Party IE: Independents	1.385*** (0.217)	–	–	–
Party IE: Others	0.374* (0.170)	–	–	–
Party Malta: Nationalist	–	−0.082 (0.104)	–	–
Party Malta: Independents/Others	–	0.658** (0.233)	–	–
Party NI: SDLP	–	–	1.384*** (0.414)	–
Party NI: Ulster Unionist	–	–	1.333*** (0.397)	–
Party NI: Alliance Party	–	–	0.443 (0.940)	–
Party NI: Others	–	–	−0.065 (0.813)	–
Party Scotland: Labour	–	–	–	0.988*** (0.220)
Party Scotland: Conservatives	–	–	–	−0.538 (0.459)
Party Scotland: Liberal Democrats	–	–	–	1.743*** (0.364)
Party Scotland: Green Party	–	–	–	2.229*** (0.575)
Party Scotland: Independents	–	–	–	2.372*** (0.353)
District magnit. (ref: varies by polity)[b]				
4 seats	−0.018 (0.170)	–	–	−0.413* (0.180)
5 seats	−0.163 (0.166)	–	–	–
6 seats	−0.188 (0.173)	0.471 (0.461)	−0.125 (0.472)	–
7 seats	−0.313 (0.186)	−0.183 (0.126)	–	–
8 seats	−0.500 (0.258)	–	–	–
9 seats	−0.703* (0.299)	−0.299 (0.151)	–	–
10 seats +	−0.957* (0.435)	−0.280 (0.183)	–	–
No. observations	8,967	3,800	628	2,425
Log-likelihood	−2,634.937	−1,443.63	−177.958	−535.23
AIC	5,303.87	2,909.26	377.92	1,092.46
McFadden's R[b]	0.050	0.029	0.111	0.120

Note: Robust s/e in parentheses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. *Base*: Elected candidates.
[a]Reference categories are: Ireland: FF; Malta: Labor; Northern Ireland: DUP; Scotland; SNP and others. The other category is not included as a separate term in the model due to issues around collinearity.
[b]Reference categories are: Ireland: 3-seats; Malta: 4-seats; Northern Ireland: 5-seats; Scotland; 3-seats.

Figure 2. Average predicted effects by country of incumbent candidates and non-incumbents being decisively elected by lower preference votes.
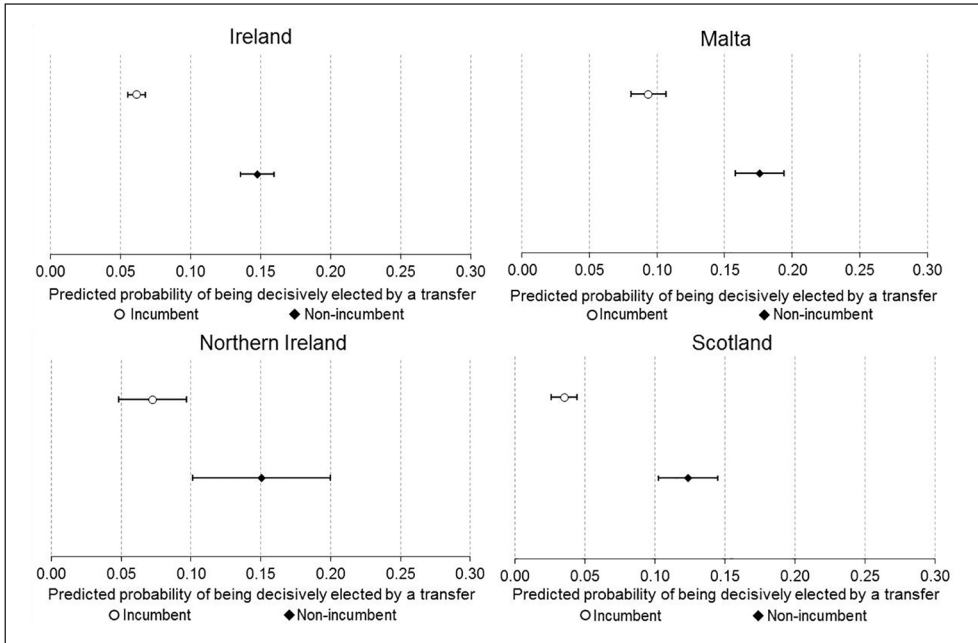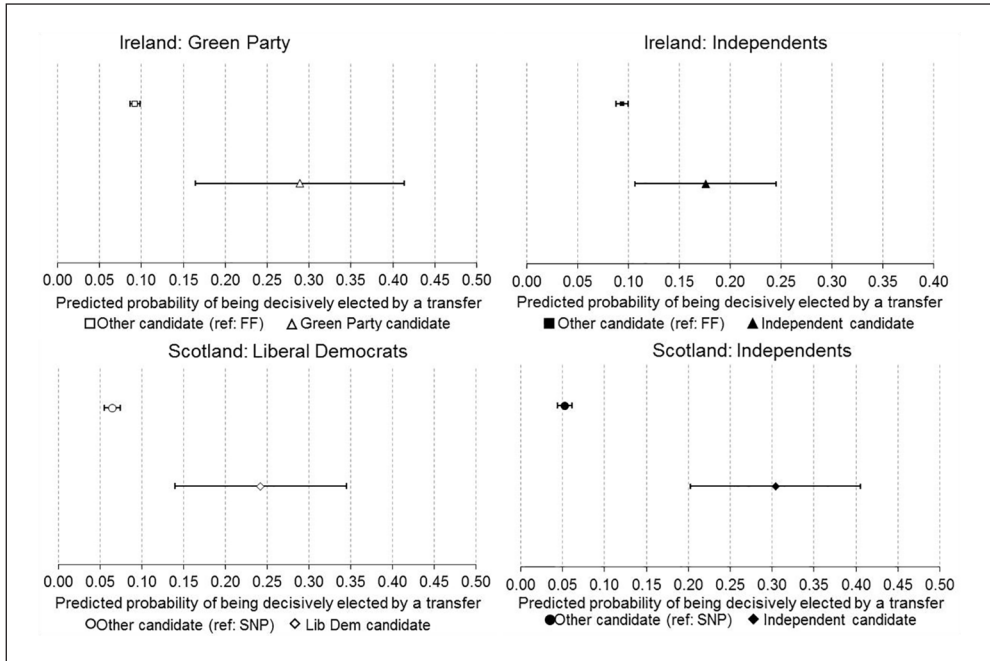

Note: Based on Models in Table 3. All other variables held constant at their means. Displays of incumbent and non-incumbent estimates are separated for visual clarity.

vis-à-vis men's likelihood of being decisively elected by transfers. We are cognizant that our data for each polity comes from different periods and that elected female candidates are more prevalent in our sample of Northern Irish and Scottish data compared with the Maltese and Irish data, and this might account for this heterogeneity. Alternatively, our results may reflect cultural differences between the states. Our data do not allow us to probe further, so this remains speculative. In sum, we infer mixed support for H2.

Our analysis shows that winning candidates of certain parties rely more on transfers. In Ireland, candidates of smaller parties and non-party candidates are the beneficiaries. Figure 3 (top-left quadrant) plots the average predicted effects for elected Green Party candidates and shows that Green victors have a 29% probability of being elected decisively because of lower preferences compared with a 9% likelihood for Fianna Fáil (the reference category) candidates. Winning independents in Ireland are also more likely to rely on lower preferences. Figure 3 (top-right quadrant) shows there is a 26% likelihood that their election is decisively due to transfers compared to a 9% likelihood among Fianna Fáil candidates. A similar pattern exists for Labour (18% compared to 9% likelihood for Fianna Fáil candidates). In Scotland, the picture is similar with elected independents, Liberal Democrats, and Green candidates being the primary beneficiaries. Figure 3 (bottom-right quadrant) shows that elected independents in Scotland have a 30% likelihood of relying on transfers for victory compared to a 5% likelihood for SNP and other smaller parties. For Liberal Democrat winners, their probability of being decisively elected by transfers is estimated to be 24% compared to 7% for the SNP and others (see Figure 3, bottom-left quadrant). Meanwhile, in Malta, independents and other parties are the beneficiaries, with the likelihood that independent winners being decisively elected by transfers estimated to be 21% versus 13% for a Labor candidate. It

Figure 3. Predicted marginal effects by country of the likelihood of candidates with particular affiliations being decisively elected by lower preference votes.

Note: Based on Models in Table 3. All other variables held constant at their means. Displays of affiliation estimates are separated for visual clarity.

Figure 4. Predicted marginal effects of the likelihood of candidates of particular parties/affiliations being decisively elected by lower preference votes in Northern Ireland.
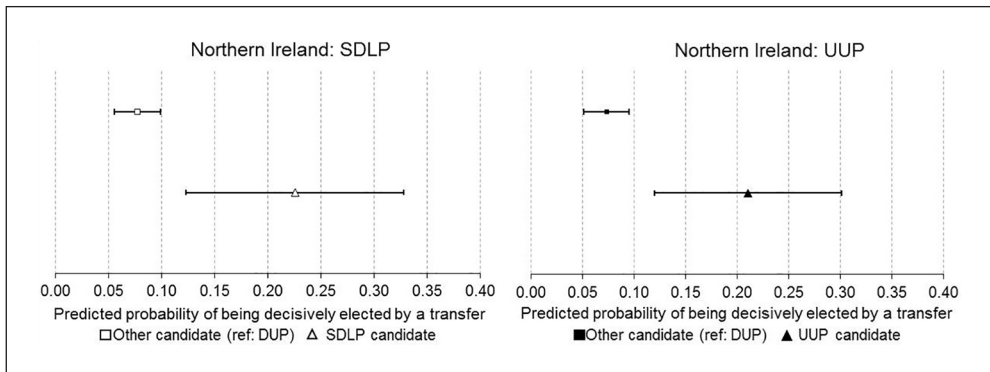
Note: Based on Models in Table 3. All other variables held constant at the means. Displays of affiliation estimates are separated for visual clarity.

offers support for H3a–b, candidates of smaller parties and non-aligned candidates rely more on transfers to guarantee their election compared with bigger parties.

In Northern Ireland, we see that transfers benefit moderate parties with positive coefficients for the Ulster Unionist Party (UUP) and the Social Democratic and Labor Party (SDLP) in Table 3.

Figure 4 plots the average marginal effects for elected candidates of each of these parties. The likelihood of an elected SDLP member relying on transfers is about 23%, compared to 8% for Democratic Unionists (the reference category, see Figure 4 left). A similar pattern exists for UUP winners (see Figure 4 right). However, candidates of the cross-community Alliance Party do not benefit from lower preferences. From this, we deduce some support for H3b.

There is little evidence suggesting that transfer decisiveness is influenced by constituency magnitude, contrary to the prevailing narrative. In Malta and Northern Ireland, we detected no significant effects. In Scotland, we observed a weak impact with transfers more likely to have a pivotal impact in three-seat constituencies compared to four, not the direction assumed. The result amounts to about a 3-percentage point increase in the likelihood of transfers being more decisive in three-seat compared with four-seat districts. Additionally, in Ireland, there is a small effect detected for nine and 10-plus seat constituencies, but again the negative coefficients imply the inverse of the expected relationship. We conclude there is no support for H4 and find that district magnitude weakly correlates with transfer decisiveness.

Conclusion

Our contribution is novel in that it explores the mechanical effect of lower preferences in STV elections from a comparative, multi-election, multivariate perspective. We do so in light of the electoral reform debate as proponents of reform often advocate STV for adoption, scholars strongly favor STV, and it has been salient in electoral reform referendums cross-nationally in the past 15 years.

Our interest was in establishing to what extent having more choice via the casting of lower preferences influences the election result at the candidate level. We found that lower preferences have a pivotal influence on which candidate is elected in a district in between 6 and 13% of cases. Overall, about one in every 10 candidates in STV systems is decisively elected because of transfers. This is not insignificant and shows that lower preferences do matter. Nonetheless, their decisive impact in shaping the outcome in STV elections is the exception, not the norm, and thus while they matter, the hype often generated by the media and political pundits concerning their pivotality has probably been overblown. Putting these findings in a comparative context is challenging as STV does not resemble the proportional systems operated by most states. The best we can do is situate our result in the realm of Renwick and Pilet's (2016: 241–243) cross-national analysis of the decisiveness of candidate preference votes in open-list PR systems. Compared to candidate preference votes in Western European states, lower preference votes in STV systems have a more decisive impact on election outcomes. However, their decisiveness in STV as compared with open-list PR candidate preference votes in Eastern European countries lags.

Our article breaks new ground by unpacking the correlates of transfer decisiveness. We show that lower preferences are more critical in electing challengers compared with incumbents. We also discovered weak evidence that district magnitude was related to lower preference pivotality. In Northern Ireland, it has no impact, while in Scotland, Malta, and Ireland, the relationship is unstable and weak. The results also suggest that lower preferences are more critical in districts with fewer seats, contradicting the prevailing narrative. However, our analysis demonstrates STV lives up to its promise of providing more pluralistic representation. Generally, smaller parties and, in Northern Ireland, moderate parties have increased their representation due to transfers. Additionally, in Ireland and Malta, more women have secured office because of lower preferences.

The bias in favor of moderate and smaller parties might impede any road to reform as dominant parties might be put off by adopting a system that is not in their strategic interests. Nonetheless, the impact of lower preferences on outcomes at the candidate level in STV systems remains atypical,

and their effect, while meaningful, is modest. It may incentivize actors who have previously been skeptical about switching to STV for fear it might damage their electoral position, to embrace the system. However, we must also recognize that granting a voter more choice, for the most part, does not have a determining influence on the result, and thus its ability to be a panacea to citizen disenchantment is likely to be relatively limited.

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Supplemental material

Supplemental material for this article is available online.

Notes

1. The most common quota is the Droop quota: total valid votes divided by the number of seats +1 and the addition of 1.
2. The term preference vote may refer to two things. The first is being able to cast a candidate vote in open PR-list systems. The second, which is our main focus, refers to ranked order voting systems where an elector has one vote but ranks the candidates in descending order of preference.
3. Transfers are the mechanism by which lower preferences are allocated from one candidate to another. We use the terms transfers and lower preference votes interchangeably, even though we acknowledge that not all lower preferences are transferred.
4. STV is also used for lower house elections in Tasmania and the Australian Capital Territory (ACT). A variant is used to elect the Australian Senate as well as the upper houses of the Australian provinces of Victoria and Western Australia. STV was employed by Estonia for its elections in 1990 and is used to elect members of the Pakistani and Indian Senates. Further, various local government elections in the US, Canada, and New Zealand have used STV.
5. However, research on preference flows on Australia's Alternative Vote (AV) lower house elections is plentiful (e.g. Green, 2018).
6. Consequently, it is debatable whether STV is operating in the conventional sense as this is more akin to a closed PR list.
7. Lower preferences might influence control of an electoral body (e.g. legislature) by resulting in an alternative dispersion of seats (and potentially cabinet positions due to transfer distribution). Space considerations prevent us from exploring this dimension here.
8. Some studies have shown that being a female, along with gender stereotyping by voters, influences electoral success (e.g. Sanbonmatsu, 2002). Others have concluded that gender, in itself, is ballot neutral (McElroy and Marsh, 2010) or advantageous (Dolan, 2004).
9. With voters given the option to vote "above the line" and most Australian voters doing so, detailed data on preferences is unavailable.

10. Missing data is due to not having incumbency data for the Scottish 2007 observations. Consequently, the Scottish multivariate analysis covers 2012 and 2017 only.
11. For robustness, we re-estimated our models in Ireland and Malta to control for the type of election to take account of potential second-order effects (see Appendix Tables D1). We discover that district magnitude for 8 seats reaches statistical significance ($p<0.05$) but beyond this, there are no significant deviations concerning the hypotheses tested.
12. For robustness, we also reclassified the district magnitude variable to be categorical for Ireland and Malta (see appendix Tables D2). Under this specification in Ireland, the coefficient for magnitude was negative and statistically significant ($p<0.01$) thus not deviating from the analysis reported in the text. We opt for the dichotomous classification because, as we see, the negative effect of district magnitude relates to extreme values only. Under this specification in Malta, the coefficient for magnitude was negative and statistically significant ($p<0.05$), implying that increases in district magnitude are negatively correlated with transfer decisiveness, in line with the overall conclusions.

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