

Underrepresenting reality?

Media coverage of women in politics and sport

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Objective. How do surges in female representation in public life affect media coverage? Can the media underrepresent the reality of women's progress? If so, is the source of underrepresentation the media itself or the selectorates that brief the media? *Methods.* Using automatic content analysis, we study two remarkable step changes in women's role in public life in Ireland: the 2016 elections and 2012 Olympics. *Results.* The increase in female participation was associated with a new and substantial gender gap in coverage, which we attribute to the media, not selectorates. *Conclusion.* We cannot assume that media coverage will increase proportionally as women advance in public life. The re-emergence of bias when female representation jumps may also exist outside the media in any context where there are large numbers of decisions about whether to favour males or females.

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How do improvements in female representation affect media coverage? The most straightforward expectation is that the media will "represent reality": any increase in female representation will be associated with a proportional increase in media coverage of women. However, social systems are complex and a change in one area may have unexpected ramifications in another area. It is possible for a surge in the representation of women to lead to a drop in the coverage of women relative to men. This could happen because of a gender bias in how the media process information or a gender bias in the institutions that transmit and frame information to and for the media. In other words, the source of underrepresentation could be in the media itself or in elites outside the media.

We observe two instances of a step change in women's representation being associated with a fall in media coverage relative to men. The first is the re-emergence of a gender gap in Irish election coverage between 2011 and 2016. The 2016 election was contested under new quota legislation that almost doubled the proportion of female candidates. The second is the opening of a gender gap in the coverage of the Irish Olympic team between 2008 and 2012. The proportion of female Olympians surged by sixty-one per cent between the two sets of games. That the same phenomenon occurred in two very different areas of life suggests that this mechanism may occur in other areas too. The next section presents the theoretical context. We then present our methodology, both in

terms of case selection and the measurement of bias. Following this, we present statistical analyses of Irish election coverage using an automatic study of twenty-five million words from 1969 to 2016 and the Irish Olympic teams in 2008 and 2012. In both cases there is a drop in female representation compared to men that we can attribute to the media. We rule out any explicit change of attitude or policy. Instead, we argue that the new underrepresentation of women may be due to a combination of implicit bias among individual journalists and newsrooms' failure to monitor or institutionalise equal coverage. Our academic conclusion is that we have identified an intriguing empirical phenomenon and proposed a plausible hypothesis for social scientists. Our policy conclusion is that organisations must develop new routines and norms to ensure that more women does not mean less attention for each woman.

Representing Reality? Gender gaps and the media

The institutions of politics, sport, and the media are gendered (Sreberny and van Zoonen, 2000: 1-2; Toff and Palmer 2019; Burke and Clemson 2008; Knoppers and McDonald 2010: 317). Most fundamentally, the political arena and political journalism are stereotypically masculine, as is competitive sport and sports journalism. All are traditionally constructed as antithetical to the stereotypically feminine role in the family and the private sphere. There are three basic aspects to the study of media coverage of gender: the extent of coverage, tone, and framing. Stereotypes of women in public life that dominate the media are diverse and complex (Fowler and Lawless, 2009: 521; Gerding Speno and Stevens Aubrey 2018; Pedersen 2018). Some prominent women can appear to be attacked in the media because of their gender. Frequently, tone interacts with framing. It has been argued that coverage of Hilary Clinton was positive when placed in the stereotypically female role of the wronged, powerless wife, but negative when framed in the context of the powerful, ambitious politician (Parry-Giles, 2000: 209). Notwithstanding the importance of tone and framing, mere coverage matters too. Reduced media coverage can curtail the careers and opportunities of women, from politicians (Kam and Zechmeister, 2013; Pattie and Johnston, 2004; Boomgarden, Boukes, and Iorgoveanu, 2016) to artists (Sorensen, 2007).

Gender stereotyping is both implicit and explicit. Implicit bias is perhaps at its most powerful in relation to coverage of females. Journalists are much more likely to consciously decide to criticise a female politician or frame an article about a female athlete in terms of their appearance than they are to explicitly choose not to write about a woman. By contrast, when journalists write about a male athlete they will rarely experience this as a choice not to write about a female athlete. Since men are associated with politics and women are not, a male candidate, for example, may be viewed as more interesting or important than a female candidate, even by people

who are, on a conscious level, genuinely committed to gender equality. Therefore, the most powerful manifestation of implicit gender bias may be the “symbolic annihilation” (Tuchman, 1978; De Swert and Hooghe, 2010) of not mentioning females. Of course, there may be an explicit decision to deny coverage to a woman because she is a woman, but the connection between implicit bias and reduced coverage is compelling.

If the media fails to cover women, it is difficult to know whether this is because of gendered institutions in society, in the media, or indeed at the interface of society and the media. Much of media coverage is a “co-production” between journalists and their subjects. Maybe this is most obvious in show business, but it is also a famous description of political journalism (Gans 1979). Moreover, the key actors are often those in “boundary roles”, such as press secretaries (Cook 1988) or public relations specialists, who are familiar with the “values and practices of the other camp” (Blumler and Gurevitch 1981: 485). Gendered institutions in society will tend to feed and promote stories about men, rather than women. Gendered institutions in the media will tend to cover women, rather than men, to some extent independently of the lead given by social elites. There are also gendered institutions and networks at the interface of the two. The negotiation of newsworthiness between journalists and their sources (Cook 1998: 102-109) will not often explicitly refer to gender, but it does operate within implicitly gendered parameters.

The gender gap in media coverage is relatively easy to demonstrate (Vandenberghe, 2018: 5; Sjøvaag, and Pedersen, 2019: 225; Ross, Boyle, Carter and Ging 2018), but harder to explain. Essentially, there are two explanations (Shor et al., 2015: 963). The first is that the media reflects a gendered reality (Sjøvaag and Pedersen, 2019: 216). Women are underrepresented in sport, politics, and business and that is why they feature in so little of the news about these subjects. The news revolves around a tiny number of people at the very top of their fields (Shor et al., 2015: 964). Glass ceilings mean that, even if there are many women in a field, few will make it to the top. Consequently, coverage of women will be marginal. The second theory asserts that the coverage is gender-biased (Laucella et al. 2017). A weaker version of this argument points out that statistical neutrality is not political neutrality. For example, it would be statistically neutral to give ten per cent of legislative coverage to women legislators when they represent ten per cent of the legislature. However, representing a gender-biased reality legitimizes that gender bias. The stronger version says that the media is not even statistically neutral: women receive less coverage than equivalent men, all else being equal. It can be empirically challenging to apportion responsibility for the gender gap between the two approaches. Given that gender bias is so pervasive and complex, it can be difficult to measure the gendered reality, especially given the very different extent and nature of gender bias across different areas of society. One solution is to use aggregate statistics or indices and

correlate these with relatively comprehensive measures of the gender gap in the media (Humprecht and Esser 2017). These measures are useful, albeit noisy. Given the media's elite focus, it is also possible to take a much more exact approach that enumerates all members of a relevant group (Hayes and Lawless, 2016; Lüthje and Banducci, 2016). This is an almost perfect measure of a slice of reality and the gender gap in the media can also be calculated with great precision. The disadvantage, of course, is that it is not possible to enumerate a relevant group for many important topics in the media.

In a general sense, there is a massive literature on the connection between gender bias in the media and in the wider society. There has been little or no previous work on our specific subject of interest. We are interested in whether changes in the gender gap in a given area of society affect media bias in the coverage of that area. Obviously, we expect that as gender gaps in society narrow they should also narrow in media coverage. Indeed, the "reflecting reality" idea would suggest that media coverage should change in lock step with society. Coverage changes, but media bias, or its absence, does not vary to the same degree. However, if women are treated equally to men when they are few, that does not mean they will be treated equally when they are many. A tokenistic approach to the coverage of women may appear unbiased when women are few, but bias may be revealed when female representation increases. In this scenario, the media do not represent reality. Instead, they allocate a small proportion of coverage to women whether women account for a small or large proportion of the "reality" on which they are reporting. Alternatively, other groups may be tokenistic. Elites who place women in positions where they are formally equal to men, may signal to the media that these women are less important, most obviously by feeding stories about men to journalists but ignoring women. As with the media, the elite bias is revealed when female representation passes a threshold. Improvements in women's representation have been shown to have negative consequences in other areas. It has been argued that when female representation moves from substantial to equal, men's feminist commitment is weakened (Kokkonen and Wängnerud 2017: 213). An increase in female representation within a profession or other labor market category has often been associated with lower pay for the profession or category, especially if, female representation is low before the increase (Bellas 1997: 302-303, 315-316; Drudy 2008: 317). There have even been some hints that a gender gap in coverage can widen as representation of women increases (O'Neill, Savigny, and Cann 2016: 299; Van der Pas and Aaldering 2020: 117). In the next section, we explain how we chose cases to allow a precise measurement of gender differences in coverage and to distinguish between social elite and media bias.

Methodology

We are interested in jumps in female representation. In business, this could be the result of quotas on management and supervisory boards. In culture, it could happen because of new norms encouraging the equal presence of men and women in cinema. In academia, some countries and institutions have reserved positions for women and this might affect the gender balance of mentions of academics in the media. Sport and politics are two other such areas and ones that offer important methodological advantages in the study of media bias. National elections and the Olympic Games present long lists of clearly identifiable and formally equal competitors, whose newsworthiness varies, but will clearly be driven by the political and sporting hierarchies of legislative and executive offices and Olympic medals. Sport and politics are, of course, male-dominated, but are in other ways very different areas of life and tend to be clearly separated in the media. Sports journalists do not cover politics and vice versa. If we find that gender bias works similarly in these two very different areas, we have a basis for generalisation to other areas of life not studied here. Moreover, both are important in themselves as sources of role models for society and for the media's influence on who wields power (Cushion and Jackson 2019).

Case Selection

Our research questions are as follows: (1) Do increases in female representation lead to gender gaps in coverage? And (2), if so, what explains the drop in coverage of women? Ireland offers two remarkably clear cases of step change in different areas of life in the same media system very close together in time. Between 2011 and 2016 the proportion of female Dáil (the lower house of parliament) candidates jumped from 0.152 to 0.289, an increase of ninety percent. This was undoubtedly because of the introduction of a gender quota for the general election of 2016. Between 2008 and 2012, the proportion of female Summer Olympics team members surged from 0.28 to 0.45, an increase of 61 percent. By contrast to politics, this change does not seem to have been linked to any particular initiative.

While the structure of the two phenomena enables a direct comparison, there are, of course, different challenges in each. Media coverage of politics has rightly been described as a co-production between journalists and politicians (Gans, 1979). This can make it challenging to assess media bias in the coverage of election candidates. Political parties may favour some candidates with the resources to ensure increased coverage, such as funding for advertising or access to public relations and media management experts. All this is, of course, aimed at increasing the vote of some candidates. The media-political interface matters most at the party level. Parliamentary deputies have the right to only two staff members. The campaigns of challengers are essentially

run on volunteer labour alone. Sports coverage is less of a co-production, mainly because coverage does not help competitors win. Patterns of coverage of sportspeople are more likely to reflect relatively independent journalistic decisions than are patterns of coverage of election candidates, notwithstanding the role of sporting authorities in perpetuating gender bias (O'Neill and Mulready 2015: 662). Of course, this will vary a lot according to the sporting context. Although political interests may attempt to manipulate the coverage of the games for ideological gain (Liang 2019), Ireland's Olympic authorities did not have the resources to manipulate the media and had only a weak incentive to do so, given the presumably very weak relationship between the Olympic Committee of Ireland's income and coverage of athletes. Its affiliated organisations do have incentives to promote their own sports during the Olympics, but, again the potential financial gains are small and likely to accrue to individual stars more than the organisations. The Olympic team represents a much smaller group than the pool of election candidates. Moreover, they compete in different sports. The only hierarchy they have in common is the medals themselves. There is no equivalent of the long list of political offices from prime minister to local councillor. Happily, however, the election study has a range of controls that are not possible in the Olympics and the co-production issue is a much more minor one in the Olympics than in elections. This compensation for each other's weaknesses is another useful feature of the comparison between the Olympics and elections.

Ireland has a liberal media system, but political differences in outlets are very subtle compared to the UK or US. Newspapers are not affiliated with political parties or even with broad left-right ideological traditions; neither are TV or radio stations. Newspapers have had different cultural traditions, with some regarded as relatively liberal or relatively conservative, but it is important to note these differences are subtle compared to those in other countries. Overall, the Irish media have very strong norms of overall neutrality (Horgan 2001, 83; Breen et al. 2019) and internal pluralism (O'Brien 2017, 175). The opinion sections of newspapers tend to facilitate something of a debate on gender between regular and guest columnists. There was no general backlash against these norms between 2008 and 2016. If anything, newspapers tended to follow society in general, which was slowly becoming more conscious of, and impatient with, gender inequality. Male editors were in place in both papers for both elections. The *Irish Times* moved from a female to a male editor between the 2008 and 2012 Olympics, but the *Irish Independent's* top journalist was male for both. The proportion of women in journalism has been increasing, not decreasing (Rafter and Dunne 2015). We now outline the context and data for both pairs of quantitative case studies, beginning with elections.

Elections

Ireland has a poor record in female political representation. In 2015, it was ranked 111th in the world, alongside North Korea (Buckley, Galligan, and McGing, 2016: 186). The government, headed by the Taoiseach (prime minister), is responsible to the Dáil. The upper house, the Senate, is weak, as are local councils. Nonetheless, these offices are sought after since they form a springboard for entry into the Dáil (Buckley, Mariani, McGing, and White, 2015). Previous research suggests that voters' ballot preferences are gender-blind (McElroy, 2016). In contrast, there is a consensus that party selectorates for Dáil elections are biased against women (Buckley and Brennan, 2016). Ireland's electoral system is Proportional Representation by the Single Transferable Vote (PR-STV), which allows voters to choose among candidates and parties. The electoral system in constituencies of three to five seats means that incumbents are as likely to lose to candidates from their own party as rivals from other parties. This intra-party competition means that concepts such as 'safe seats' do not travel well to Ireland (Benoit and Marsh, 2002: 168). Selection is controlled by incumbents who tend to dominate the local party organization and keep out challengers from within the party. Since 1997 party leaderships have started to send instructions to the local party organization as to the optimal candidate strategy, stipulating the number of candidates it should select and their geographic spread (McGing, 2013). Irish election campaigns are run on a low budget, most of which is spent locally on posters and flyers. In 2016, candidates were responsible for two-thirds of overall expenditure and spent just over €10,000 each (SIPO 2016).

The general election of 2016 was held under new rules according to which parties would lose half of their public funding for a whole parliamentary term, if they nominated less than thirty per cent of their general election candidates of either gender. The quota rises to forty per cent in 2023. The government accepted that the gender imbalance was a problem and that the parties were unable or unwilling to overcome selection bias without a substantial financial incentive. Party headquarters could enforce the quota in two ways. First, headquarters could direct local conventions to select a woman as their candidate or one of their candidates. Second, it could add a candidate to those selected at a constituency convention. Both methods left new women candidates vulnerable to the stigma of 'quota woman.' The quota was introduced because political leaders accepted that the local selection conventions were highly gendered. Therefore, it is entirely possible that these selectorates would have stigmatized 'quota women'. Good political reporting shadows power and journalists need politicians to 'co-produce' the political news (Gans, 1979). This close relationship may have allowed selectorates to bias reporting against women candidates. The co-production of the news also means that political coverage follows political hierarchy and political bias. Given the low budgets of Irish electoral campaigns, the potential bias of those in boundary

roles, like public relations, is very strongly correlated with hierarchy and political bias too, as professional media management largely happens at the party level. Since we are able to control for the many key characteristics of the candidates themselves we can test whether there was a gender gap in coverage and whether any gap is attributable to the political elite or the media itself.

We combine three sources of data: a unique large dataset of media output in campaigns since 1969, a unique dataset on nominations in 2016, and publicly available political data. We code hierarchy as follows: party leader, (cabinet) minister, junior (non-cabinet) minister, non-executive deputy, senator, local councillor, and no elected office. We also include a variable indicating the vote achieved by candidates. While seniority is the main reason a candidate may receive relatively high coverage, there are others. Politicians with a long career are likely to be better networked with the media, as are those with good public relations support. It is possible that male candidates had a greater advantage in these areas in 2016 than in 2011. These factors are also likely to be highly correlated with success in the election, which we measure. Remember also that the most junior and least resourced female candidates are likely to be those who did not win over their local selectorate and were to some extent imposed by the central party to meet the quota. We also measure this and explain how next.

We now describe our nomination data. Constituency conventions usually take place in private, but are important events in local and national political news. Using newspaper reports, social media, and correspondence with political parties, we recorded whether all major party candidates in the 2016 general election were selected in the traditional method by their convention, whether there was a gender directive to the convention, or whether a candidate was added by headquarters after the convention. Of the thirty-three candidates added by headquarters for all parties, nineteen were women. Moreover, eleven women benefitted from a gender directive to a convention. In total, there were thirty candidates particularly vulnerable to the label ‘quota woman.’ This is almost nineteen per cent of female candidates.

Our media data is based on an automatic analysis of all fourteen elections from 1969 to 2016. We study the national media rather than the local media. Local newspapers and radio provide very little hard news. Indeed, local newspapers contain little editorial content and are largely advertising-driven and often free. Candidates are maybe more likely to be mentioned in advertisements than in election coverage in the local media. The national media set the agenda for the rest of the country. Nonetheless, the national media is inevitably more focused on the cities than rural Ireland. Therefore, our multivariate analysis contains controls for constituencies in Dublin, Cork, and Limerick.¹

The media data comprises two datasets in identical format: historical data for fourteen elections from 1969 onwards and a wider dataset for 2016 only. The historical data is drawn from the *Irish Times* and *Irish Independent*. They were, and are, the daily papers with the highest circulation in Ireland. The *Irish Times* is controlled by a not-for-profit trust and adopts the role of a ‘newspaper of record.’ The *Irish Independent* is a privately-owned mass-market quality newspaper. For 2016 we add the *Irish Examiner*, *Irish Mirror*, and *Irish Daily Mail*.² We also transcribed six leading news and current affairs television and radio programs on seven days of the 2016 campaign (5, 10, 11, 16, 17, 19, and 22 February). The dataset consists of twenty-five million words. For newspapers we study all text, not a sample, from the day the election was called until election day. This includes all sections of the newspaper, whether editorial or reporting. We count whether a candidate is mentioned in a paragraph, not how many times they are mentioned in that paragraph. This system works almost perfectly for full names, but does not pick up mentions of the surname by itself. (See appendix for more details.) The gender gap is defined as a difference between the number of mentioning paragraphs per female candidate and the number of mentioning paragraphs per male candidate.

The Olympics

Sports coverage is extremely gendered (Cooky, Messner and Musto 2015), but the Olympics is a relatively meritocratic exception (Markula 2009: 3-5; Bernstein, 2002: 418; Hedenborg 2013, 796) where medals and nationality trump gender, albeit temporarily (O’Neill and Mulready 2015: 652). Ireland sent fifty-four athletes to the Summer Olympics in 2008, when twenty-eight per cent were women, and sixty-one competitors in 2012, forty-five per cent of whom were women. In 2004, the female percentage was thirty, so 2012 marks a clear step change. The increase in female representation was not the result of radical policy intervention, like the electoral quota. It seems likely that it was a combination of random fluctuation relating to qualification and a general push to support female involvement in sport. Indeed, newspaper coverage of the way the team was selected in 2012 and its overall composition did not even mention the gender aspect (Sunday Business Post 2012; Sunday Independent 2012).

We searched in the *Irish Times* and *Irish Independent* for articles mentioning the names of all Irish Olympic team members during the summer Olympic games of 2008 and 2012 and in the two weeks immediately preceding the games. As in politics, the coverage of athletes is highly skewed. Since we record articles mentioning each athlete in the two newspapers, there are 106 observations for 2008 and 132 for 2012. Our equivalent of the hierarchy of offices is the hierarchy of medals, which we code as three for gold, two for silver, and one for bronze.

Those in team events are likely to be less frequently mentioned than those in individual events. Those competing in multiple events are likely to be mentioned more often. We combine these in a measure which counts one for each individual event and divides each team event by the number of team members. For example, an equestrian competing in an individual event and on a four-person team scores 1.25. We also include an indicator for the *Independent*, as there was a very large increase in its Olympic coverage relative to the *Times* between 2008 and 2012.

Statistical analysis

Table 1 shows the gender gap in election coverage in the *Irish Times* and *Irish Independent* since 1969. It reveals a consistent, if at times, small, gender gap in the two newspapers. However, between 2011 and 2016, the gender gap in coverage increased from 0.028 to 0.081 in the *Irish Times* and from 0.049 to 0.067 in the *Irish Independent*. In both papers, these were the biggest gender gaps since 1992. The descriptive data suggest that the 2016 election was associated with a gender gap, the size of which had not been seen for a generation.

[Table 1 about here]

Of course, the new gender quota may have brought more junior or less competitive women into the electoral arena. Therefore, to really understand the gender gap, we estimate the following equation:

$$MentioningParagraphs_i = \beta_{0i} + \beta_1 Selection_i + \beta_2 Female_i + \beta_3 (Selection * Female)_i + \beta_4 Hierarchy_i + \beta_5 Vote_i + \beta_6 (Hierarchy * Female)_i + \beta_7 (Vote * Female)_i + \beta_8 Party_i + \beta_9 (Party * Female)_i + \beta_{10} Urban_i + e_i \quad (1)$$

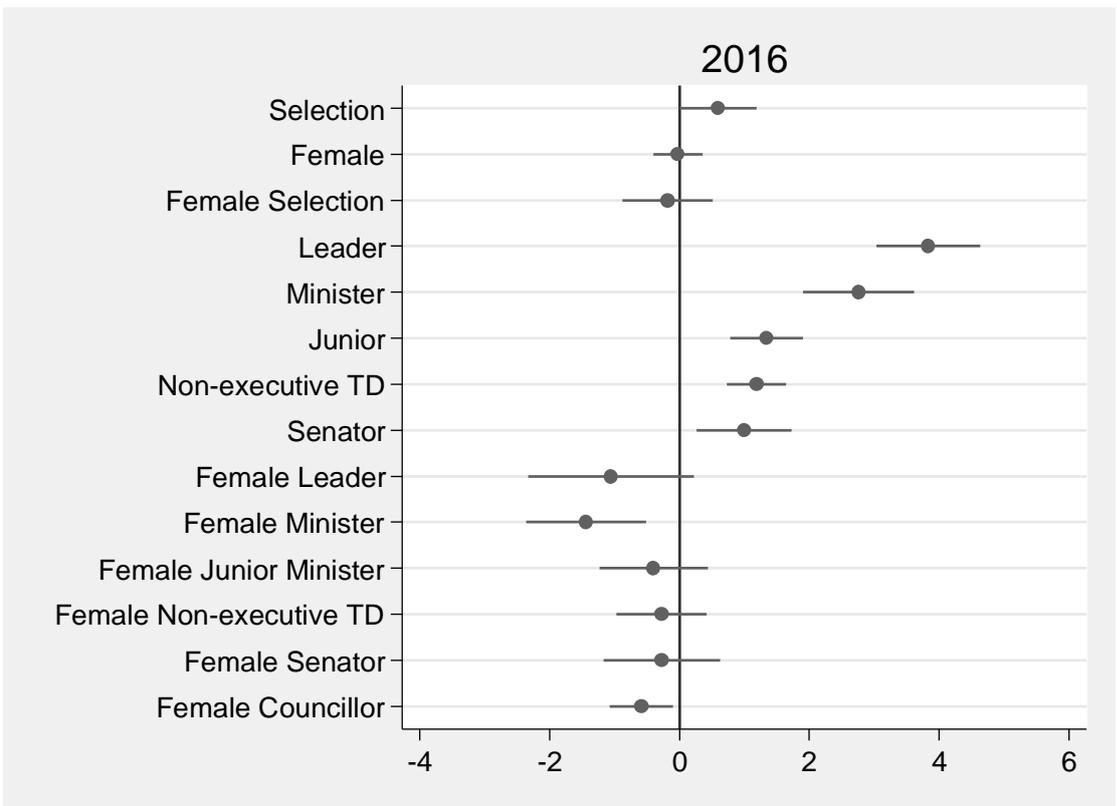
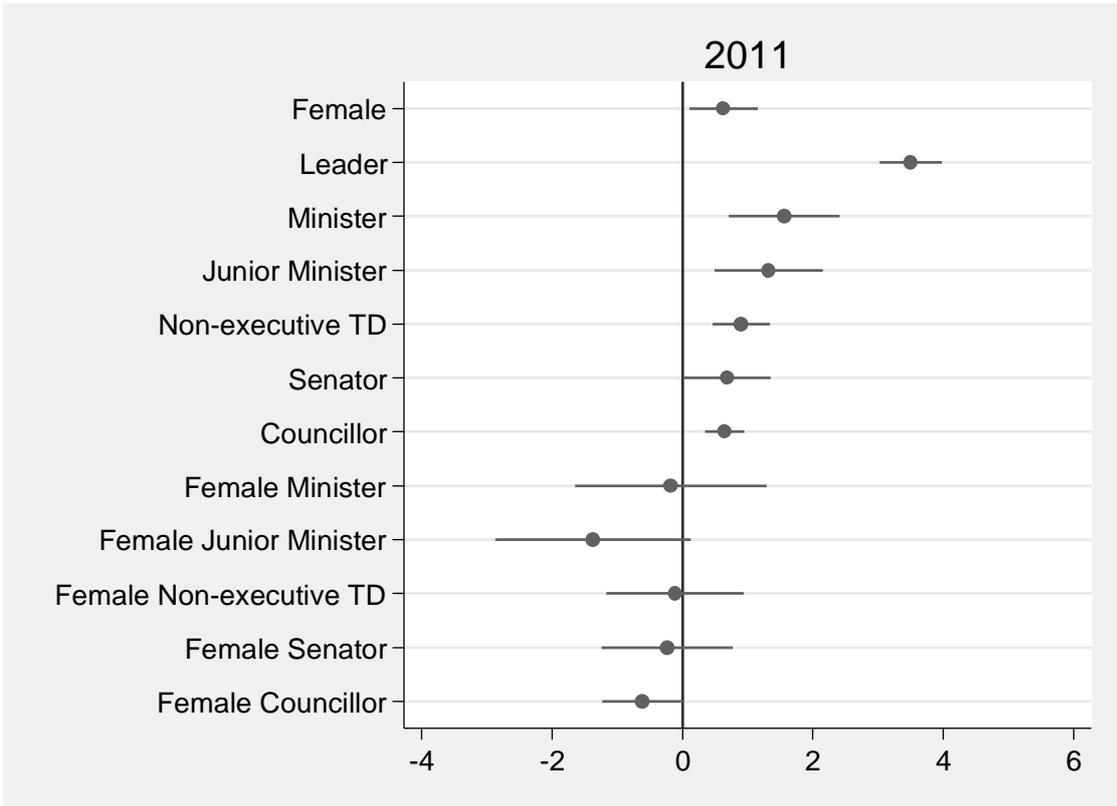
We use a negative binomial model since our dependent variable, *Mentions*, is a skewed count of the number of paragraphs mentioning a candidate during the 2011 and 2016 election campaigns. *Selection* is 1 if a candidate was added to the party ticket after a convention or the convention was directed to select a female. The matrix *Hierarchy* = {Party Leader, Minister, Junior Minister, Non-Executive Deputy, Senator, Councillor}. *Vote* records the proportion of the electoral quota achieved by a candidate on the first count. The matrix *Party* = {Fine Gael, Fianna Fáil, Sinn Féin, Labour} and the matrix *Urban* = {Dublin, Cork, Limerick}. Since we are interested in gender bias, we use interactions to test whether coverage of parties and offices varied conditional on candidate sex.

Figure 1 shows the coefficients and confidence intervals from this estimation, separately for the two elections. The constant, *Party* and its interactions, *Vote*, and *Urban* are not shown, but a table with the full results is available

in the appendix. Since the gender quota was introduced in 2016, the *Selection* variable and its interaction do not feature in 2011. There is also no interaction of candidate sex and Party Leader in 2011, as all leaders were male. Positive coefficients indicated that a variable was associated with more mentioning paragraphs. In 2011, the indicator for female was clearly positive, but in 2016 it was very close to zero. The introduction of the quota does not appear to account for this change. The *Selection* indicator is associated with more mentioning paragraphs, while its interaction with candidate sex has a negligible effect. The hierarchy variables exhibit a reassuring and very similar pattern across the two elections: the more senior the elected position the more mentioning paragraphs per candidate. There is also a pattern in the interactions between candidate sex. All interactions for both elections are negative, although the confidence intervals are mostly wide. In 2016, the coefficients for female ministers and female local councillors were statistically significant at the ninety-five per cent level.

FIGURE 1

Selected Coefficients from Models of Election Coverage in 2011 and 2016



Note. Bars are ninety-five per cent confidence intervals.

The importance of interactions with the indicator for candidate sex means that the coefficients themselves do not give us a straightforward view on whether the coverage of gender in the media changes across the two

elections. Marginal predictions provide a better assessment of the relative coverage afforded to male and female candidates in 2011 and 2016. In Table 2, we present contrasts of female versus male marginal predictions for the two statistically significant interactions of ministers and non-ministers and councillors and non-councillors from the models in Figure 1. For ministers, the numbers for 2011 suggest a good situation for women, but the advantage for female ministers is only half that of non-ministers. However, neither contrast is statistically significant. In 2016, for non-ministers there is a very slight disadvantage for women that is not statistically distinguishable from zero. For female ministers there is a much bigger (seventeen times greater) disadvantage, which is statistically significant at the five per cent level. Since men held the traditionally more prominent ministerial jobs, such as finance and foreign affairs, the ministerial interaction cannot give a clear indication of a gender gap in the media. Anyway, only 2.3 per cent of candidates in 2016 were ministers. Individual councillors, by contrast, are highly comparable. Moreover, this is the most important category in terms of the advancement of women. In 2016, twenty-five per cent of candidates were councillors. Councillors can be powerful challengers to incumbents because of their local electoral base. Moreover, we do not observe a change in the relative experience of male and female councillors between 2011 and 2016. In 2011, two out of nine former TDs running as councillors were women; in 2016 one out of seven were women. For councillors, the cell entries are almost a mirror image of each other. In 2011, there was an advantage in being female for non-councillors (significant at the five per cent level). In 2016, we can confidently say that there was no advantage for women, whether councillors or not. More speculatively, there is evidence of a disadvantage for women councillors versus their male counterparts (significant at the ten per cent level). The contrast between marginal predictions from 2011 and 2016 demonstrates a reduction in the coverage of women relative to men. The finding of a deterioration between 2011 and 2016 is stronger than the finding of a gender gap in 2016.

[Table 2 about here]

This phenomenon is not restricted to the print media. The appendix repeats the 2016 model for the sample of broadcast outlets. The results look very similar to the print model reported above, although there is an even stronger bias against female councillors. Unfortunately, we do not have broadcast data for 2011, but, given the shared norms of the Irish media and homogeneity in 2016, we guess that the similarity between the broadcast and print media is not confined to 2016.

We now conduct a very similar analysis on two completely different events, in an entirely separate area of journalism, but in the same two newspapers. In this era, Ireland's most successful sport was boxing. All three

medals won in 2008 were in boxing; four out of six in 2012 were boxing, with one each going to equestrian and walking events. The only gold medallist, and only woman, among all these was Katie Taylor, who is undoubtedly the most successful Irish athlete in recent times, having won multiple world titles as both an amateur and a professional. There were 113 mentioning articles for Katie Taylor, almost three times the total of the next most prominent competitor, silver medal-winning boxer, John Joe Nevin. The 2008 Olympics was much less skewed with the three medal-winning boxers scoring only thirty-two each. The other prominent athlete in 2008 was Denis Lynch, who was disqualified from the equestrian individual final after his horse failed a drugs test. The mix of events represented at the two Olympics is quite similar. Teams were present in running, equestrian, and sailing. Very few competed in more than one individual event, this being most common in swimming.

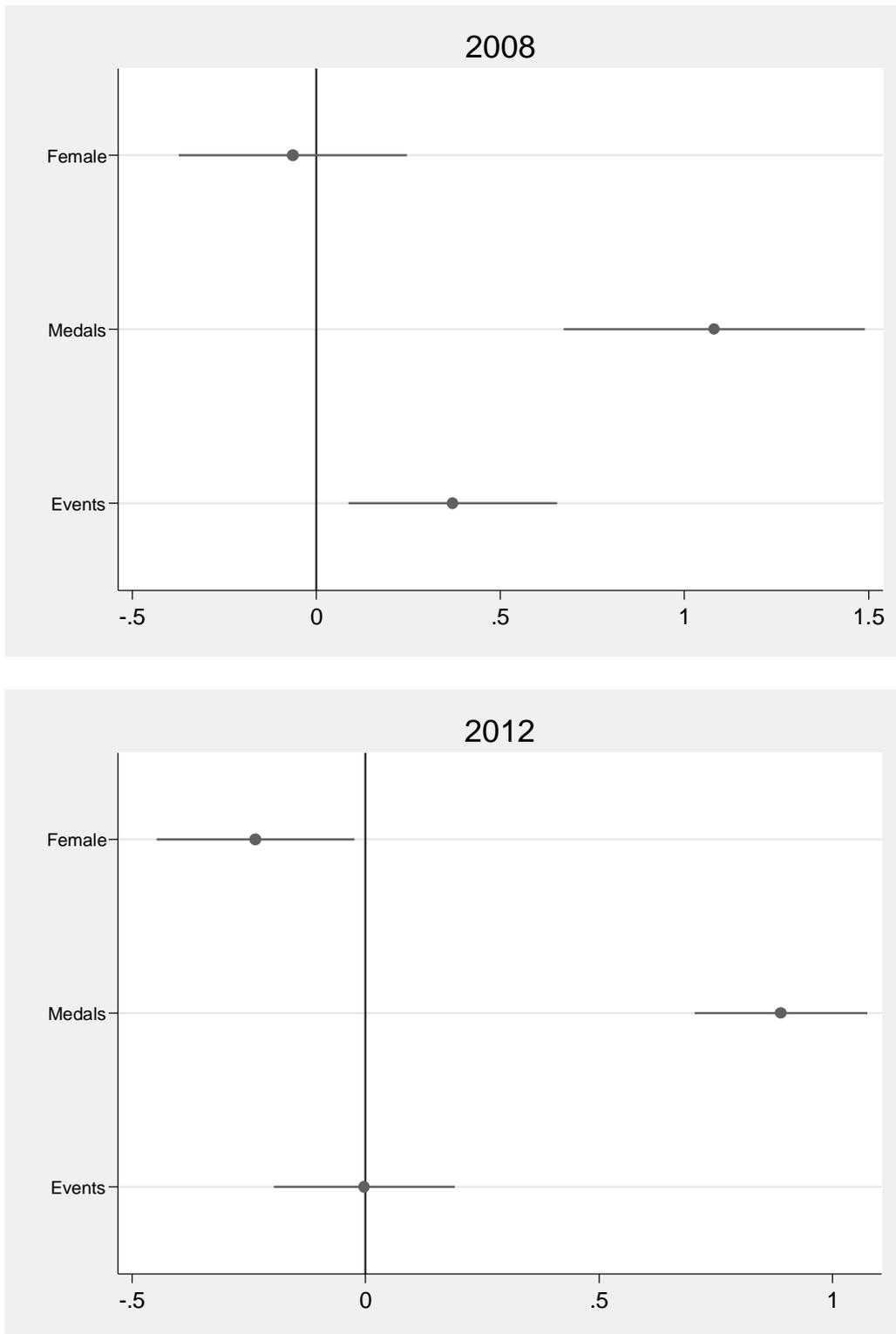
The equation for coverage of the Irish Olympic teams in 2008 and 2012 is as follows:

$$MentioningArticles_i = \beta_{0i} + \beta_1 Female_i + \beta_2 Medals_i + \beta_3 Events_i + \beta_4 Independent_i + e_i \quad (2)$$

Figure 2 plots the coefficients from *Female*, *Medals*, and *Events* for 2008 and 2012. Reassuringly, winning medals makes a big difference in both years. Coverage in the *Irish Independent* matters in 2012, but not 2008. The more *Events* an athlete featured in and the fewer members of her team mattered in 2008, but not in 2012. There is a noticeable change in the indicator for female athletes. It is indistinguishable from zero in 2008 but in 2012 it shifts to -0.24 and is statistically significant at five per cent. Once again, the results in tabular form can be found in the appendix. As with election coverage, women athletes seem to receive lower coverage when they are many than when they are few.

FIGURE 2

Selected Coefficients from Models of Olympics Coverage in 2008 and 2012



Note: Bars are ninety-five per cent confidence intervals

These two different areas of journalism show the same reaction to a surge in the representation of women – a reduction in the coverage of women relative to men. In politics, an advantage for women in 2011 became most probably a disadvantage in 2016, or, at the very least, parity with men. In addition to the longitudinal study of two newspapers, we find a very similar level of underrepresentation right across the media sector in 2016. In relation to the Olympics, women went from parity in 2008 to a disadvantage in 2012. The gender biases revealed in 2012 and 2016 are not very large, but there are other reasons to believe the change is real. The analysis of the four cases is not sampled. We measure the population of coverage in two newspapers of the population of candidates and athletes. Moreover, the data we gather is virtually perfectly measured in some respects. There is no doubt as to who won medals or occupied offices.

Discussion: Implicit Bias

Between 2011 and 2016 the proportion of female Dáil candidates jumped from 0.152 to 0.289, an increase of ninety percent. Between 2008 and 2012, the proportion of female Summer Olympics team members surged from 0.28 to 0.45, an increase of 61 percent. The difference between the coefficient for the gender indicator before and after the step change was 0.22 for the Olympics and 0.65 for election coverage. This suggests the larger step change was associated with a greater reduction in the coverage of women. However, the election equations include many variables and interactions, while the sex indicator is the only gender effect in the Olympics equations. So, it is speculative to compare quantities across the two areas. Nonetheless, it seems safe to say that the bigger step change had a more dramatic effect on media coverage. We also have good reason to believe that the source of bias in both cases was the media, not the relevant social elite. In our analysis of elections, indicators of possible elite bias had no effect. In the case of the Olympics, it is hard to imagine how or why the elite would have intervened on behalf of male athletes. In this section, we explore the nature of this media bias.

The Irish media are not divided on left-right lines, as British newspapers and American television are. Indeed, it would be very surprising if they were, as Irish politics is not defined by a left-right continuum either. There was no change in the nature of the media system from 2008 to 2012 or from 2011 to 2016 (Breen et al. 2019). There was no change in male domination at the top of the two newspapers we studied. Male editors were in place in both papers for both elections. The *Irish Times* moved from a female to a male editor between the 2008 and 2012 Olympics, but the *Irish Independent's* top journalist was male for both. (See Table A4 for the name and sex of relevant editors). The proportion of women in journalism has been increasing, not decreasing (Rafter and

Dunne 2015). There was no overall media backlash against women in public life. If anything, the media reflected the increased emphasis on gender equality in society and politics. In 2016, we showed above that there was a remarkably consistent level of underrepresentation across different media organisations in the public and private sectors, Irish and British ownership, and print versus broadcast. Our statistical analysis suggests that the drop in coverage of females was caused by an increase in the quantity, not a decrease in the quality, of female candidates and athletes. We have argued that the Irish political and athletic elite's sexism does not explain the drop in the coverage of females. The drop in coverage of female candidates resulted from implicit media bias, not explicit policy.

Newsrooms institutionalise the reproduction of some biases; institutionalise the attenuation of other biases; and pay little attention to yet others. For example, almost all promote a geographical bias; many seek to attenuate political bias; and most seek to do little about cultural biases. Different aspects of the coverage of women in public life can be found in the last two categories. We think many contemporary newsrooms will work to attenuate any difference of tone or framing of women in public life, even though they would have ignored these biases in the past. The tone and framing of gender are likely to be more influenced by news organisations than journalists. We also think newsrooms perhaps do less to attenuate biases in the amount of coverage given to women, partly because this is an aggregate issue that requires some level of data gathering and analysis and is, therefore, harder to spot than a reference to a woman's appearance or a negative portrayal of her abilities. In stories that feature more than one person, journalists probably do not usually deliberate about whether to mention men or women, never mind how often to mention them. We have not studied the mechanisms of implicit bias in Irish newsrooms. However, we think the mechanism was a combination of the newsroom's failure to institutionalise equal coverage in reporting and the implicit bias of individual journalists. Irish newsrooms are good at apportioning coverage equally. In election campaigns, this is done rigorously across establishment parties (Breen et al. 2019). Editors, presumably, have been committed to making sure women are not ignored, but have not organised routines to ensure that they are receiving equal coverage. Instead, it was left to individual journalists to correct for their own implicit gender bias when deciding whether to mention candidates. Deliberate correction works when there are few decisions to be made about few candidates or athletes (*Cf.* Meeks 2012: 78-9; Vohs et al. 2008: 894-5). It is tiring, and therefore less effective, when there are many decisions to be made about many candidates or athletes (Danziger, Levav and Aznaim-Passo 2011; Ma et al. 2013: 523; Govurun and Payne 2006; Correll, Park, Judd, Wittenbrink, Sadler, and Keesee 2007; Correll, Park, Judd, and Wittenbrink 2007). Thus, we think the most

plausible explanation is that newsrooms lack of interest in gender defaulted to the implicit bias of individual journalists.

Conclusion

Writing about an exceptional situation is not the same as writing about a common situation. We cannot assume that media coverage will increase smoothly, proportionally, and simultaneously, as women advance in public life. Apparent surges in female representation may be undermined by elite tokenism or media tokenism. Sectoral elites may signal to the media that females are less newsworthy than their male counterparts. The media's ability to deliver a token amount of coverage to women may seem to reflect reality when women are few, but be revealed as biased when women are many. We study surges in women's representation in two very different areas in the same media system. In both cases, there are deteriorations in the coverage of women compared to their male equivalents and in both the evidence points towards the media, rather than the relevant social elite.

Newsrooms were not set up to monitor, or to correct, a gender gap, in contrast to closely policed norms on balance between political parties. Instead, political and sports journalists were left to make most decisions to allocate space between men and women. Journalists needed to consciously correct for their own implicit gender bias to conform to their belief in gender equality when covering the news. A surge in women in politics and sport presented journalists with a potentially exhausting set of conscious checks on their own bias. We think they may have defaulted to their implicit attitudes and consequently there was a reduction in the coverage of women compared to equivalent men. Further observational studies, as well as laboratory experiments could explore this idea further. Nevertheless, this interpretation has practical implications.

We are more likely to make intuitive judgements when otherwise cognitively busy. Organisations can compensate for the flaws in human decision-making by imposing routines (Kahneman 2011: 417-418). One of the functions of the newsroom is correct (some of) the biases, implicit or explicit, of journalists. They can easily adapt these age-old routines to correct for gender bias too. Otherwise, the narrowing of the gender gap in political and sports representation may widen the gender gap in media coverage, or even reopen it, as appears to have happened in Ireland. The bigger the jump in female representation, multiplied by the extent of unconscious gender bias, the larger this unexpected and unwelcome side effect may be. Given the basis of our theory in psychology, this phenomenon should also exist outside the media in any context where there are large numbers of decisions about whether to favour males or females. Indeed, if the mechanism is ultimately a psychological one, we

should be wary of a similar unexpected reappearance of bias where other historically marginalised groups secure increase representation, for example, race, caste, ethnicity, and others.

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Appendix

TABLE A1

Validation of Automatic Name Counts

	Precision	Recall [full name]	Recall [surname]
Overall	0.98	1	0.64
Male 2011	1	1	0.65
Male 2016	0.95	1	0.45
Female 2011	1	1	0.86
Female 2016	1	1	0.85

Note: Random sample of 600 paragraphs from the Irish Times and Irish Independent in 2011 and 2016.

Our analysis of elections is based on a simple search for the full name of candidates. As Table A1 shows, this worked almost perfectly. The earlier section of our historical newspaper data is based on Optical Character Recognition from reproductions of the print editions. It was not possible to automatically identify separate articles and therefore not possible to decide whether the mention of a surname by itself referred to an election candidate or somebody else. This is why we counted only mentions of the given name and surname. Of course, in an article, newspapers usually leave out the given name, or in more playful pieces, the surname, after the first mention of the full name. This means our data undercounts the difference in mentions between the most and least mentioned candidates. These failures to recall are overwhelmingly mentions of party leaders or ministers. This issue probably has little or no effect on the larger groups we emphasise: councillors and candidates without an elected position. Moreover, this issue does not appear particularly relevant to the central finding of our article, which is an increase in gender bias from 2011 to 2016. If there had been a substantial decrease in female recall relative to male recall between 2011 and 2016, this would have resulted in a drop in female mentions relative to male mentions. However, there is virtually no change in female recall and a noticeable drop in male recall. This suggests that the data might be underestimating the size of the new gender bias in 2016.

The Olympic data is a search on the full name for articles using the Lexis Nexis. As with our own programme described above, this procedure is virtually perfect in finding mentions of the full name, but does not recall mentions of the surname or given name subsequent to the use of the full name earlier in an article. Given the

individual nature of most Olympic sports, and especially the ones in which Irish athletes were most successful, the Olympic articles tend to focus on only one Irish athlete. By contrast, it is much more common for election coverage to mention several candidates in one article.

TABLE A2
Predicting Mentions of General Election Candidates

	2011	2016 Print	2016 Broadcast
	Coefficient (Robust SE)	Coefficient (Robust SE)	Coefficient (Robust SE)
Selection	-	0.60* (0.30)	0.36 (0.44)
Female	0.63* (0.27)	-0.02 (0.19)	0.70 (0.47)
Female Selection	-	-0.18 (0.35)	0.27 (0.65)
Leader	3.50*** (0.24)	3.84*** (0.41)	5.49*** (0.67)
Minister	1.56*** (0.43)	2.76*** (0.44)	4.00*** (0.63)
Junior Minister	1.33** (0.42)	1.34*** (0.29)	2.81*** (0.70)
Non-Executive TD	0.90*** (0.23)	1.19*** (0.23)	2.72 *** (0.53)
Senator	0.69* (0.34)	1.00** (0.37)	0.03 (1.09)
Councillor	0.65*** (0.15)	0.85*** (0.22)	1.47** (0.46)
Vote	2.06*** (0.24)	2.40*** (0.37)	2.06*** (0.44)
Female Leader	-	-1.05 (0.65)	-2.60* (1.00)
Female Minister	-0.18 (0.75)	-1.44** (0.47)	-3.91** (1.24)
Female Junior Minister	-1.37† (0.76)	-0.39 (0.43)	-27.12*** (1.21)
Female Non-Executive TD	-0.11 (0.54)	-0.27 (0.35)	-1.41† (0.73)
Female Senator	-0.23 (0.51)	-0.27 (0.46)	1.17 (1.23)
Female Councillor	-0.61† (0.31)	-0.59* (0.25)	-2.51** (0.84)
Female Vote	-0.10 (0.59)	0.08 (0.62)	1.44 (0.96)
Fianna Fáil	0.46 (0.52)	0.06 (0.25)	-0.02 (0.54)
Fine Gael	-0.77* (0.32)	0.17 (0.20)	-0.83 (0.55)
Labour	-0.78** (0.28)	0.55* (0.25)	0.08 (0.57)
Sinn Féin	-0.28 (0.29)	0.17 (0.26)	-1.16* (0.52)
Male Fianna Fáil	-0.23 (0.55)	-0.51 (0.34)	0.31 (0.57)
Male Fine Gael	0.16 (0.35)	-0.38 (0.24)	0.29 (0.62)
Male Labour	0.26 (0.34)	-0.27 (0.31)	-0.04 (0.68)
Male Sinn Féin	-0.34 (0.38)	-0.42 (0.36)	1.04† (0.54)
Dublin	0.40* (0.16)	0.40** (0.13)	0.31 (0.35)
Cork	0.28 (0.18)	0.14 (0.23)	-1.03† (0.57)
Limerick	0.31* (0.14)	-0.38† (0.22)	1.29*** (0.26)
Constant	0.93*** (0.13)	-0.53** (0.16)	-3.06*** (0.44)
Log pseudolikelihood	-1822.58	-1208.21	-540.26
Observations	566	550	550

The coefficients are from negative binomial models and standard errors are clustered by constituency. †p<0.1;

*p<0.05; **p<0.01; ***p<0.001.

TABLE A3
Predicting Mentions of Olympic Athletes

	2008	2012
	Coefficient (SE)	Coefficient (SE)
Female	-0.064 (0.16)	-0.24* (0.11)
Medals	1.08*** (0.21)	0.89*** (0.09)
Events	0.37 (0.14)*	-0.003 (0.099)
Independent	-0.094 (0.14)	0.42*** (0.11)
Constant	1.76 *** (0.17)	2.17*** (0.14)
Log pseudolikelihood	-324.04	-423.85
Observations	106	132

The coefficients are from negative binomial models.

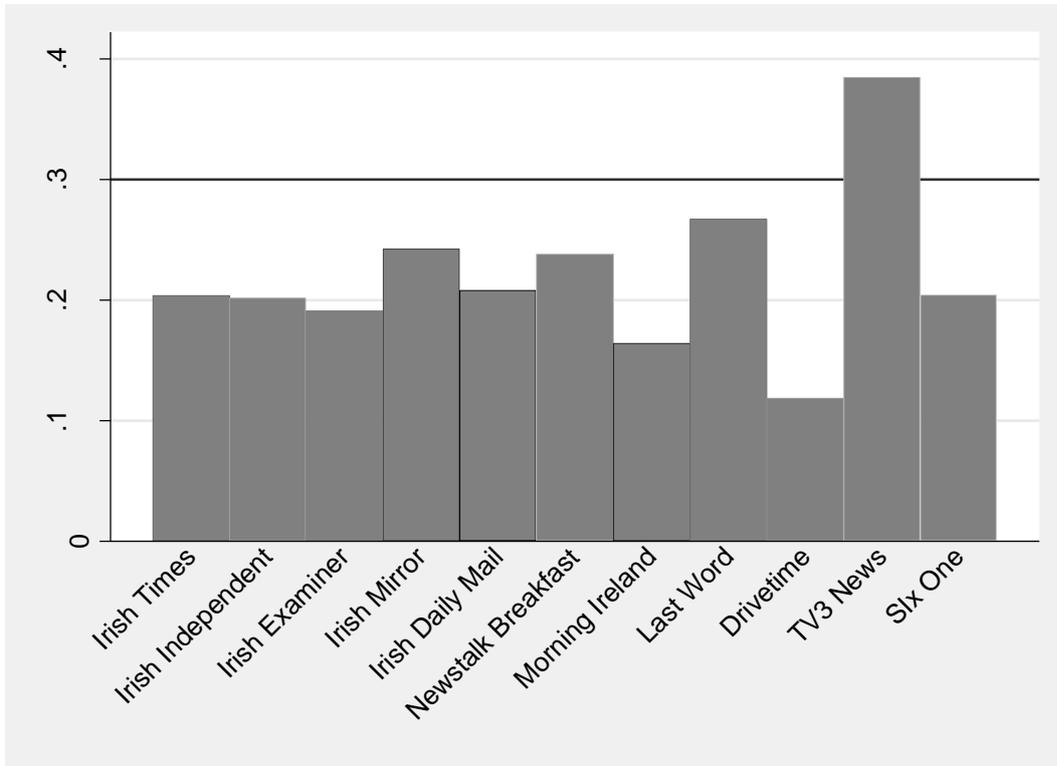
*p<0.05; **p<0.01; ***p<0.001.

TABLE A4
Editors of Irish Newspapers and News Sections of Broadcasters

Outlet	Year	Editor	Sex	Note
<i>Irish Times</i>	2008	Geraldine Kennedy	Female	General Editor
	2011	Kevin O’Sullivan	Male	General Editor
	2012	Kevin O’Sullivan	Male	General Editor
	2016	Kevin O’Sullivan	Male	General Editor
<i>Irish Independent</i>	2008	Gerry O’Regan	Male	General Editor
	2011	Gerry O’Regan	Male	General Editor
	2012	Gerry O’Regan	Male	General Editor
	2016	Fionnan Sheahan	Male	General Editor
RTÉ	2016	Kevin Bakhurst	Male	News Editor
<i>Irish Mirror</i>	2016	John Kearns	Male	General Editor
<i>Irish Daily Mail</i>	2016	Sebastian Hamilton	Male	General Editor
<i>Irish Examiner</i>	2016	Tim Vaughan	Male	General Editor
Today FM	2016	Sinead Spain	Female	News Editor
Newstalk	2016	Garrett Harte	Male	News Editor

FIGURE A1:

Coverage of candidates by outlet in 2016



Note: The line at 0.3 indicates the proportion of female candidates. Bars reaching this line suggest equal coverage of male and female candidates.

TABLE 1

The Gender Gap in the Election Coverage of Leading Irish Newspapers

	Dáil Candidates	Irish Times	Irish Times Gender Gap	Irish Independent	Irish Independent Gender Gap
1969	0.026	0.028	-0.001	0.019	0.008
1973	0.048	0.039	0.009	0.034	0.014
1977	0.066	0.056	0.010	0.035	0.031
1981	0.101	0.074	0.027	0.046	0.055
1982a	0.096	0.093	0.003	0.075	0.021
1982b	0.085	0.142	-0.057	0.088	-0.003
1987	0.114	0.100	0.014	0.064	0.049
1989	0.140	0.076	0.064	0.077	0.063
1992	0.185	0.083	0.102	0.086	0.099
1997	0.198	0.189	0.009	0.164	0.034
2002	0.181	0.142	0.039	0.153	0.028
2007	0.174	0.133	0.041	0.122	0.052
2011	0.152	0.124	0.028	0.103	0.049
2016	0.289	0.208	0.081	0.222	0.067

Note: All cells are proportions. There are no standard errors, as we used all text for each newspaper. The gender gap is the difference between the proportion of female candidates and the proportion of coverage allocated to female candidates. Positive figures under gender gap indicate that men received more coverage than women.

TABLE 2

Contrasts of marginal predicted hits for women versus men

	2011			2016		
	Contrast	95% Conf. Interval		Contrast	95% Conf. Interval	
Non-councillors	0.561*	0.039	1.082	0.023	-0.454	0.501
Councillors	-0.053	-0.868	0.761	-0.564†	-1.169	0.040
Non-ministers	0.395	-0.153	0.943	-0.086	-0.546	0.372
Ministers	0.215	-1.433	1.863	-1.526*	-2.693	-0.359

Note. The predictions are derived from the models in Figure 1 and computed from cell entries as observed, since we have observed the relevant populations, not samples.

† $p < .1$; * $p < 0.05$

¹ There are other urban centres, but the design of the constituencies does not isolate them from surrounding rural areas.

² While content sourced from LexisNexis appear in our data in the format they originally appeared, content sourced from the Irish newspaper archive does not. This data is drawn from the source in PDF scans, which require optical character recognition software (OCR) to convert the images into plain text. The data from the *Irish Independent* (1969-2011) and the *Irish Times* (1969-1992) were gathered using the PDF/OCR process. For broadcast, we define a 'paragraph' in the transcribed text as being a continuous utterance of speech by a single speaker without interruption. Paragraph breaks are thus defined by interruptions and a change of speaker.