

Axes of power

Examining women's access to leadership positions in the news media

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5.1 Comparing women's standing in the news industry across the world

This chapter examines factors associated with women's occupational advancement within news organisations, as well as the relationship between their newsroom status and representation in news content. It seeks to expand what is known about women's place in a profession that is essential in providing women greater visibility, a public voice, and expanded participation in civic and political life. Women across the globe have advocated for greater access to jobs in journalism, as well as for mobility within the profession, for more than a century. Their struggle and slow gains are reflected in feminist media studies that reveal the low extent to which women remain represented in the profession as well as in local, national, and international news stories (Byerly, 1995, 2011; Gallagher, 1987; Macharia, 2015). Although women have made significant strides as reporters and news presenters, the advancement to management and governance roles – the positions of power – has been significantly slower.

Tuchman (1978a, 1978b), who called women's absence in the news a problem of “symbolic annihilation” four decades ago, would also reveal the relationship between news invisibility, misrepresentation, and public perceptions of women's roles in society. Tuchman was part of an early international chorus of feminist scholars and leaders pointing out that as long as newsrooms were men's domain, and news practices privileged men's priorities, there would be little change in women's professional standing within the field or in the amount or content of news that circulated. Women have waged a long struggle to gain equality in journalism and other media professions, particularly to attain policy- and decision-making roles where news is typically defined and stories are assigned.

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The present study complements Monika Djerf-Pierre's preceding Chapter 4 in its concerns to 1) identify and theorise the factors that contribute to women's standing in newsrooms across the world and, additionally, 2) gain greater insight about the possible relationship between women's position within the newsroom hierarchy and their representation in news content. Where Djerf-Pierre takes a societal approach by applying modernisation theory, we draw from organisation-focused approaches, applying critical mass theory to explore factors affecting women's advancement within the profession in different countries. By the same token, the study does not set out to establish cause-effect relationships between women's newsroom roles and the amount or kind of news about women. Rather, the study lays the foundation for such research by examining relationships among a range of factors within news organisations as well as the broader social contexts within which those organisations operate.

5.2 Women's position in the news industry – and in society

Journalism is a profession widely construed to be essential in the democratic process and nation building. Feminists instilled the necessity of expanding women's role in journalism and media in various documents produced during the UN Decade for Women (1976–1985) and in subsequent global-level documents. One of the most important was Strategic Objective J of the Beijing Declaration and Platform for Action, adopted during the 1995 fourth global women's conference, which set forth two specific goals. The first called for an increase in the “participation and access of women to expression and decision-making in and through the media and new technologies of communication”, while the second promoted “a balanced and non-stereotyped portrayal of women in the media” (Strategic Objective J, 1995). The challenge in this chapter will be to identify what we call the axes of power, that is, the factors that allow women to gain influence within the newsmaking industry in the nations studied, and to theorise these findings in relation to the global objectives of the Strategic Objective J (1995), contained in the Beijing Platform for Action. In the context of this study, axes are considered to be the factors which, in coordination with each other, determine women's status in news organisations.

Women's location within organisations is affected by a variety of social factors. In spite of a global feminist movement that has advanced women's opportunities and status in society in areas such as education, longevity, political leadership, and professional success, current data show that gender equality still varies from nation to nation, and that the most industrialised nations have not necessarily made the greatest gains (WEF, 2017). While the World Economic Forum's (WEF) annual Global Gender Gap Index (GGI) shows that women have generally advanced over these years, other research shows that

these advances are not always stable, especially within the corporate sector. One recent report shows that women slipped 2 per cent in standing between 2015 and 2016, now representing only 27.8 per cent of corporate boards of directors (McGregor, 2016). More relevant to the media-world, corporate websites show men decidedly in control in the 100 largest media corporations, where women occupy only 6 per cent of the chief executive officer positions, 17 per cent of the positions in top management, and 20 per cent of the seats on boards of directors (Edström & Facht, 2018).

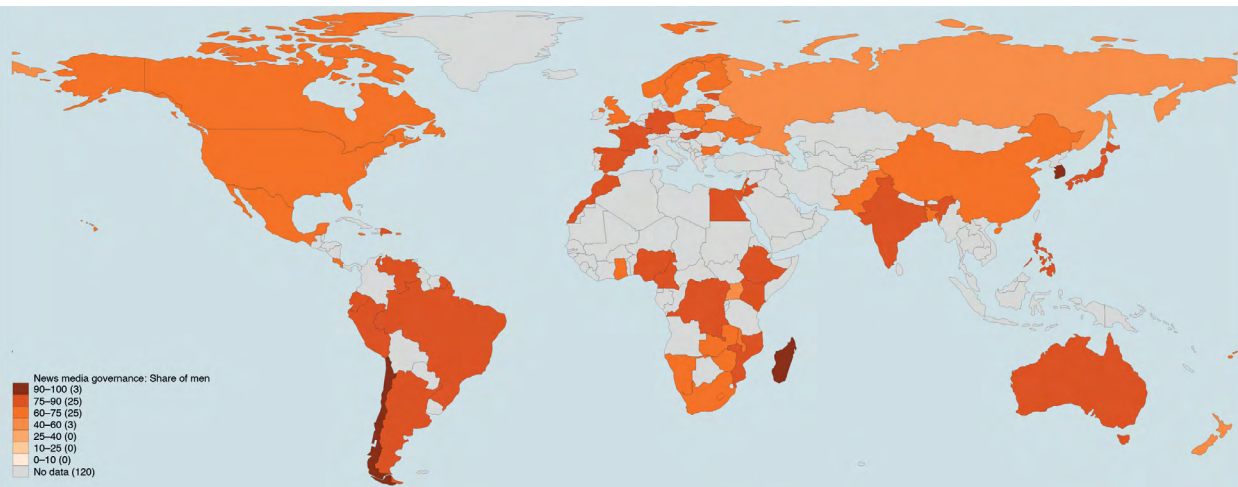
The present study focuses on women in traditional news organisations – radio, television, and newspapers – and including the present-day online versions. Even though other online news sites have become popular, it is traditional news organisations which still employ the greatest numbers of news professionals and which reach the largest audiences with their news. It bears mentioning that traditional news organisations have also been the focus of feminist scholarship on gender equality in employment as well as news content for several decades, and, thus, the present study fits within this longer trajectory of feminist journalism research.

In earlier studies, feminist scholars documented persistent gender inequality in news content, where journalism still speaks mainly in a male voice and focuses disproportionately on men's ideas, achievements, and analyses of current events. The Global Media Monitoring Project (GMMP), which has conducted global-level research on gender in news content every five years since 1995, shows that progress has been slow. In 2015, the aggregated data for the 114 participating nations revealed that women still constitute only 24 per cent of the people in the news (as sources or subjects) published, broadcast, or posted online – a figure that has been relatively stable since 2005 (Gallagher, 2015). The figure for content on women in online news was only marginally better at 26 per cent. How is such longstanding neglect of women's lives, concerns, and contributions related to the numbers of women news professionals?

The largest global-level study to date on women's occupational standing within the news industry is the Global Report on the Status of Women in News Media, led by Byerly (2011) for the International Women's Media Foundation (IWMF). Researchers in that study of 59 nations interviewed executives at 522 companies to learn the numbers of women and men in reporting, production, management, and governance roles, as well as whether company policies and practices incorporated gender equality. Aggregated data showed men occupying three-fourths of the positions in top management and on boards of directors, as well as two-thirds of the reporting positions. The findings digressed from that pattern in a number of nations, where women were near parity with – or even surpassed – men in several occupational ranks within their news companies. Such important exceptions of greater participation by women were found in some of the Nordic and Eastern European nations; however, the explanations

for women's greater ascendancy in journalism differ in these two regions. The map in Figure 5.1 illustrates the ubiquity – but also some variation – of male dominance in governance roles in the news industry in the countries participating in the global report. Some countries have few or no women in governance (e.g., South Korea, 0%; Chile, 9%; Hungary, 13%; and Japan, 16%), whereas others reach a higher share of women in governance (e.g., Zimbabwe, 37.5%; New Zealand 41%; and Finland, 46%). The large grey areas, where we have no data, illustrate the information gap researchers and policy-makers are still facing due to lack of sex-disaggregated data on news media organisations.

Figure 5.1 Male dominance in governance roles in the news industry (per cent)



Comments: $n = 57$ countries and 1,857 individuals. Grey areas lack data.

Source: IWMF (Byerly, 2011)

The Nordic nations have experienced a long history of social consensus on gender equality, as well as the legal and political structures to support equality, over the last 50 years (Edström, 2013; Øvrebø, 2013; Savolainen & Zilliacus-Tikkanen, 2013). By contrast, in the nations of Eastern Europe, the field of journalism went through a process of feminisation under Soviet occupation, when pay was relatively low and news workers were subject to “news management” and censorship by communist authorities. Under these conditions, men were less likely to be attracted to the profession, and women filled the professional gap, remaining to the present time (Byerly, 2011, 2013; Nastasia & Nastasia, 2013; Nastasia et al., 2013; Nastasia & Bondarenko, 2013; Ross & Padovani, 2017). The Nordic nations of note in the IWMF report include Sweden, Finland, and Norway, and the Eastern European nations include Latvia, Estonia, Bulgaria, and Russia.

A number of the other nations surveyed for the IWMF report also showed something close to gender parity, among them South Africa, Canada, and

Israel. Contrast these encouraging cases of advancement with the figures on women journalists in Asia and the Middle East, where the share of women in the decision-making levels of the profession remains in very low percentages – in the case of Japan, less than 5 per cent (Byerly, 2011; Ishiyama, 2013).

Taking up the challenge posed by Djerf-Pierre (2011), this chapter examines the extent to which indicators of gender equality in various social realms – economics, politics, education, and so forth – contribute to the likelihood of women advancing in occupational settings like newsrooms. Djerf-Pierre (2011: 44) argues that large-scale quantitative analyses within a feminist theoretical framework “are necessary both in explaining the variations in gender representations in the media, and in understanding the role of the media in creating the Good Society”. Her reference to the good society draws on global-level research by Wilkinson and Pickett, who set out to show statistically what has been part of the common wisdom for years – that is, that equal societies are better places to live in terms of lower crime and violence, fewer social problems, better health, lower incidence of mental illness and drug use, and higher levels of social trust, happiness and satisfaction with life in general (cited in Djerf-Pierre, 2011). The present chapter asks whether indicators of a gender egalitarian society might also predict whether more women are likely to advance in the journalism profession generally, or, more specifically, into positions where they can contribute to reshaping the androcentric newsrooms where journalism practice might incorporate gender equality at every level: employment, supervision, and content.

5.3 Women’s standing and agency in the newsrooms: The issue of critical mass

How many women does it take to create change? Critical mass theory provides an analytical framework to interpret this study’s findings on women’s standing in newsrooms and to explore possible relationships between women’s standing in the newsrooms and the amount of news content about women. There has been renewed interest in critical mass theory, a feminist theory often attributed to sociologist Rosabeth Moss Kanter (1977a, 1977b) more than four decades ago. Robin J. Ely (2018: para. 1) has called Kanter’s (1977a) groundbreaking study, *Men and Women of the Corporation*, a “[cornerstone] in our understanding of [...] how organizational roles and structures shape unequal access to opportunities, resources, and advancement”.

Kanter’s study, conducted at a Fortune 500 corporate workplace, took place over a five-year period during the height of the American feminist movement that had successfully promoted passage of national gender-equality laws and policies in employment and education. Her study investigated what happens to

women who gain employment but occupy only token status and are alone or nearly alone in a peer group of men within organisations with highly skewed gender ratios. She defined tokens as those who share certain characteristics (e.g., gender or race) that are outwardly visible, and who together constitute a visible minority (i.e., a skewed group) within an organisation. Skewed groups include those (in this case women) who are given the burden of representing their category, not just themselves. She observed, among other things, that “in the presence of token women, men exaggerated displays of aggression and potency, instances of sexual innuendo, aggressive sexual teasing, and prowess-oriented ‘war stories’” (Kanter, 1977b: 45). Men incorporated token women into the professional setting but continued to place them in familiar female stereotypes associated with mother or seductress (e.g., cooking for men, listening to their problems, or responding to men’s sexual desires). Kanter asked how many women were necessary to change a person’s standing from token to full group membership. Her search for this tipping point – that is, the number of women necessary to effect change within an organisation – was on a sliding scale from tokens to minority to potential subgroup, where the ratio 65:35 seemed to be when things could potentially start changing. She argued that “investigation of the effects of proportions on group life and social interaction appears to be fruitful both for social psychological theory and for understanding male-female interaction” (Kanter, 1977b: 53). She believed that ferreting out proportions would lead to understanding gendered structural relations.

Kanter’s concern about the proportion – or critical mass, as Dahlerup (1988, 2006) would later call it – originated in nuclear physics, where it referred to the smallest amount of fissile material needed for a sustained nuclear chain reaction. This is also a useful way to describe women’s collective potential for making change in organisations (i.e., starting a chain reaction) if they reached sufficient numbers. In her introduction of critical mass theory to the political science discipline a few years later, Dahlerup (1988) set the necessary proportion of the tipping point at around 30 per cent, a figure that has more or less held in scholarly and civic discourse, even though its validity has been challenged in subsequent empirical research. Dahlerup (2006: 514) herself calls the endurance of a belief in critical mass the “story of critical mass theory [which,] when feminist movements and female politicians themselves make use of this ‘theory,’ it becomes important in itself, in spite of all scholarly reservations”. Indeed, the continued reference to and debates around the critical mass theory demonstrates the theory’s endurance.

The journal *Politics and Gender*, for example, dedicated an entire issue to the theory in 2006, with contributing scholars answering the question: “Do women represent women? Rethinking the ‘Critical Mass’ debate”. One contributor, Sandra Grey (2006: 492), argues:

Critical mass is only useful if we discard the belief that a single proportion holds the key to all representation needs of women and if we discard notions that numbers alone bring about substantive changes in policy processes and outcomes.

Grey's study suggests that not numbers alone, but factors such as female politicians' time in office, their own (and their party's) ideology, and others' reactions to women politicians also contribute to women's ability to lead and change. Dahlerup's (2006) own contribution to that special issue revisits critical mass theory's foundations and underlying assumptions. She considered her original (1988) research that established 30 per cent as the approximate number when women might create organisational change, by observing that in fact, research on the Nordic experience had concluded that "no turning point can be identified" (Dahlerup, 2006: 513). She believed that "the critical mass perspective should be replaced by a focus on *critical acts* that will empower women in general", and she posed a number of changes that this might entail (Dahlerup, 2006: 513). This same thinking is advanced by Childs and Krook (2006, 2008) in their emphasis on shifting the question from when women make a difference to what women *do* to make a difference (in their occupational roles).

Later, feminist media scholar Linda Steiner (2012: 213) reviewed the literature on critical mass theory, concluding:

The concept of critical mass is probably both conceptually and empirically weak [in that it] endorses a kind of double bind for women in politics, business and journalism, requiring women both to bring something distinctive to the table and to be "professional".

Steiner advocates refocusing attention on actors rather than collectivities in empirical research on women in media professions, also noting that in nations where the media are censored, no number of women in journalism would make a difference.

In spite of its critics, feminist scholars continue to draw on the theory's basic proposition that more women in an organisation have a better chance of effecting change than a token few. Torchia and colleagues (2011) used critical mass theory, complicating it by taking into consideration activities and conditions, that is, board strategies that might assist small numbers of women to assert themselves within organisations. Joecks and colleagues (2013) reviewed 18 published studies that used critical mass theory and noted that eight of them had found a positive link. These authors' own research on women holding board positions of German companies found evidence of the critical mass of women in boards to be reached around 30 per cent (thus confirming Dahlerup's

original work), but they also noted that factors such as women's experience levels would need to be taken into consideration.

It is instructive to note that the manner of women's interaction among themselves may also contribute to organisational change. Research over time and in multiple nations has shown the important ways that women help each other, both indirectly and directly, in professional contexts. For example, in their study of nearly 20,000 business organisations in Brazil, de Castro and colleagues (2018) found that "women at the helm" can have a positive influence on organisational culture and practice; for example, encouraging the adoption of family-friendly policies that improve the environment for other women's participation. Bajdo and Dickson's (2002) cross-cultural examination of the relationship between organisational culture and women's advancement to management found that gender-equality practices were the most important predictor of the percentage of women in management. Their findings were based on regression analysis using data from 3,544 individuals from 114 organisations (including telecommunications) in 32 nations, with data examined along two scales – one for organisational values, the other for organisational practices – and four dimensions (performance orientation, humane orientation, gender equity, and power distance). Among their conclusions were that the percentage of women in management contributed to stronger gender-equity cultural values and practices in organisations.

Another study by Yang and colleagues (2019) examined the relationship between women's professional and social networks in graduate programmes and their placement in workplace leadership as they entered the job market. They found, among other things, that women students with an inner circle of predominantly female contacts are stronger in their potential to achieve higher early status in their jobs than women without such contacts. The takeaway from this study is that women support each other in their shared achievement goals. Another study by the Pew Research Center (2018) indicates that women in the general public believe other women in leadership will improve life for all. The Pew report, based on 4,587 individuals surveyed, found that 77 per cent of the women in their study believed having more women in top positions in business and government would improve the quality of life for all Americans.

In feminist media research, there are few empirical studies testing the effects of critical mass in the newsrooms, and leading scholars have dismissed it as just one of the "failed theories" that has not been useful in explaining male dominance in the news industry (Steiner, 2012; van Zoonen, 1998). As far as we know, no studies have looked at the presence or relevance of a critical mass of women in journalism organisations. Large-scale, cross-country comparisons of gender and news production in general are hard to find. One exception is Hanitzsch and Hanusch's (2012), cross-national comparison of gender differ-

ences with regard to professional values. As they reviewed the literature on whether or not gender plays a deciding factor in the production of news when there is a critical mass of women within the newsroom, they noted that numerous researchers (e.g., Chambers et al., 2004; de Bruin, 2004; van Zoonen, 1998) had concluded that gender alone cannot be held responsible for either newsroom cultures or the news these newsrooms produce. Hanitzsch and Hanusch then explored whether the gender of journalists created a particular predisposition toward the professional values they held about things such as the audience, subjectivity toward their topics, and other professional issues. Interviews with 1,800 journalists (100 journalists in each country – women and men) in 18 nations revealed no significant differences in professional views between women and men, irrespective of whether the level of analysis was the individual, newsroom, or society. They surmised, as others had before them, that the fundamental masculine structure of both news organisations and news content were greater causative factors in the gendering of newsrooms than the individuals who populated them.

Still, the question remains whether a critical mass of women at various positions within newsrooms is related to the content of news when examined comparatively and cross-nationally. Thus, in this chapter, we examine the relationship between the presence of women in different roles in the news industry and women in news content. Previous studies of the critical mass have focused on specific organisations (such as a corporation) – in this study we are looking at gender compositions across the entire (national) field of journalism. In our attempt to discern potential critical mass effects at the country level, we first discuss to what extent women have reached a critical mass at various positions in the news industry in different countries – from junior reporting roles to positions of power, such as top-level management and governance. Secondly, we pay specific attention to *patterns* when looking at the relationship between women journalists and women in news content across countries. We believe that a possible indication of a critical mass effect might be that the frequency of women in the news begins to increase after a certain threshold (i.e., a statistical “breakpoint”) has been reached with regard to the number of women journalists; for example, if there are very few women news subjects up until the percentage of women journalists reaches about 30 per cent, and then there is a significant increase in women news subjects past this threshold. We refer to the 30 per cent figure because that is what other researchers have cited as the point at which critical mass occurs. However, we entered our own investigation allowing for the possibility that the point at which a critical mass and a measurable change in an organisation intersect might occur at a point other than 30 per cent.

Drawing on the analytical framework presented, this chapter’s central concern about the influence of gendered axes of power within newsrooms poses three main research questions:

- How are the locations of women in various positions in news production in different countries related to each other? For example, does the number of women in junior levels predict their presence at management and governance levels?
- To what extent is the location of women in various positions in news production in different countries related to the general status of women in society?
- How is the presence of women in various positions in news production associated with the percentage of women sources and subjects in the news?

5.4 Research design and methodology

The study takes a critical empirical approach, answering research questions using quantitative procedures within a critical framework that has the goal of telling us more about gendered relations of power in the global news industry. The study adopts the basic assumptions of critical mass theory, as originally posed by Kanter (1977a, 1977b) and expanded by subsequent researchers who argued in favour of considering additional factors (i.e., women's social standing and the presence of gender equality laws) to explain women's advancement and effectiveness within organisations. In the absence of other established measures, we applied the 30 per cent threshold, as well as some others, to broaden the understanding of how critical mass might be used in feminist research. Our analysis will hopefully further elucidate its validity in application to feminist journalism research.

The goal of critical scholarship is to reveal or enable the path toward social change. The present research seeks not only to contribute to the academic literature, but also to provide a useful baseline of data for those in trade unions, women's journalism organisations, and other progressive organisations to use in advocating for equality policies in the profession.

Overview of data

Data for this chapter come from a number of different sources and are compiled for use in the project, Comparing Gender and Media Equality Across the Globe (Färdigh et al., 2020). In order to allow for proper identification across studies and to link each variable to its original source, each variable name has been assigned a prefix that contains a reference to the original dataset followed by the original variable name (e.g., the variable "proportion of women news subjects or sources in the news" is retrieved from the GMMP dataset and the original variable name is `gons_f`; therefore, it is named `gmmp_gons_f`).

The sources of data and variables used in this chapter are as follows:

- the Global Report on the Status of Women in the News Media, sponsored by the IWWMF (Byerly, 2011);
- the Global Gender Gap Index (GGI), developed by the World Economic Forum (WEF);
- the Varieties of Democracy (V-dem) dataset (Coppedge et al., 2017);
- and the GMMP (Macharia et al., 2010).

Further descriptions of the original data sources, datasets, and variables used in this chapter are provided in Appendix 5.1. The following section gives an overview of the variable selection and presents the rationale for the choice of variables.

Analytical procedures

The basic methodological approach is to conduct a correlational analysis of a series of relationships between women in reporting and decision-making levels of news organisations, in relation to their standing in journalism as a profession, in society, and in the content of news in different countries. The analysis consequently puts the emphasis on establishing relationships without inferring the causal direction of the relationship between variables. Because the datasets used are not available for all years, we used the IWWMF data to establish the timeframe for selection of variables from the other datasets. The IWWMF report collected data from 522 companies in 59 nations, mainly in 2010, and thus, the other datasets were also chosen for the same year. In addition, only those countries in the IWWMF report with corresponding data for the other variables were included in the correlation analyses. Hence, the number of nations and limited amount of data the study produced make it difficult to apply advanced statistical methods that might give a more accurate inference of causal relationships. Drawing on a broad range of indicators, we aim to ensure that the results are reliable, but we make no certain claims about causality. However, on a general level, we acknowledge the potential relationships among variables where possible.

The quantitative procedures involved using correlation¹ and regression analyses of several variables, or indicators, from the data sources indicated above. These allow us to examine the relationship between women's position within news organisations (IWWMF data) and the output of women-related news (GMMP data), in relation to the numbers of women in the profession in nations (V-dem data), as well as women's overall standing in the nations where those companies are located (WEF data).

All data used are from 2010 (to correspond with IWWMF data collection) and all correlations were done with pair-wise deletion of missing data, which

maximises all data available and increases the “power” of the analyses. Although correlations and regression analyses may indicate strong relationships in some instances, a causal relationship may be difficult to discern, and none is implied for the data presented. However, establishing the strength of these relationships can be the basis for forming hypotheses for further research. It bears noting that we also take care to contextualise findings within other available and relevant information about a given nation, in order to further interrogate the possible meaning of the statistics beyond the numbers themselves.

The following variables were selected in order to explore relationships posed in the research questions above. A full description of all variables used can be found in Appendix 5.1.

Dependent variables

These are indicators of gender equality in various levels of production in the news media that may be influenced by, or “depend on”, different factors. In regression graphs, the dependent variable is on the y-axis (vertical axis). The dependent variables used in this study include:

1. The percentages of women in the following categories (retrieved from Byerly, 2011):
 - Governance level: Percentage of women in governance-level occupational status. These are members of the governing board who vote on the most important decisions about policy and finances for the specific news media company.
 - Top-level management: Percentage of women in top-level management occupational status. Men and women at this level report to board of directors and include the very top administrators (e.g., publisher, chief executive officer, director general, and chief financial officer).
 - Senior-level management: Percentage of women in senior-management occupational status. These are men and women in senior-level management and report to top-level managers (e.g., director of news, president of news, editor-in-chief, managing editor, executive editor, director of human resources, director of administration, bureau chiefs, and similar titles).
 - Senior-level professional (reporters): Percentage of women in senior-level professional occupational status. These are professionally qualified men and women who report to senior-level management (e.g., senior writers, editors, anchors, directors, producers, researchers, reporters, correspondents, and production assistants).

- Junior-level professional (reporters): Percentage of women in junior-level professional occupational status. These are professionally qualified men and women who report to middle-level managers (e.g., junior or assistant writers, producers, directors, anchors, reporters, sub-editors, correspondents, and production assistants).
2. The percentage of women news subjects or sources in in all news stories in newspapers, radio, and television (retrieved from GMMP, 2010; Färdigh et al., 2020).

Independent variables

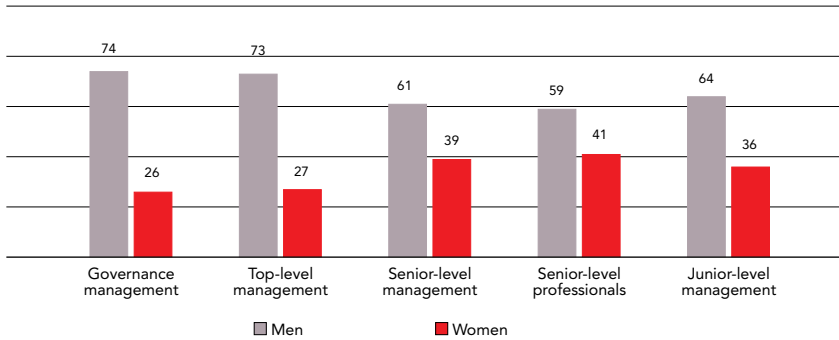
These are variables whose relationships with the IWMF indicators are examined to see possible trends showing some kind of positive (or negative) relationship with gender equality in different levels of production in news media. The independent variables used are:

- The percentage of women journalists (retrieved from Coppedge et al., 2017).
- The Global Gender Gap Index score (retrieved from WEF, 2010, 2017, 2018) is the most comprehensive and widely used indicator of the general status of women in a given society.
- In some cases, IWMF variables were used as independent variables to examine how they might be related to one another; for example, whether the number of junior-level professional women is positively related to the number of senior-level professional women in news production.

5.5 Do more women professionals yield more women at the top?

The first research question concerns how women's various positions in news production in different countries are related to each other.²

We start by looking at the global averages from the IWMF study (Byerly, 2011). The aggregated global figures for each of the five positions, by gender, are displayed in Figure 5.2 (see also Table 5.4 in Appendix 5.2). In all cases, the average percentage of women in the various positions is less than 50 per cent. Governance and top-level management have the lowest share of women. However, women exceeded the putative critical mass of 30 per cent in junior- and senior-level professional, and senior-level management, positions.

Figure 5.2 Men and women in five news production positions (aggregated percentages)

Comments: n = number of employees in different categories, and varies from 1,811 for top-level management to 37,407 for senior-level professionals (see Table 5.4 in Appendix 5.2). Not all countries (e.g., China, Norway, and Sweden) distinguished between junior-level and senior-level professionals; instead, all reporters were assigned to either the junior- or senior-level professional category.

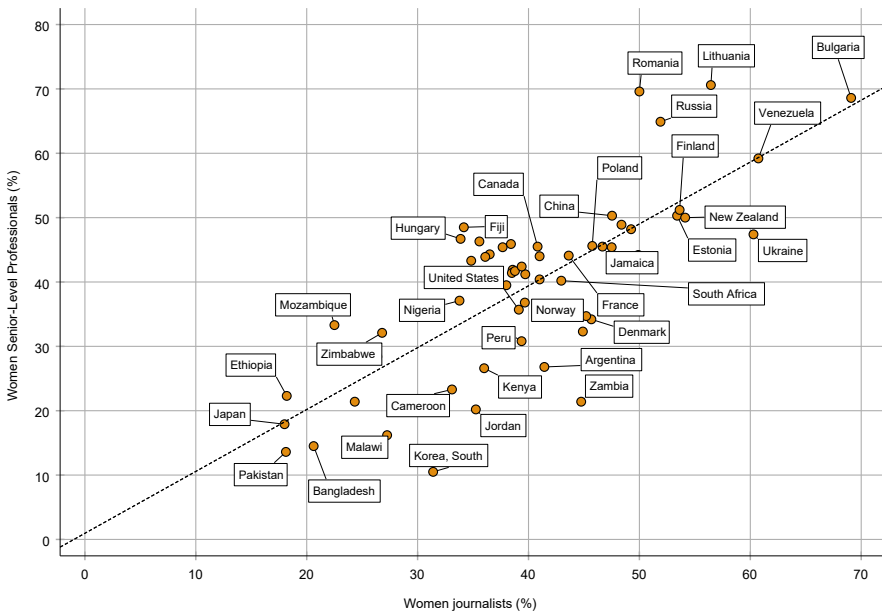
Source: IWMF (Byerly, 2011)

In taking a closer look at relationships, we first examine how the status of women in senior- and junior-level professional (reporting) positions within news organisations is related to the overall percentage of women in the journalism profession in various countries across the world (see Figure 5.3). This provides an estimate of the extent to which women journalists are able to find employment in news organisations in different countries. The assumption here is that the greater the pool of women in the journalism profession, the greater the possibilities that women will apply for and be hired into newsroom positions. The results indicate, unsurprisingly, that this is the case. There is a strong linear relationship between the per cent of women in the “pool” of journalists globally and the per cent that actually make it into news reporting.

The majority of the 58 nations analysed in Figure 5.3 show women possessing a critical mass in the news industry, that is, they represented 30 per cent or more of the number of journalists at the senior level in reporting. The regression analysis also suggests that as the number of women increase globally, the greater the likelihood that they will fill reporting ranks in news organisations. A scatterplot of junior-level professional women and women journalists shows an almost identical pattern.

Indeed, the linear regression line in Figure 5.3 shows that the relationship is almost perfectly symmetrical. At the aggregate level, a 1 per cent increase in women journalists corresponds with a 0.96 per cent increase in the percentage of women among senior professionals. However, it should be noted that the V-dem variable (women journalists) represents an estimate provided by country experts and published statistics, and for many countries, exact and reliable statistics of the corpus of journalists working in different media do not exist.

Figure 5.3 *The relationship between women journalists in different countries and women senior-level professionals in the news industry*



Comments: Number of country observations = 58. The dotted black line is the regression that best fits the data. Regression equation: $y = 0.95 + 0.96 \times x$ (Pearson's $r = .766$, $R^2 = .586$, $p = .000$).

Source: IWMF (Byerly, 2011); V-dem (Coppedge et al., 2017)

Nevertheless, the data presented provide an indication of how easy or difficult it is for women journalists to be able to find employment in the news industry. The feminisation of newsrooms in Eastern Europe is evident: Romania, Russia, and Lithuania stand out as countries where the number of female journalists in the news industry transcends the number in the profession. The opposite seems true for South Korea and Zambia, where there are fewer women in the ranks of professionals in the news industry than are available by their presence among journalists at large. Although women's status has risen, and Korean women have entered the workforce in increasing numbers since WWII through industrialisation, they have been slower to enter journalism and to advance within that still male-dominated profession (Byerly, 2011). In Zambia, where the literacy rate for women is only 60 per cent, and where lawmakers have been slow to enact women's equality laws, women in journalism have found it difficult to advance much above technical and support roles, thereby remaining seriously underrepresented in reporting and management levels (Byerly, 2011).

Nations with large percentages of women in the journalistic profession thus have the largest percentages of women in the higher ranks of reporting (i.e.,

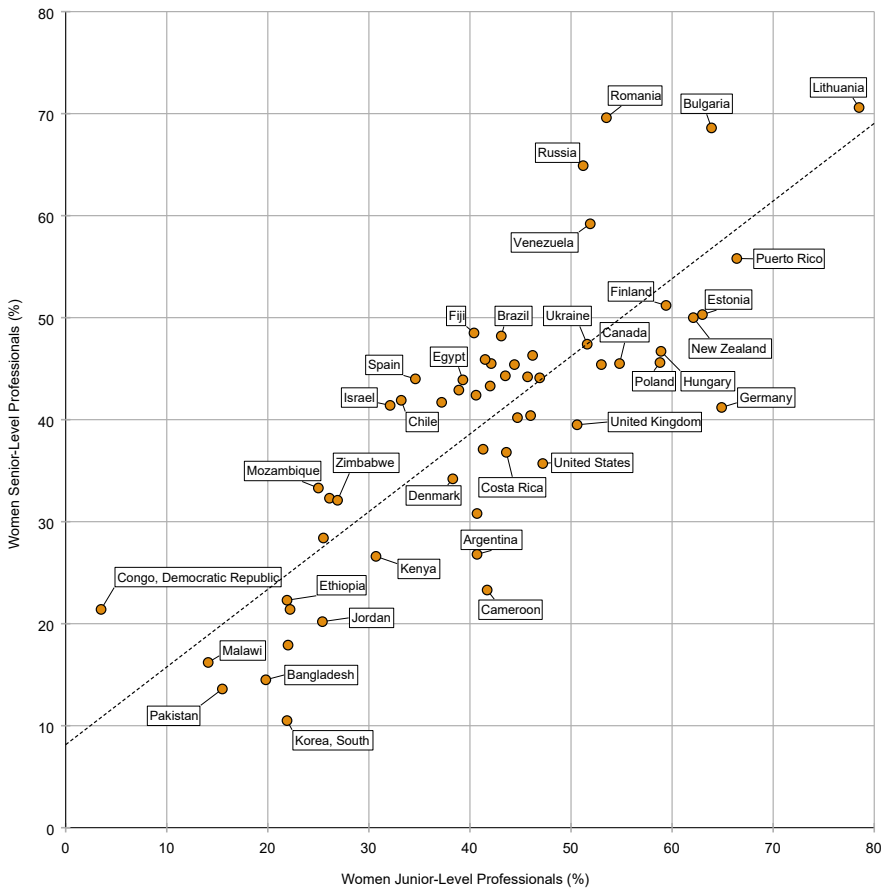
senior-level and junior-level). This occurred, for example, in Bulgaria, Lithuania, Romania, and Russia, which carried forward a dominance of women in journalism from the years of Soviet occupation when (as explained earlier) the profession had become feminised through lower pay and greater control by the State over the production of news – factors that attracted few men, resulting in a situation of gender imbalance within the profession. Nastasia and Nastasia (2013) emphasise that the feminisation of the news profession (and some other professions) continues into the present in the post-Soviet nations, where levels of democracy still vary greatly, and where women may reach or surpass parity with men in number within a news organisation – or even attain positions of authority – but still face discrimination. They note, for example, that pay is often lower for women than men, women are often the first to lose their jobs when the job market shifts, and working conditions often favour men.

This observation is further substantiated by the IWMF report, which found that most news companies surveyed in Bulgaria and Romania had no policies on gender equality, no provisions for either maternity or paternity leave, no policy assuring women could return to their same jobs if they did take such leave, and few had policies on sexual harassment. The report also found the situation much better for women in Lithuanian companies surveyed, where the numbers of women exceeded those of men overall, and where nearly all news companies surveyed possessed policies on gender equality and sexual harassment. However, few of these companies had adopted policies on maternity or paternity leave, or on women returning to the same jobs after taking such leave. Also important to note was that for women in Lithuanian newsrooms, these two occupational levels (junior- and senior-level reporting) with the largest percentages of women found few in higher-level decision-making roles. In other words, the reporting levels represented the glass ceiling (Byerly, 2011).

Sweden and New Zealand, by comparison, have longer histories of democracy and gender equality, the latter evidenced in their current relative standings globally in terms of gender equality. Seen together, these nations are ranked as follows: Sweden (3rd), New Zealand (7th), Bulgaria (18th), Lithuania (24th), and Romania (63rd) (WEF, 2018). Edström (2013) reports that gender equality has been a hallmark for women in Sweden and the other Nordic nations and identifies some of the ways that national-level policies on gender equality have benefited women in journalism. However, she observes that the data collected for the IWMF report in her nation found women's greatest representation in the senior-level professional and middle-management levels – the glass ceiling for women in Swedish newsrooms. Similarly, in New Zealand, women were found to be clustered in the junior- and senior-level professional levels, with few attaining higher positions – another instance of the glass ceiling. Altogether, this indicates that women's advancement in the profession is not always accompanied by a similar increase in professional status.

The next step is to analyse the relationship between the percentage of junior- and senior-level professional women (reporters) positions. Figure 5.4 shows that most countries have more data points above the 30 per cent critical mass level; only 10 of the 56 countries had less than 30 per cent women in *both* junior- and senior-level professional positions. The strong relationship shown in the graph suggests that the more women who occupy junior-level positions, the greater the potential for more women to move into senior-level professional positions as reporters. The equation indicates that a 1 percentage point increase of junior-level professionals corresponds to a 0.76 percentage point increase in senior-level professionals.

Figure 5.4 *The relationship between women in junior-level and senior-level professional roles*



Comments: Number of country observations = 56. The black dotted line is the regression line that best fits the data. Regression equation: $y = 8.14 + 0.761 \times x$ (Pearson's $r = .823$, $R^2 = .677$, $p = .000$).

Source: IWWMF (Byerly, 2011)

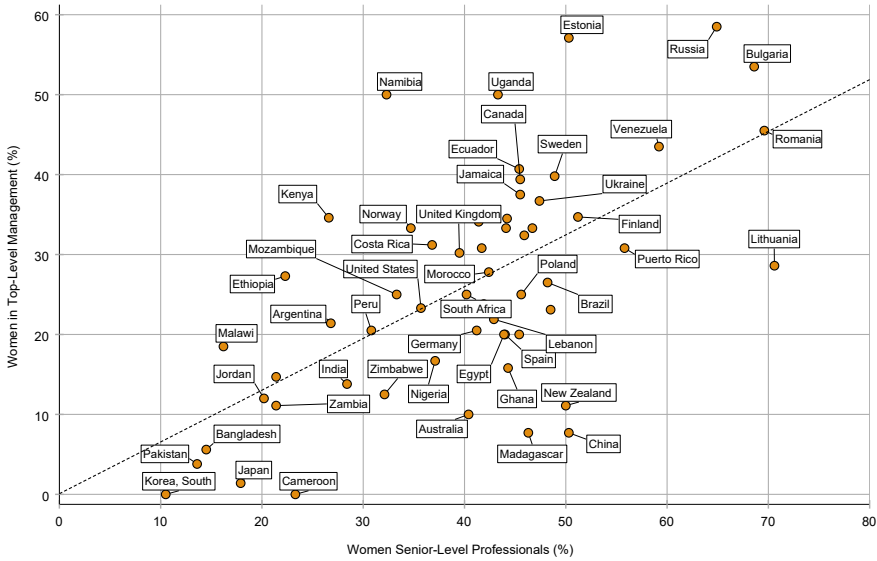
The last step is to examine if the percentage of women in junior- and senior-level reporting positions is related to the percentage of women in senior- and top-level management and governance positions within news organisations. These are the most elite roles within any news organisation, and the goal of this question is to ascertain whether and to what extent the pool of women in reporting positions is a predictor of women's advancement into these management levels within news organisations.

In this analysis, we found no significant correlation between the percentage of women in junior and senior reporting roles and the percentage of women at the governance level. However, the correlations between the percentages of women in top- and senior-level professional positions were found to be highly significant. Figure 5.5 provides a graphical illustration of the positive relationship between the percentage of women senior professionals and the percentage of women in top-level management. At the country level, more women in senior reporting corresponds with more women in top-level management.

There is a strong degree of logic in these findings. In the case of the first finding, there is the suggestion that the individuals who assume roles at the governance level do not necessarily belong to the journalism profession. Governance roles are those occupied by either the owners or the board members of news corporations, and duties typically include overseeing investment and other financial decisions, overall company policy-making, and so forth. Governance roles are filled in different ways; for example, family-owned news organisations tend to fill these roles with family members, while non-family commercial corporations may look for individuals with specific business expertise. News organisations supported by state (public) funds may have altogether different governance structures, for example, state-appointed advisory boards filled by those more closely tied to government or to citizens' groups.

By contrast, the second finding suggests that women who advance into roles associated with the management or production of news within the organisation may rise from within the profession of journalism. These would be roles requiring experience and demonstrated skills in managing personnel and news production processes. However, there is a significant "drop-off" of women at each level. For instance, an increase in women senior professionals by 1 percentage point only corresponds to an increase in women in top-level management by 0.65 percentage points (see Figure 5.5). However, the cross-sectional data we have access to here do not allow us to take time-lag into account: an increase of women in junior positions will possibly result in more women at top-level positions 5 or 10 years later.

Figure 5.5 *The relationship between women in senior-level professional (reporting) roles and women in top-level management*



Comments: Number of country observations = 58. The black dotted line is the regression line that best fits the data. The regression equation is: $y = 0.08 + 0.65 \times x$ (Pearson's $r = .628$, $R^2 = .394$, $p = .000$).

Source: IWMMF (Byerly, 2011)

5.6 Women's status in the news industry and their status in society

The second research question is whether the general status of women in society is related to the status of women in various levels of news production. We use the Global Gender Gap Index (GGI) score – as it is commonly used – which includes gender gaps for a broad range of resources and opportunities for women, including economic participation and opportunity; educational attainment; health and survival; and political empowerment. Correlation analyses were performed between the GGI scores and the IWMMF percentages of women in various professional roles in the news industry (see Table 5.1).

Table 5.1 Correlations of women in different positions in the news industry and the Global Gender Gap Index (Pearson's r)

Women in the news industry (%)	GGI (score)
Decision-making roles	
governance level	.372** (54)
top-level management	.376** (55)
senior-level management	.342** (56)
Reporting roles	
senior-level professionals	.337** (56)
junior-level professionals	.488*** (53)

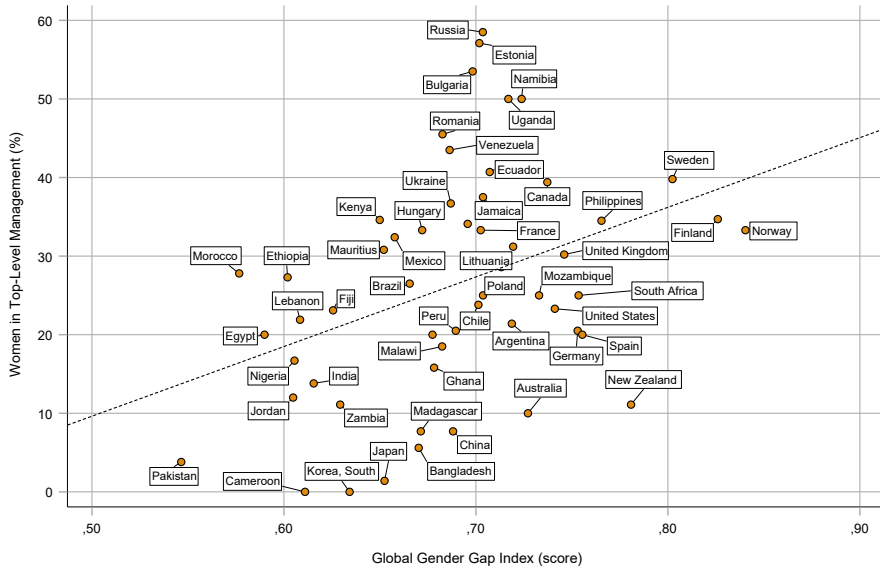
Comments: n = number of country observations, within parentheses. * $p \leq .05$; ** $p \leq .01$, *** $p \leq .001$. Correlation analysis was done with pair-wise deletion of countries with missing data. The variables for the different positions of women in the news industry are from the IWMF study (Byerly, 2011, found in Färdigh et al., 2020). The GGI scores are retrieved from WEF (2010) and vary from 0 (inequality) to 1 (equality). See Appendix 5.1 for full references to the original variable sources.

Source: IWMF (Byerly, 2011); WEF (2010)

The correlation analysis results show weak to moderately strong positive relationships between the percentage of women at different professional levels and the GGI scores. A scatterplot exemplifying the relationship between the GGI and women's position in management level in the news industry is given in Figure 5.6, which shows the relationship between women in top-level management and GGI scores.

Although the data points are widely distributed, the correlation analysis and scatterplots indicate that the greater the overall opportunities and the higher standing women have in their societies, the greater likelihood they will advance into the elite ranks of decision-making in journalism enterprises. This trend aligns with the fact that individuals advance within hierarchies in accordance with their level of education and other markers of privilege that typically come in the most developed nations. Key examples are the Nordic countries Sweden, Norway, and Finland, where women have had the advantages of highly developed economies, democratic institutions, accessible education systems, and access to professions, among other benefits. However, we emphasise that in these same nations, women have also struggled for these rights of access over two centuries in organised feminist movements in order to gain gender equality through legislation, other policies, and institutional practice. Russia, Estonia, and Bulgaria have more women at the top than is predicted by their GGI score, for historical reasons discussed earlier.

Figure 5.6 The relationship between the Global Gender Gap Index and women in top-level management positions



Comments: Number of country observations = 55. The black dotted line is the linear regression line that best fits the data. Regression equation: $y = -34.68 + 88.61 \times x$ (Pearson's $r = .376$, $R^2 = .141$, $p = .005$).

Source: IWMF (Byerly, 2011); WEF (2010)

Several industrialised countries in which women have high GGI scores were found to have fewer women top-level managers in newsrooms than predicted by their gender-equality level. South Korea, Japan, Australia, and New Zealand represent a cluster of such nations in which women represent substantially less than 10 per cent in top-level management, and yet within that cluster, each nation has factors that help to explain women's low level of advancement within journalism. For example, Japan, which has a highly educated citizenry as well as a highly developed economy and political system, does not have a correspondingly high percentage of women in journalism decision-making positions, as the correlations in Figure 5.6 show. Japan has a fairly short history of democracy and advanced economic development, as well as a still-rigid system of gender roles based on male superiority. Ishiyama (2013) notes that few women have made their way into the journalism profession, in large part because men prefer hiring other men to populate the androcentric workplaces and because companies opt to not adopt recruitment strategies that would encourage women to apply. She observes that extremely long and irregular work hours also make it difficult for women who want to have children to remain in journalism. The lesson to take from nations like Japan is that cultural factors that reinforce gender inequality may explain women's inability

to advance into decision-making roles in news organisations more than laws or other structural factors associated with the “good society”.

5.7 Are more women in leadership roles in the news industry associated with an increase in women as subjects in the news?

The final part of the analysis focuses on the relationship between women in various professional decision-making roles in news organisations – that is, percentage of women at governance level (top- and senior-level management) and news reporting roles (junior- and senior-level professionals) – and the inclusion of women as news subjects or sources in the stories that news organisations in those same nations publish. Table 5.2 shows that there are positive and weak- to moderately-strong correlations between the percentage of women in the news industry and the percentage of women as subjects or sources in news stories for all professional roles, except for governance. The strongest relationship is seen between junior-level professional women and women as news subjects. A corresponding linear regression of this relationship is shown in Figure 5.7.

Table 5.2 Correlations of percentage of women in different roles in the news industry and percentage of women as news subjects or sources in the news (Pearson’s r)

Decision-making roles	
governance level	.259 (50)
top-level management	.494*** (51)
senior-level management	.284* (52)
Reporting roles	
senior-level professionals	.514*** (52)
junior-level professionals	.534*** (49)

Comments: n = number of country observations, in parentheses. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$. Correlation analysis was done with pair-wise deletion of countries with missing data. The variables for women in different roles in the news industry are from the IWMF study (Byerly, 2011). The percentage of women as news subjects or sources is from GMMP. See Appendix 5.1 for full references to the original variable sources.

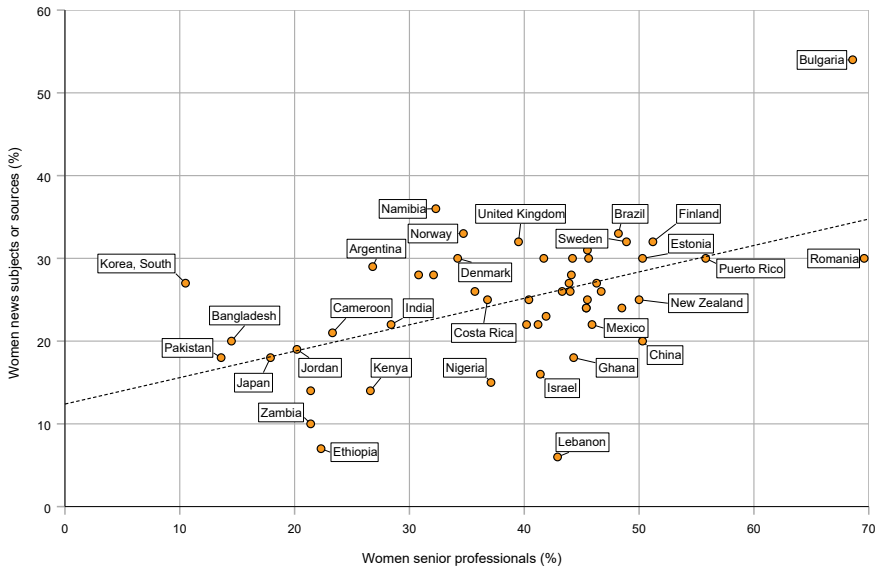
Data Source: IWMF (Byerly, 2011); GMMP (Macharia et al., 2010)

The finding of no significance between women at the governance level and women in news stories is logical in that those in ownership and board levels tend to have little or no direct influence on the content of news, except perhaps in nations with a state-managed press system. However, the other two findings are contradictory and require care in explaining. The longstanding feminist assumption that women's advancement into decision-making positions, such as senior- and top-level management, would bring with it a noticeable increase in news content about women (and, we should add, content with a pro-feminist orientation) has motivated earlier studies, for example, the five-nation comparative study, *Women and Media Decision-making: The Invisible Barriers* (UNESCO, 1987). That earlier study found that women were held back from advancement by stereotypes of women's inferiority to men operating within organisations. This same assumption is embedded in the recent research by the GMMP (2010, 2015), which found statistically higher percentages of women-oriented news in stories written by women reporters in both the 2010 and 2015 rounds of research.

There remains a dearth of women in newsrooms at decision-making levels – only about a fourth in both governance and top management (Byerly, 2011). Even so, the present correlation analysis shows a positive relationship between women at top-level management and women as news subjects or sources. By contrast, the finding of a very weak correlation between women at the senior level of management suggests an anomaly. This finding, which possibly would be expected to lie between that of senior professionals and top-level managers, may result from more scattered data points, including outliers.

The strongest correlations are found between women in reporting roles at junior and senior levels and women as news subjects or sources (see Table 5.2). Though the number of nations in the correlation analysis is fairly small, the findings are important, as they suggest that women journalists in both junior and senior reporting levels are related to the representation of women as subjects in the news. This could mean that women reporters who are on the front lines of news gathering would have a greater ability to determine the gendered focus of the stories they report. It could also be the case that both the number of women reporters and women news subjects or sources are outcomes of a more women-inclusive society (see §5.6 and Chapter 4, where this relationship is examined in more detail). In any case, the finding of a positive relationship between women journalists and women news subjects or sources at the aggregate level corroborates those found at the individual level by the GMMP. However, the effect is not that large (see Figure 5.7): a 1 percentage point increase in women senior professionals corresponds with only a 0.32 percentage point increase in women news subjects or sources.

Figure 5.7 The relationship between women senior professionals and women as news subjects or sources



Comments: Number of country observations = 52. The black dotted line is the regression line that best fits the data (linear regression). Regression equation: $y = 12.39 + 0.32 \times x$ (Pearson's $r = .514$, $R^2 = .264$, $p = .001$).

Source: Data on women news subjects from GMMP (Macharia et al., 2010) and women senior professionals from IWMF (Byerly, 2011)

5.8 Critical mass or ceiling effects?

The final question is whether we find any evidence to support critical mass theory, which is concerned with what happens once the percentage of women surpasses a certain threshold in a given organisational context. As stated earlier, we began our investigation aware of earlier scholars' identification of 30 per cent as the threshold for determining the critical mass required for potential change within an organisation. However, we did not assume that our own study, which involved a comparison among 58 nations and more than 500 news organisations, would necessarily come to the same conclusion. Another consideration is what kind of statistical analysis might be used to determine whether a critical mass or threshold exists for a given set of data or different variables and, if so, where the threshold may lie. So far, correlation and linear regression analyses have been used to show relationships between several independent variables and dependent variables. Most of these show a positive and moderate or strong linear relationship. However, it is quite possible that the nature of the relationship between an independent and dependent variable may change over the range of the independent variable. Thus, in some situa-

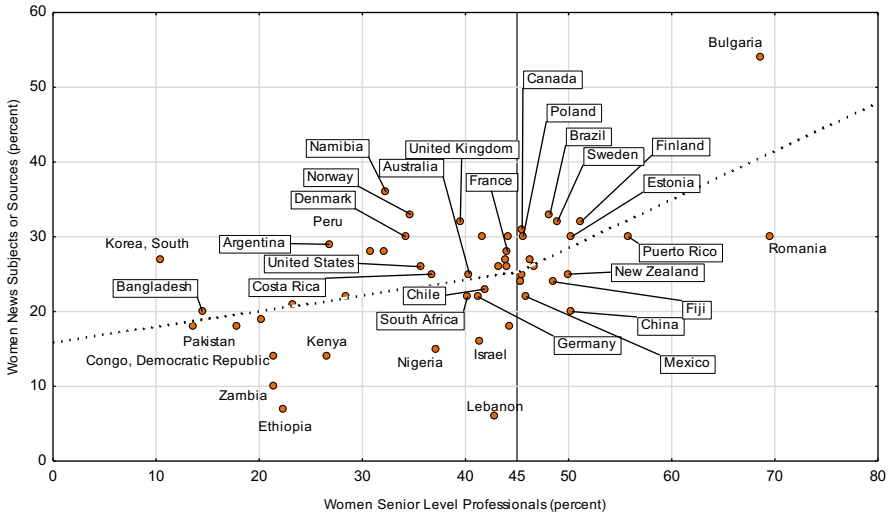
tions, the regression line can be discontinuous (segmented) or “broken” into intervals, or separate line segments in different places, indicating a different relationship before and after the breakpoints. One approach to determine such discontinuous intervals is piece-wise, or breakpoint, regression analysis, where different slopes are defined for the segments or groups of points. For example, with critical mass theory, we might expect a change (e.g., marked increase) in the percentage of women news subjects (*y*-variable) after a certain critical, or threshold, level is reached in the percentage of women in senior-level professional (reporter) positions (*x*-variable).

To examine this phenomenon, we conducted a number of piece-wise regressions, where we tested whether the slopes of the regression lines before and after a certain threshold point differed significantly (see Appendix 5.3 for details about these analyses). The breakpoints were initially estimated by the software and then various others were substituted in the equation to determine where a significant difference in the slopes of the two lines was found. We did not arbitrarily use the 30 per cent mark in each analysis unless there was an indication that it was a likely breakpoint. The results varied depending on the breakpoints used for calculations and were indeed quite disparate, partly because the further segmentation of the relatively small number of countries in the dataset made the results statistically less reliable and susceptible to the effects of outliers.

Although 30 per cent of women is often touted as the critical mass after which changes occur in an organisation, in examining women’s status in news production across many nations, we found different breakpoints with regard to the relationship between women professionals in the news industry and the visibility of women in the news. In a few analyses, we found no breakpoints and, in general, the relationships were linear. When looking more closely at the patterns, many scatterplots displayed a ceiling pattern – that is, the slope of the first segment increased up to the threshold or breakpoint, but the slope of the next segment decreased somewhat. However, it is important to note that the upward trend was maintained in most breakpoint analyses, even with a decreased slope in the second segment.

One of the few instances of significant critical mass effect for the relationship between women reporters and women in the news was found at 45 per cent. Using data from Figure 5.7, we saw a marked and significantly different change ($p \leq .035$) in the slopes of the lines using a threshold or breakpoint of $x = 45$ per cent women senior-level professionals (see Figure 5.8). A similar, but less visually distinct, breakpoint of 45 per cent was evident for the breakpoint analysis of percentage of women journalists (V-dem data) and senior-level professional women (dependent variable; $p \leq .00$). This indicates that, for these data, there may be a threshold or critical mass for these particular variables, after which there are significantly more women news subjects or sources in the news.

Figure 5.8 *The relationship of senior-level professional women and women news subjects or sources*



Comments: Number of country observations = 52. The piece-wise regression equation is: $y = (15.8837) + (0.208289) \times x + (0.440461) \times (x - 45) \times (x > 45)$. Slope 1 is significantly different from slope 2 ($p = .035$). The breakpoint (45%) is indicated by the vertical line.

Source: IWMF (Byerly, 2011); GMMP (Macharia et al., 2010)

Our tentative conclusion is thus that the relationship between women reporters and women in the news – and for the percentage of women journalists and women in some news production roles – is mostly linear, and that if a critical mass threshold exists, it is likely higher than 30 per cent. The relationship evidently needs to be tested further with larger samples. However, there is no reason to think the breakpoints would be the same for any other datasets, or that there would be a steeper (upward) slope for the second line of any other breakpoint or piece-wise analysis.

So the critical mass or breakpoint in different analyses can vary, and the slopes of the different line segments can increase or decrease, depending on the variables involved, the number of observations in the calculations, and the variability of the data. Also, regression lines can sometimes have several breakpoints, and results must be carefully examined to see which breakpoints are most significant. Still, breakpoint analysis may be a valuable tool for determining critical mass effects in different datasets and variables. The present breakpoint endeavor is just an example of how piece-wise analysis can be used to find ceiling and critical mass effects for other datasets. As noted elsewhere, we found indications of a ceiling effect in some analyses (see Figure 5.9 in Appendix 5.3).

5.9 Conclusion and discussion

The present study has sought to move beyond the established fact of men's domination within what Djerf-Pierre (2005) has called the "media elite" by exploring how and to what extent women have made their way into the reporting and management levels within the profession of journalism, and whether their presence in the higher ranks of the newsroom hierarchy is associated with a larger amount of women-oriented news content. Looking cross-nationally, we also recognised that the level of national development, indicators of women's status, and the numbers of women practicing journalism might affect women journalists' place in newsroom hierarchies of any given nation. Using available data, we asked to what extent, and we applied the critical mass theory to interpret our statistical findings. Thus, we are able to draw several tentative conclusions. In doing so, we emphasise that these are tentative because the limited data available (i.e., between 47 and 58 nations for the various correlations) prevented our ability to pose and test hypotheses that might have established more explicit causal relations or allow us to generalise findings. These conclusions are nonetheless important for several reasons, not the least of which is that they tell us what is possible to know from the paucity of existing data on gender relations in newsmaking at the global level.

One important general observation that can be made is that the larger the pool of women journalists, the greater the likelihood they will secure positions in the news hierarchy of companies in their respective nations. Our findings from linear regression analyses showed that the nations with the largest number of trained women journalists also had the largest numbers of women in both news reporting and decision-making positions. While this relationship is somewhat unsurprising, we must temper its application in this instance by recognising the countervailing force of feminisation of the journalism profession in nations like Bulgaria and Romania (where women are dominant in the profession). Complementary research to the present study (Nastasia & Nastasia, 2013) shows that the number of women in these nations (and some others in Eastern Europe) came to exceed that of men in journalism during the Soviet occupation (prior to 1990), and this trend remains today, along with the persistence of lower pay and other forms of gender inequality. Though they have risen to hold top-level positions within the profession, these women journalists still have not achieved all the benefits they are due. Critical mass theory suggests that there is the potential for women in these and all other nations' newsrooms to collectively exert their agency in newsrooms if they reach a certain threshold. Using breakpoint analysis, we identified 45 per cent as the threshold at which that happened in determining the relationship between women in the senior professional level and the number of women as news subjects or sources. While there is need for further investigation on the

subject, we should recognise additional evidence that supports the claim that women's numbers in the newsroom matter to news content about women. The former Soviet states of Bulgaria, Romania, and Estonia are among the nations with both significant numbers of women in senior reporting ranks, as well as the largest amount of news content about women. Future research with larger samples of nations can further test the reliability of this finding, and can also shed further light on the extent to which critical mass thresholds may vary from study to study.

A related finding is that there is an apparently strong relationship between women in junior and senior levels of reporting. However, the exact nature of that relationship is not clear and offers the potential for future research. In other words, who helps whom? We are unable to state from this finding whether having more women at the junior level provides a pool of women who can be mentored and supported toward advancement by women in senior-level roles, or conversely, whether having more women at the senior professional level enables them to advocate for the hiring of more women as junior reporters – or, whether both of these interactions happen somewhat simultaneously. Neither are we able to state whether a more gender-egalitarian professional culture encourages both men and women to be more gender aware and produce more inclusive reporting. Future comparative research that utilises case studies of individual companies with women at both decision-making and junior levels will be useful to understanding the meaning of our finding. It bears noting as well that these questions lie beyond Kanter's (1977a) original concerns about gender and organisational dynamics in (what came to be called) critical mass theory, and move closer to the adaptations suggested by Childs and Krook (2008: 734), namely to shift the central question from “when” women make a difference, to “what specific actors do” in relation to form and content when acting for women.

Another important finding is the positive relationship between the presence of women in the news industry and women in the news in different countries. We clearly identified a linear pattern – more women in the news industry is associated with more women in the news. Critical mass theory, however, suggests that there is potential for women in these and all other nations' newsrooms to collectively exert their agency in the newsrooms if they reach a certain threshold, and we used a series of piece-wise regressions to test if such a critical mass effect could be detected.

Some might argue that our study found little evidence of a critical mass effect in the data we analysed. Indeed, most of our tests indicated a possible ceiling effect rather than a critical mass effect, thus providing statistical evidence of what has previously and metaphorically been called the glass ceiling in the news industry (and other organisations). For instance, the number of women in top-level positions increases more slowly after the number

of women in junior and senior reporting roles have reached a threshold or breakpoint. The ceiling effects found in the analyses are consistent with findings in other chapters and show that a higher proportion of women in news production is associated with more women in the news, but only to a certain extent. Also, other studies (e.g., GMMP) indicate that there is hardly ever more than a third of the news subjects that are women, anywhere in the world – not even in Nordic countries. This shows a “visibility ceiling” for women in the news.

However, we would argue that the study breaks new ground in its application of critical mass theory within a global context and in the study of women in journalism. By applying the breakpoint analysis of the percentage of women senior-level professionals versus the percentage of women as news subjects or sources, we found a distinct and significant breakpoint at 45 per cent of senior women reporters, after which the line increased with a steeper slope. The results indicate that, for these data, after senior-level women reporters reaches 45 per cent, there might be a marked increase in the number of women in news stories or as sources. This also shows that breakpoint (piece-wise regression) analysis may be a useful tool in determining the critical mass of women needed to have a statistically significant influence on some newsroom concerns, including, for example, hiring, promotion, salaries, content of news stories, and so forth.

The present study did not begin with the goal of showing causality or the ways in which different variables influence or interact with others. Even so, we found clear evidence of a positive and significant relationship between the presence of women in reporting roles in the news industry and the visibility of women in the news. The piecewise regressions indicated a steeper increase in women news subjects after senior-level women reporters had reached a level of 45 per cent; a similar effect was evident in the piece-wise regression with junior-level professional women and women as news subjects, but not as pronounced.

Though tentative, our findings still suggest there may be validity to the theoretical assumption that having more women in the news industry could result in more women-inclusive news reporting – even in a profession that has been documented as being androcentric in its structures for gathering news and in the very definitions of who and what constitute news. We did find a clear and positive link – a linear relationship – between the presence of women in the news industry and women in the news. However, this observation should not preclude further testing in a study where the varied forms of women’s agency in the journalistic enterprise is studied to gain clearer insight as to how they exert influence when they have a critical mass within the organisation. Such research should of course also be contextualised within cultural and historical contexts, taking into account, for example, the slow emergence of women in

journalism professions in some nations due to culturally defined social roles and women's participation in the paid workforce.

Finally, and with respect to the points just made, we considered the broader social framework within which journalism is practiced in the nations examined in order to better understand the relationship between indicators of women's status generally and their status as journalism professionals specifically. The GGI, updated by the WEF each year, takes multiple factors into consideration in its scoring of women's status from nation to nation. When those indexes for the included nations were correlated with all of the decision-making roles of women in newsrooms of those same nations, the positive correlations were only weak to moderately strong. We emphasise here, as we did in the earlier discussion, that there is logic in the fact that the greater access women have to the opportunities afforded by a good education, health care, economic wellbeing, and political process, the greater the likelihood they will find their way into the decision-making roles of news organisations. Or, conversely, those who advance into these roles do so because they have already assumed elite status by virtue of their access to good education, health care, economic wellbeing, and political processes within their nations.

Buried within this statistical relationship is women's own agency in advocating for gender equality in economic and other institutions. Women's advancement has generally come through feminist movements that gained them the benefits of a good society through years of struggle for economic and political equality. A second factor is that culture plays a role in the extent to which women have entered journalism and the degree to which they are able to negotiate positions for themselves once within a newsroom environment. A third factor is really more of a reality check, as well as something of a paradox: Even in nations where women enjoy parity in terms of numbers within news organisations, and where they are able to exert influence in terms of larger amounts of information about women in the news, they still may occupy only token status in terms of achieving full equality with respect to salary, advancement, news assignments, and other benefits. This persistent gender discrimination has been commented on earlier in this chapter, as well as by numerous authors from those nations (see, e.g., Edström, 2013; Nastasia & Nastasia, 2013; Øvrebø, 2013; Savolainen & Zilliacus-Tikkanen, 2013).

The findings of our study, situated within the critical mass theoretical framework – including its refinements by theorists who came after Kanter – make an important start toward understanding the axes of power in the world's newsrooms, in most of which women still struggle for equality with men.

The foregoing study suggests a number of paths for further exploration if we are to have a more complete set of explanations and a clearer picture of how societal factors influence women's advancement in the journalism field, what influences women's mobility in news organisations, and what the

relationship of that mobility might be to news about women. The study also lays the foundation to pursue Dahlerup's suggestion for research to move beyond proportions alone and do more to interrogate "critical acts" by women in order to gain greater insight into the gendered dynamics within hierarchical organisations (quoted in Childs & Krook, 2008: 732). Future studies that extend our own organisational-focused findings will depend on the availability of data for such analysis. The study presented here relied on data for 2010, nearly a decade earlier than when the present work began, because there were no more recent data at the organisational or national level globally on women's occupational status in news media. Our hope is that more current studies will come forth to provide the basis for an updated meta-analysis to extend our own work.

Notes

1. Correlation is a measure of association (i.e., strength) of the relationship between two variables or indicators. A correlation varies from 0 (random relationship) to 1 (perfect linear relationship) or -1 (perfect negative relationship). A positive correlation means that a high score on one variable is associated with a high score on the other. The measure of the strength of the relationship between two variables is called Pearson's r . For example, in Table 5.5 in Appendix 5.2, there is a strong correlation (Pearson's $r = .766$) between the percentage of senior-level professional women for a given country and the percentage of female journalists in countries. The relationships between some of the variables were further examined using regression analyses and portrayed using scatterplot graphs with a fitted regression line to visualise the linear relationship. A p -value is the level of significance, and it tells us whether an observation is a result of a change that was made or of random occurrences.
2. A full correlation matrix of the relationships discussed in this section is available in Table 5.5 in Appendix 5.2.

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Appendix 5.1 Variables and data sources

Data for this chapter are compiled within the project Comparing Gender and Media Equality Across the Globe (Färdigh et al., 2020). The Gender Equality in the News Media (GEM) dataset includes variables from a number of different sources. In order to allow for proper identification across studies and to link each variable to its original source, each variable name has been assigned a prefix that contains a reference to the original data set followed by the original variable name. For example, the original variable “proportion of female news subjects or sources” is retrieved from the Global Media Monitoring Project (GMMP) dataset and the original variable name is *gons_f*; therefore, it is named *gmmp_gons_f*. The data sources and indicators used in this chapter to measure the gender representation in the news are retrieved from the following sources:

The Global Report on the Status of Women in the News Media (Byerly, 2011) sponsored by the International Women’s Media Foundation (IWMF). The IWMF is a Washington-based organisation that is dedicated to strengthening the role of women journalists worldwide. The report is the organisation’s first international study of women in the news media, and the data were collected in 2009–2010 and published in 2011. The following 59 countries were included:

Argentina	Lebanon
Australia	Lithuania
Bangladesh	Madagascar
Brazil	Malawi
Bulgaria	Mauritius
Cameroon	Mexico
Canada	Morocco
Chile	Mozambique
China	Namibia
Congo, Democratic Republic	New Zealand
Costa Rica	Nigeria
Denmark	Norway

Dominican Republic	Pakistan
Ecuador	Peru
Egypt	Philippines
Estonia	Poland
Ethiopia	Puerto Rico
Fiji	Romania
Finland	Russia
France	South Africa
Germany	Spain
Ghana	Sweden
Hungary	Uganda
India	Ukraine
Israel	United Kingdom
Jamaica	United States
Japan	Venezuela
Jordan	Zambia
Kenya	Zimbabwe
Korea, South	

The dataset includes detailed information on news operations with respect to men's and women's occupational standing, hiring and promotional policies, and other workplace practices. It also provides information about recruitment, training, policies related to advancement, news assignments, and a range of other issues that affect gender status in news organisations.

The Global Gender Gap Index (GGI) score (`wef_ggi_score`) is retrieved from the World Economic Forum (WEF). The GGI examines the gap between men and women in four fundamental categories (sub-indices). All indicators are measured as ratios, that is, as outcomes for women in relation to outcomes for men. The four sub-indices, with scales ranging from 1 (equality) to 0 (inequality), include:

- economic participation and opportunity (female labor force participation, wage equality between women and men for similar work, female estimated earned income, female legislators, senior officials and managers, and female professional and technical workers);
- educational attainment (literacy, net primary enrolment, net secondary enrolment, and gross tertiary enrolment);
- health and survival (sex ratio at birth and healthy life expectancy);

- and political empowerment (sets in parliament, ministerial level, and number of years with female head of state over male value).

Women journalists (per cent) (*vdem_mefemjrn*) is called per cent female reporters in the Varieties of Democracy (V-dem) dataset (Coppedge et al., 2017; Sundström et al., 2015), and is one measure of gender equality that is particularly relevant to this chapter. The data in V-dem are collected through an expert survey, where the country experts base their coding on the available country-level statistics and extant scholarly knowledge of the situation in each country. A key problem is that exact, yearly measures of the share of female reporters is unavailable in many countries.

Women's share as news subjects or sources is from the 2010 GMMP study (Macharia et al., 2010). The GMMP collects empirical evidence of gender in news content and changes over time through one-day snapshots taken every five years. The media monitoring has been carried out every five years since 1995, expanding from 71 to 114 participating countries in 2015. The number of news outlets and news stories sampled by each participating country depends on its population and the number of available news media outlets. The aim is to include sample news outlets that are representative of each country's news media sector. The original variable name is female news subjects, share of all news subjects or sources in newspaper, radio, and television stories that are female (*gmmp_gons_f*). The GMMP variables use a scale that indicates the share of men and women who appear in the news – in radio, television, and press, and more recently, in online sites – and in various topics and positions. The variables range from 0 (no women) to 100 (all women).

Table 5.3 *Descriptive statistics*

	<i>N</i>	Min	Max	Mean	Std Dev	Source
Governance (% women)	57	0	48.4	24.9	10.8	IWMF
Top-level management (% women)	58	0	58.5	25.9	14.1	IWMF
Senior-level management (% women)	59	0	79.5	29.4	14.3	IWMF
Senior-level professionals (% women)	59	10.5	70.6	39.9	13.6	IWMF
Junior-level professionals (% women)	56	3.5	78.5	41.4	14.9	IWMF
Women journalists (%)	140	7.8	69.1	38.8	11.0	V-dem
GGI (score)	108	6.0	75	24.2	9.8	WEF
Women's share as news subjects or sources (%)	110	0.533	0.850	0.686	0.058	GMMP

Appendix 5.2 Additional tables

Table 5.4 Gender representation in media organisations in 59 countries

	Men (%)	Women (%)	N	Levels of significance from paired sample t-test ($p = 0.05$)
Governance	74	26	1,857	.001 ***
Top-level management	73	27	1,811	.004 ***
Senior-level management	61	39	5,777	.05 *
Senior-level professional	59	41	37,407	.02 *
Junior-level professional	64	36	30,406	.11

Comments: N = number of individuals (men and women). A *t*-test is a simple statistical test to see if the means of two or more variables are significantly different. In this case, mean percentages of men and women in different positions were compared. Means were significantly different for the percentages of men and women in senior-level professional and management positions. Differences between mean percentages of men and women in top-level and governance levels were highly significant ($p = .004$ and $.001$, respectively).

Source: IWMF (Byerly, 2011: 23)

Table 5.5 Correlations between the percentages of women in various positions in news organisations in different countries (Pearson's *r*).

	Governance-level	Top-level management	Senior-level management	Senior-level professionals	Junior-level professionals	Women journalists
Decision-making roles						
top-level management	.369** (57)	X	X	X	X	X
senior-level management	.455*** (57)	.577*** (58)	X	X	X	X
Reporting roles						
Senior-level professionals	.280* (57)	.628*** (58)	.538*** (59)	X	X	X
Junior-level professionals	.238 (54)	.478*** (55)	.469*** (56)	.823*** (56)	X	X
Women journalists	.248 (56)	.567*** (57)	.475*** (58)	.766*** (58)	.732*** (55)	X

Comments: *n* = number of country observations, in parentheses. * $p \leq .05$; ** $p \leq .01$, *** $p \leq .001$. Correlation analysis was done with pair-wise deletion of countries with missing data.

Source: The variables for governance-level, top-level management, senior-level management, senior-level professional, and junior-level professional retrieved from the 2010 IWMF study (Byerly, 2011); percentage women journalists retrieved from V-dem (data for the year 2010)

Appendix 5.3 Piece-wise regressions

We used non-linear regression models provided by Statistica ® (least squares estimation and/or loss function estimation) to determine if breakpoints were found in some of the linear regressions (Statistica for Windows, 1995: 3035–3038). We used various breakpoints (independent variable) for different analyses. An example is provided in Figure 5.8 in Chapter 5. We began by using the Statistica software to obtain an estimated breakpoint, then systematically substituted additional user-defined breakpoints ranging between 10–50 per cent in the formula until a significant difference in slopes was obtained (per the example provided in Statistica and based on a dataset reported by Neter, 1985: 348). Some other user-defined breakpoints were chosen by visually examining the spread of the data points and experimenting with these breakpoints to see if a significant difference was found in the slopes of the two lines. We tested four groups of relationships:

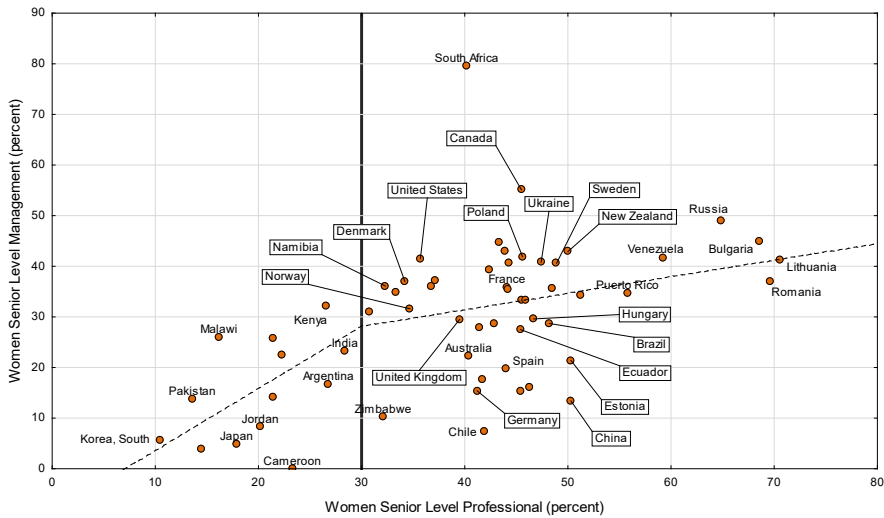
- the relationship between the percentages of women in various positions in the news industry and the percentage of women as sources or subjects in the news (GMMP);
- the relationship between the percentages of women at lower and higher positions in the news industry;
- the relationship between the percentages of women in various positions in the news industry and percentages of women journalists globally;
- and the relationship between the percentages of women in various positions in the news industry and GGI scores.

The results from these tests can be summarised as follows:

1. The main pattern of the data tends to be linear; however, significant breakpoints were found in most analyses, and a few significant breakpoints ($p \leq .05$) showed an increase in the slope of the second (right-hand) slope after the breakpoint. However, the second lines in all analyses still trended upward.
2. For the instances where we found identifiable, significant breakpoints, the second lines and slopes (to the right of the breakpoints) were mostly slightly lower than the pre-breakpoint lines. As an example, the analysis of the percentage of senior professional women versus the percentage of women in senior-level management had a significant breakpoint of 30 per cent ($\leq .002$), after which the slope of the second line decreased, indicating a ceiling effect (see Figure 5.9). While this pattern can be described as a

ceiling effect rather than a critical mass effect, it is important to observe that the second line continues at an upward trend.

Figure 5.9 *The relationship of senior-level professional women and women in senior-level management, using piece-wise regression analysis and a breakpoint of $x = 30$*



Comments: Number of country observations = 59. The piece-wise regression equation is $y = (-8.63172) + (1.22557) \times x + (-0.898649) \times (x - 30) \times (x > 30)$. Slope 1 is significantly different from slope 2 ($p = .002$). The breakpoint (30%) is indicated by the vertical line.

Source: IWMMF (Byerly, 2011)

We found several breakpoints where the second line and slope were steeper than the pre-breakpoint line – that is, a critical mass effect. In Figure 5.8 in Chapter 5, which plots the relationship between percentages of women reporters and women in the news, there is a marked and statistically significant breakpoint at $x = 45$. The slope of the second line (to the right of the breakpoint) is steeper than the first line (to the left of the breakpoint) and is significantly different than slope 1 ($p = .035$). The segmented lines and breakpoint in Figure 5.8 may thus indicate a threshold or critical mass effect – in other words, the right-hand slope increases steeply past the threshold or breakpoint, suggesting that after the 45 per cent level of senior professional women (reporters), there are more women in news stories or as sources. Bulgaria, Romania, and a few other points appear to be outliers in Figure 5.8; however, we could find no statistical or other reason for removing them. We explained in Chapter 5 why Bulgaria and other former Eastern Bloc Soviet countries have more women reporters and, therefore, why it makes sense that they would also have more women news subjects. Also, we note that Romania is about as equidistant below the regression line as Bulgaria is above it in Figure 5.8. We did a Mahalanobis analysis (Statistica for Windows, 1995: 3074 & 3089) and found that Bulgaria and Romania are about the same

distance from the centroid – 5.57 and 5.95, respectively – meaning that Romania is actually more of an outlier than Bulgaria. Also, a normal probability plot of residuals showed that the relationship among points is approximately linear and there were no points either less than -2.5 or greater than +2.5 (usually cut-off points for considering removing outliers), and the points all adhere closely to the line. Just to experiment, we did a breakpoint analysis without Bulgaria and Romania (still using a breakpoint of $x = 45$), and the right-hand slope remained very similar to that in Figure 5.8. In other words, the points for Bulgaria and Romania appear to balance each other out.

These findings using breakpoint analysis suggest the need for further research. We cannot definitively say there is a cause-and-effect relationship from these data, only that we have found a significant relationship between variables and a possible way to establish a critical mass effect. It is worth mentioning that no outliers were removed in these analyses, which may have influenced the results, some perhaps significantly. Also, the IWMF report contains data with a lot of variability from a relatively small number of countries, which also affects the outcome of the analyses. Still, overall, the second lines and slopes (to the right of the breakpoints) still showed an upward, albeit in some cases slightly lower, slope than the pre-breakpoint lines. Although only news companies in 59 countries were surveyed in the IWMF report, it employed more than 150 researchers who conducted interviews in 522 participating organisations and remains the only report of its kind. Future research on the status of women in news production should include more countries to ensure more current and reliable data. Breakpoint analysis might be a useful tool to apply to existing data, as well as that gathered in future efforts, to help determine the points at which women gain or exceed parity with men in the news industry, and also some of the factors that favour women's advancement or deter them from progressing into higher positions.

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