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# Professors in the media: dynamics of cumulative advantage, reputation, and gender

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Translation of science to a general public is increasingly important in modern academia. Yet, there is little knowledge on whether and why scientists do so. Here, we provide an account of a population of social science professors in Germany ($N = 2{,}207$). We ask whether and to what extent scientists appear in German printed media ($N = 26{,}729$) as a result of cumulative advantage, reputation, and gender. We link bibliometric data on professors' careers and data on their appearances in printed media through unique, principled crosswalks of different databases. Departing from the literature on inequality in science, we develop hypotheses on how cumulative advantage, reputation, and gender relate to professors' media appearances. Employing a series of longitudinal logistic and linear regression analyses we find support for the majority of our conjectures. Cumulative advantages are particularly positively related to newspaper appearances. Once a scientist has been mentioned in the media they seem 'short-listed' and this dynamic is more pronounced among men rather than women professors. Reputable professors are also more likely to be in printed news. And men have a higher frequency of newspaper appearances than women, which seems driven by men more likely to be top mediagenic professors. We discuss the implications of these results for media practice and science evaluation.

## Introduction

Science is vital to the advance of human knowledge and standards of living (Yin *et al.*, 2022). Despite the autonomy of scientists, their research does not happen in a vacuum, and scientific knowledge needs to be translated to the public (Fischhoff and Scheufele, 2013; Mervis, 2021). With science scepticism and even hostility against institutionalized science in some pockets of society, a dependable voice on disseminating scientific findings is more important than ever (Mede and Schäfer, 2020; Dudo, Besley and Yuan, 2021).

In addition, science funders increasingly incorporate knowledge utilisation and communication in their funding decisions (Palmer and Schibeci, 2014). For instance, funding agencies reserve substantial money for science communication (VolkswagenStiftung, 2024), there are prestigious awards for the most successful communicators among academics (like the 'Communicator' award of the German Research Foundation), and requirements for 'public outreach'—also called the 'third mission'—became an informal evaluation criterion when hiring scholars for leading positions. Some grant agencies even substantially weigh valorization in their funding decisions (e.g., the Dutch Research Council). Hence, scientists' 'public performances' and media appearances are increasingly part of a secondary evaluation system, beyond traditional indicators of academic standing (Dudo, 2015).

Given its high relevance in- and outside of academia, science communication is a subfield of communication studies (Akin, 2017). It analyzes the effectiveness of scientists' outreach to the public (Committee on the Science of Science Communication: A Research Agenda *et al.*, 2017), its audiences (Scheufele and Krause, 2019), or the media's role as intermediaries (Landrum, 2017). Prior work proposes three types of science translation (Rowe and Frewer, 2005): public communication as a one-way 'sending' of information, public consultation as feedback gathering between scientists and the public, and public participation as dialogue between the scientist and the public. Here, we focus on the first type, public communication, as an effort for researchers to translate technical, jargon-laden science into content that can be understood by a layperson (Van Kerkhoff and Lebel, 2006: p. 450). While this

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type has been criticized for its top-down approach (Simis *et al.*, 2016), it is still the dominant communication type and the form in which the general public most often comes into contact with scientists and science (Palmer and Schibeci, 2014). We therefore focus on whether and to what extent researchers are interviewed, quoted, or mentioned in printed news.

Despite the importance of science communication, there is a surprising lack of inquiry into who the scientists are that appear in mediated science communication (Albæk, Christiansen and Togeby, 2003; Wien, 2014)? To date, there is almost no research that performs large-scale accounts as to which professors enter public arenas via media appearances. This may be due to difficulties in collecting data on individual scientists and their career features (e.g., citation, affiliations, demographic information) and to link it with accurate information on scientists' media appearances (e.g., where do they appear and when?). In this study we overcome these obstacles. We contribute new data on both the academic and the media careers of an entire population of social science professors in Germany. Specifically, we introduce a novel dataset which presents a principled crosswalk between academic bibliometric data on careers including citations and demographic information (de Gruyter, Scopus, OpenAlex), and when and how often these professors are mentioned in printed news (e.g., German newspapers via LexisNexis data).

We focus on social scientists at German universities appearing in German printed news for two main reasons: First, in the German academic system professors have a high autonomy on how to divide their time (Münch, 2014). Therefore, we think of German professors as relatively unrestrained in their actions, and hence, they may act as baseline which might be compared with other settings in which more restrictions may apply. Second, we focus on social scientists because this is from which scientists most referenced by journalists originate from (Albæk *et al.*, 2003; Wien, 2014). Specifically, we analyze the science-media nexus for full professors from the disciplines of economics, politics, sociology, communication science and 'miscellaneous' social sciences.[1] This selection reflects typical department distinctions at German universities. We exclude psychology because of its disputed status as a social science, a natural science, or both (Wieczorek *et al.*, 2021). Additionally, by focusing on selected scientific fields, we ascertain that our results are not confounded by different field norms and cultures or the share of women professors.

Our approach allows us to quantify media appearances, yet simultaneously enables us to consider underlying theoretical mechanisms which drive science-to-media translation. We focus on three, interrelated explanations. Each of these is explicitly drawn from prior literature on (inequalities in) academia—i.e., with respect to citation, prestige, funding, careers, and so forth—as a starting point for pinpointing theoretical mechanisms that explain scientists-to-media pathways. First, we focus on cumulative advantage dynamics in science (Zuckerman, 1965)—prior media attention increases ensuing media attention—that are often present in science. For instance, cumulative advantages are present in science funding dynamics (Bol, De Vaan and Van De Rijt, 2018), in citation (Wang, 2014), and in career survival (Petersen *et al.*, 2011). We argue that similar dynamics may be present in the science-media connection. Second, we consider scientists' reputational standing as a straightforward explanation to media presence. More highly cited, reputable scientists are more visible (Nielsen and Andersen, 2021) and might therefore receive more attention from mass media. Third, we study the moderating role of gender, as many inequalities in academia itself—e.g., with respect to citation, self-promotion, career survival, impact (King *et al.*, 2017; Hofstra *et al.*, 2020, 2022; Kim *et al.*, 2022; Mulders, Hofstra and Tolsma, 2024)—are found along gender lines. As such, gender may condition cumulative advantage and reputation effects. We consider these three common explanations for academic inequalities as a starting point to develop and test conjectures as one of the first large-scale empirical studies of scientists in the media.

In sum, our study aims to reveal (i) whether and to what extent scientists communicate their work in the media, (ii) which mechanisms (i.e., cumulative advantage and reputation) underlie these science-media links, and (iii) if cumulative advantage and reputation are moderated by gender and affect women differently than men.

## Theory

### Cumulative advantage

A well-known mechanism driving a variety of outcomes in science is the 'Matthew effect' or 'cumulative advantage' (Zuckerman, 1965) that can also be found in other domains and professions such as among athletes in sports (Biegert, Kühhirt and Van Lancker, 2023). The Matthew effect entails a self-reinforcing dynamic where prior success in academia (e.g., citation, prizes) causes ensuing success, and that this explains (part of) the stratification found in academia. Merton (1968) distinguishes three underlying mechanisms: First, initial success shapes opportunity structures for research through, e.g., increased funding and highly qualified staff (Bol *et al.*, 2018), which, in turn, increase chances for future high-impact research and successful careers (Petersen *et al.*, 2011). Secondly, scholars with higher status profit from attributions. This is particularly evident in academia with regard to gender as a status stratifier. For instance, Ross *et al.* (2022) showed how women are credited less in science for the same performance. Thirdly, high reputation feeds itself through attention seeking behaviour, that is, work of prominent scholars is more visible.

The Matthew Effect in science was first attributed to Robert K. Merton and is often cited as 'Merton (1968).' Yet, the mechanism was first explored in-depth by Harriet Zuckerman (hence our first citation to '(Zuckerman, 1965)'), Merton's mentee, collaborator, and later spouse, in her dissertation on Nobel Prize laureates (Zuckerman, 1965). The attribution of the Matthew Effect to Merton, rather than Zuckerman—first highlighted by Rossiter (Rossiter, 1993)—paradoxically exemplifies the phenomenon itself, highlighting a seniority bias in recognition (Keuschnigg and Wolbring, 2017). Merton (1988, p. 607, Footnote[2]) later acknowledged that Zuckerman should have been credited as a co-author in his original 1968 paper. Rossiter (1993) coined the 'Matilda Effect': a systematic devaluation of women's scientific contributions (Lincoln *et al.*, 2012). The 'Matthew Effect' first being attributed to Merton and not Zuckerman can also be understood as a Matilda Effect.

Cumulative advantages occur in written media as well. Van De Rijt *et al.* (2013) show that, once past a certain threshold of news mentions, journalists write about the same persons in perpetuity. This suggests that self-reinforcing dynamics of prior news mentions feeds into future news mentions. Once a professor has found successful translation pathways of their science in the media and another professor has not, this difference in skill and access will lead to ensuing accumulation of skill and access and, hence, media mentions. Vice versa, once a journalist has 'a line' to a professor, that journalist will more likely resort to a specific professor again rather than a new one. Journalists may even choose to highlight professors who were already in the media through invitations by other journalists. Therefore, we hypothesize:

> Hypothesis 1—Professors' prior media mentions increase (a) the likelihood and (b) number of ensuing media mentions.

We argue that cumulative advantages vary by professor gender. Prior work on gender and science consistently shows that women have fewer citations (Lerman *et al.*, 2022), less scientific impact (Hofstra *et al.*, 2020), and lower career survival (Hofstra *et al.*, 2022; Mulders, Hofstra and Tolsma, 2024). Professors' media representation may differ by gender too. In 2018, 58 per cent of the German news articles were written by men and 16 per cent by women (EJO, 2018).[3] Across 240 major news outlets, 22 per cent of editors are women (Eddy *et al.*, 2023). If a majority of men journalists seek out men professors due to homophilous selection (McPherson, Smith-Lovin and Cook, 2001) and, vice versa, if men professors are more likely to find men journalists, women professors are seen less in the media. Evidence supports this as most news sources are men (Shor *et al.*, 2015; Niemi and Pitkänen, 2017), and journalists predominantly connect to men scientists (Crettaz Von Roten, 2011). Additionally, men may self-select more into the media. This is because men rather than women self-cite (King *et al.*, 2017), use positive adjectives (Lerchenmueller, Sorenson and Jena, 2019), and self-promote on social media (Peng *et al.*, 2025). In contrast, women scientists are less willing to engage with the public (Bao *et al.*, 2024), possibly due to harmful media dynamics (Kavanagh and Brown, 2020).

This media mention difference by professor gender causes cumulative advantage of prior media mentions to have gender-specific effects. Van De Rijt *et al.* (2013) show how yearly newspaper presence is stable for those with many prior mentions, yet having only one or a few prior mentions does not necessarily cause subsequent newspaper presence. As such, newspaper 'fame,' has low turnover for those who are mentioned often, yet has high turnover for those who are mentioned infrequently. By itself, prior media appearances benefit both women and men professors. Yet, men professors benefit more as they are mentioned more often in the media in general. More men end up in the more stable and potentially beneficial low turnover position of media 'fame' while women professors would see more turnover and benefit less from prior media mentions. Thus, we argue that there is a Matilda effect that drives gender differences in cumulative advantage and we conjecture:

> Hypothesis 2—The positive effect of prior media mentions on (a) the likelihood and (b) number of ensuing media mentions is stronger for men rather than women professors.

## Reputational standing

Next, we hypothesize why professors appear in the media as a result of reputation. Journalists typically face a selection problem where they need to choose 'newsworthy' stories from a pool of stories and they are 'gatekeepers' both to science issues and to scientists themselves (Schäfer, 2011). Journalists therefore use heuristics to select newsworthy science stories or professors. While factors such as news value, journalists preferences, and the reputation of scientific outlets have been explored, characteristics of individual scientists are understudied (Schäfer, 2011). This is surprising, yet a straightforward point of reference for journalists is a professor's reputation. Scientists vary in their academic reputation. If we consider citations as a proxy for academic reputation, the top-1 per cent of scientists account for 14 per cent–21 per cent of all citations between 2000 and 2015 (Nielsen and Andersen, 2021). It stands to reason that journalists use reputation as a heuristic to select professors—i.e., they choose already academically 'famous' professors for an expert quote.

From the professors' side there are several mechanisms that explain why reputable professors are more often found in printed media. Reputable professors likely have more content and more groundbreaking findings to discuss with journalists. Additionally, reputable professors may be more likely to have greater network reach within universities, for instance to public relation officers, so as to improve access to journalists and newsrooms. Reputable professors might also have more (reputable) co-authors (Uddin, Hossain and Rasmussen, 2013; Bordons *et al.*, 2015; Parish, Boyack and Ioannidis, 2018) that themselves have been in the media, inducing either a social learning effect on professors' own media outreach skills or providing access to journalists and newsrooms through their co-authors. As such, we expect:

> Hypothesis 3—As a professor's reputation increases (a) the likelihood and (b) the number of media appearances increase.

Following prior work on academic gender inequality and the Matilda effect, we assume that reputation effects on media presence apply differently by gender. The Matilda effect notes how academic reputation or impact is systematically devalued for women vis-a-vis men—i.e., with equal innovation or invention, women scientists find less payoff. This seems present in careers, for instance, where female scientists write more novel science, yet these are valued less in academic careers compared with men (Hofstra *et al.*, 2020). Such dynamics are present in other outcomes too. For example, in citation networks (Baldi, 1998) or in (STEM) research rewards and prizes (Lincoln *et al.*, 2012). Despite reputation positively relating to media presence for all professors, we argue that reputation payoff in media presence is less present for women than for men. Implicit biases that journalists (a relative majority of men) might carry puts more weight on reputation for men rather than women professors. Additionally, men professors' self-promotion to the media may become more pronounced as reputation increases as compared to women professors' self-promotion. As such, we derive our fourth and final hypothesis:

> Hypothesis 4—The positive effect of reputation on (a) the likelihood and (b) the number of media appearances increase is stronger for men rather than women professors.

## Empirical setting

Our empirical setting is German academia, where we focus on who was a social science full professor in 2019. Specifically, we anchor our dataset in a list of German professors recorded in the Hochschullehrer Verzeichnis (HLVU, Directory of higher education teachers). This record contains entries on all scholars working at German Universities and is edited by the Deutscher Hochschulverband (DHV, German higher education association), one of Europe's largest researcher associations (HLVU, 2021). We limit the database to 2,207 researchers who hold a full professorship in a selection of social science disciplines (sociology, communication science, political science, economics, and 'miscellaneous' social sciences) and who have not retired as of 2019. From these professors we collect their (i) bibliometric metadata from SCOPUS (disciplines, career paths, affiliations) and OpenAlex (for yearly citation counts), and (ii) legacy news media articles through LexisNexis' Nexis Uni portal (procedure detailed below). As such, we uniquely link professors, their bibliometric career information, and their news media attention to test our hypotheses. For that purpose, LexisNexis is a particularly useful platform to gauge media attention. This database is a possible undercount of all media attention, but it mostly includes gatekept, paywalled media such as newspapers. For these media sources, the mechanisms underlying our hypotheses likely apply stronger compared with, for instance, self-promotion on social media.

### Dependent variables

To connect scientists to their appearance in the media, we use articles in print media wherein scientists are mentioned. This includes interviews with and quotes by scientists, articles about scientists and citations of scientists in print media. For that purpose, we accessed the Nexis Uni database by querying the full name of the professor combined with a wildcard version of the word scien* in German (wissenschaft*) to cover the scientific context in which the scientists should appear.[4] This latter addition also filters out mentions in printed news of those carrying similar names as our professors (but not being scientists). We collect all news articles found this way, yet discard duplicate articles. We opt for discarding articles that are complete duplicates, though we also include a more sophisticated duplication detection method in Supplementary Appendix S1 (i.e., jaccard-similarity: the number of shared words divided by the number of total words in two articles). The time range in which we query Nexis Uni is from 1991 to 2023, and the total number of news articles we gather is 26,729. These articles generally originate from large German newspapers or magazines such as Taz ($N = 2{,}166$), Die Zeit ($N = 1{,}835$), or Der Spiegel ($N = 1{,}953$), among others.

From these data, we consider two dependent variables that capture media mentions of professors. The first is a dichotomous measure of a professor appearing in German print media in year t (yes/no). Through this variable we model whether professors have any attention in print media in a given year. The second variable is a continuous variable (logged, because of the right skew, which we describe below) that captures the number of media mentions in year $t$. This latter variable is to model how frequently professors are mentioned in newspapers in a given year. With these dependent variables, we answer the 'whether' and to 'what extent' part of our research goals. Note that our data are in a panel format, where we have multiple observations (i.e., years) for each individual professor and their (yes/no, number of) media appearances.

## Independent variables

### Cumulative advantage

To examine the Matthew effect and test our hypothesis as to whether previous media mentions increase the likelihood of further media appearances, we construct one variable. This is a binary variable originating from the Nexis Uni data measuring media mention (yes/no) at $t-1$ where $t$ is the respective observation year, called $\text{MediaMention}_{t-1}$. $\text{MediaMention}_{t-1}$ is one if there have been prior media mentions one year before and zero if this has not been the case.

### Reputational standing through bibliometric data

Our main independent variables that measure reputation are based on bibliometric information of professors' academic achievements. We first query SCOPUS by professor name to obtain a range of metadata from their publications: the number of published journal articles, their associated digital object identifiers (DOIs), their publication dates, their citations, and their h-score. We also collect their university affiliations to generate a valid match between the HLVU and SCOPUS entries (as multiple researchers can have the same name). If a SCOPUS query returns multiple researcher entries based on a name, we compare affiliation/name combinations gathered in HLVU and SCOPUS to remove non-matching entries. The professors in our dataset have a total of 53,187 journal publications in SCOPUS. As SCOPUS does not provide yearly citation rates, we gather those yearly citation rates on professors' publications from OpenAlex through querying articles by their DOIs. We then aggregate this citation information to the author-year level such that we have total yearly citation rates per individual professor (2012–2022). We use the number of citations in the year prior to the focal 'media attention' year (i.e., $\text{Citations}_{t-1}$) as our main independent variable that captures reputation.[5] We construct a log(citation + 1) variable because of the skewness of the variable. This is standard practice in the sociology of science (e.g., Hofstra *et al.*, 2022).[6]

### Gender

We infer gender signals from professors' first names (up until the first space or hyphen) as the HLVU does not report professors' gender. We do so by using the Genderize API (Genderize.Io). This is a widely used method that infers gender based on firstname and country cues (Unger *et al.*, 2022; Brück, 2023). As most of the professors in the database are German, we supplied the country cue alongside the first names and manually verified results that were reported with a low certainty or where no gender could be inferred. Note this is also why we use the phrase 'women professor' and 'men professor' because (i) this is how others perceive these professors based on their first names and (ii) we do not infer the biological sex of professors (i.e., phrasing it as female or male professors).

We are aware that using names for gender signals is insensitive to self-identification, or non-binary persons, or other gender identities. This is a trade-off between depth and breadth. The nature of bibliometric big data sources renders them suitable for population-wide studies of science (as we pursue here). Yet, this makes it difficult to survey each case on more in-depth issues of identification and attitudes. Additionally, earlier work showed that name-gender metrics are a key signal in science on which individuals are (de-)valued (Hofstra *et al.*, 2020, 2022; Kim *et al.*, 2022). We commend future bibliometric work that introduces more-nuanced metrics on gender.

### Control variables

We distinguish between disciplines within social science to control for potentially varying appearances of different disciplines in the media and varying citation practices. As the HLVU contains the name of the chair of recorded professors (e.g., Sociological Theory), two of the authors categorized professors into sociology, communication science, political science, economics, or miscellaneous social sciences. As some of the chairs

**Table 1** Descriptives of key variables

| | | Min | Max | Mean | SD |
|---|---|---|---|---|---|
| $\text{MediaMentions}_{t-1}$ (binary) | | 0 | 1 | 0.18 | |
| Logged MediaMentions | | 0 | 4.93 | 0.21 | 0.34 |
| $\text{Log}(\text{Citations}_{t-1})$ | | 0 | 6.8 | 1.09 | 1.41 |
| Gender | | | | | |
| | Women | 0 | 1 | 0.2 | |
| | Men | 0 | 1 | 0.8 | |
| Academic age | | 0 | 63 | 10.7 | 11.30 |
| Discipline | | | | | |
| | Economics | 0 | 1 | 0.51 | |
| | Politics | 0 | 1 | 0.19 | |
| | Sociology | 0 | 1 | 0.23 | |
| | Communication science | 0 | 1 | 0.03 | |
| | Social science | 0 | 1 | 0.02 | |
| Big city (yes/no) | | 0 | 1 | 0.21 | |

might be ambiguous or potentially misclassified, we provide a range of robustness checks for various classification schemes in Supplementary Appendix S2.

The longer a researcher is part of academia, the longer they have time to publish and to accrue citations. It also affords them more time to appear in the media as it builds their recognition as an expert. We therefore control for academic age calculated by subtracting the year of the first recorded journal publication from the focal year.[7]

We also account for geographic proximity effects (Ponds, Van Oort and Frenken, 2007) because of the concentration of media outlets in the largest German cities (Berlin, Hamburg, Munich, Cologne). Hence, we control whether or not researchers are based in one of these four large cities.

Finally, we address the issue of false positives, a common data-linkage issue in computational social science. Essentially, matches of professor names in the media may not be professors in our database. For instance, common names, e.g., Thomas Müller, appear at the top of each list and inflate counts of publication, citation or media mention. We therefore check if name frequency influences our results by controlling for frequent names in the German context (see Supplementary Appendix S3).

Table 1 provides descriptive results on our main explanatory, dependent, and control variables. Time-varying variables are averaged over years. Note how the average number of logged media appearances in a year is 0.21, and that the mean percentage of any media mention is about 18 per cent.

Figure 1 shows the proportion of scholars and media appearances by gender across disciplines compared with their representation in the media. It depicts that, across disciplines, women professors are seen less often in printed media as would be expected from their disciplinary representation, whereas men are overrepresented in the media.

Further differences become clear in Figure 2, which shows the distribution of the number of media appearances by discipline in the left-hand panel and over time by gender in the right-hand panel. We see right-skewed patterns across all disciplines which justifies our logged dependent variable. Here, we also observe in the right-hand panel of Figure 2 that men professors across most disciplines and years are mentioned more often than women.

Finally, Table 2 depicts the top-5 media professors ranked by the total number of media mentions for each discipline.[8] Across disciplines, we find a variety of prominent scholars, who are sometimes also founders of political parties or members of government committees. As to be expected from the distributions in Figures 1 and 2, most of the 'media professors' are men.[9]

## Estimation strategy

Our paper focuses on two main questions: (i) whether and to what extent scientists appear in the media as a result of cumulative advantage (H1) and academic reputation (H3); (ii) and do cumulative advantage and reputation and coefficients vary by gender (H2, H4). To answer those questions, we employ logistic and linear regression models. We estimate robust standard errors clustered on the professor level given our panel data structure. As we want to rule out any temporal dynamics, we control for year indicators (and leave out one reference year) in all models. In addition, we control for academic age, discipline and large city throughout.

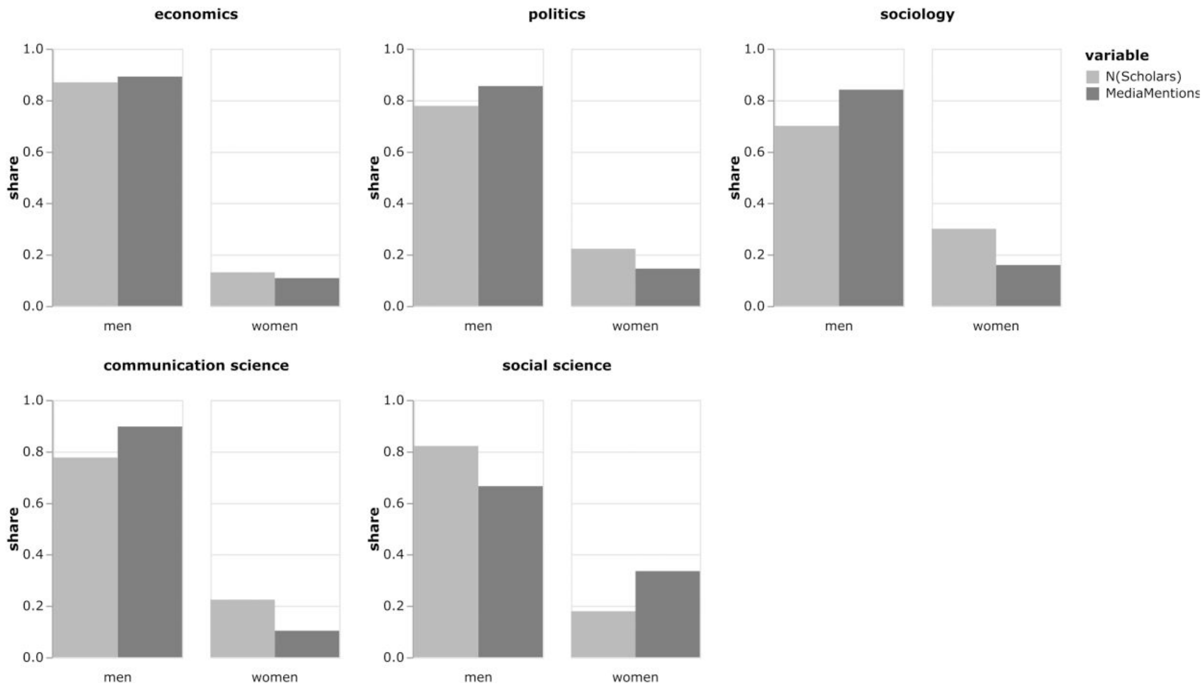


**Figure 1** Proportion of scholars of different genders and MediaMentions by discipline

Alternative mode specifications would include panel fixed-effects models to eliminate time-invariant confounding. Yet, these models only consider units that show a change on the dependent variable (e.g., Allison, 2009). This would limit the sample of professors and drop 82 per cent of cases on average per year that do not appear in the media in that year. As such, we focus on our analyses including the full sample and estimate robust standard errors.

Note that each of our hypotheses contains two dependent variables: (i) having newspaper appearances (yes/no), and (ii) the number of logged printed news appearances. We discuss the results in the same order as the hypotheses and the logistic and linear regressions are shown in Table 3. For Hypotheses 1 and 3 we estimate two models (Model 1 [logit] and 4 [OLS]) where we consider the effects of cumulative advantage (i.e., prior news mentions) (H1) and reputation (i.e., citation) (H3). For cumulative advantage and reputation effects conditional on gender we then estimate four additional models: Model 2 [logit] and 5 [OLS] where we interact cumulative advantage with gender (H2), and Model 3 [logit] and 6 [OLS] where we interact reputation with gender (H4). Note that we also consider cumulative advantage, reputation, and gender effects isolated from the others in Supplementary Appendix S3, and this strategy does not change our main conclusions.

## Results

### Cumulative advantage

Our first hypothesis conjectured that professors' prior news mentions increase the likelihood of (H1a) and the number of newspaper appearances (H1b). Our analyses provide strong evidence in support of this hypothesis. In Table 3, we observe that both media mentions in the year prior as well as the number of years of previous news mentions significantly and positively relate to the likelihood and number of ensuing news mentions (Model 1, logodds = 2.40; $P < 0.001$; Model 4, $B = 0.69$; $P < 0.001$). The results suggest that these are also among the strongest correlations. For instance, being mentioned in the news the year before increases the probability of appearing in the following year in the newspaper from ~13 per cent to ~63 per cent. Figure 3 provides the summary of these results (logit: AMEs, OLS: predicted values), where having at least one prior mention relates positively to the likelihood and number of media mentions in the current year. Thus, we find support for Hypothesis 1: professors' prior media mentions increase (a) the likelihood and (b) number of ensuing media mentions.

Are men professors more often found in newspapers than women professors? There are no gender differences whether media mentions occur at all (Model 1, logodds = 0.00; $P > 0.05$), yet, the number of newspaper

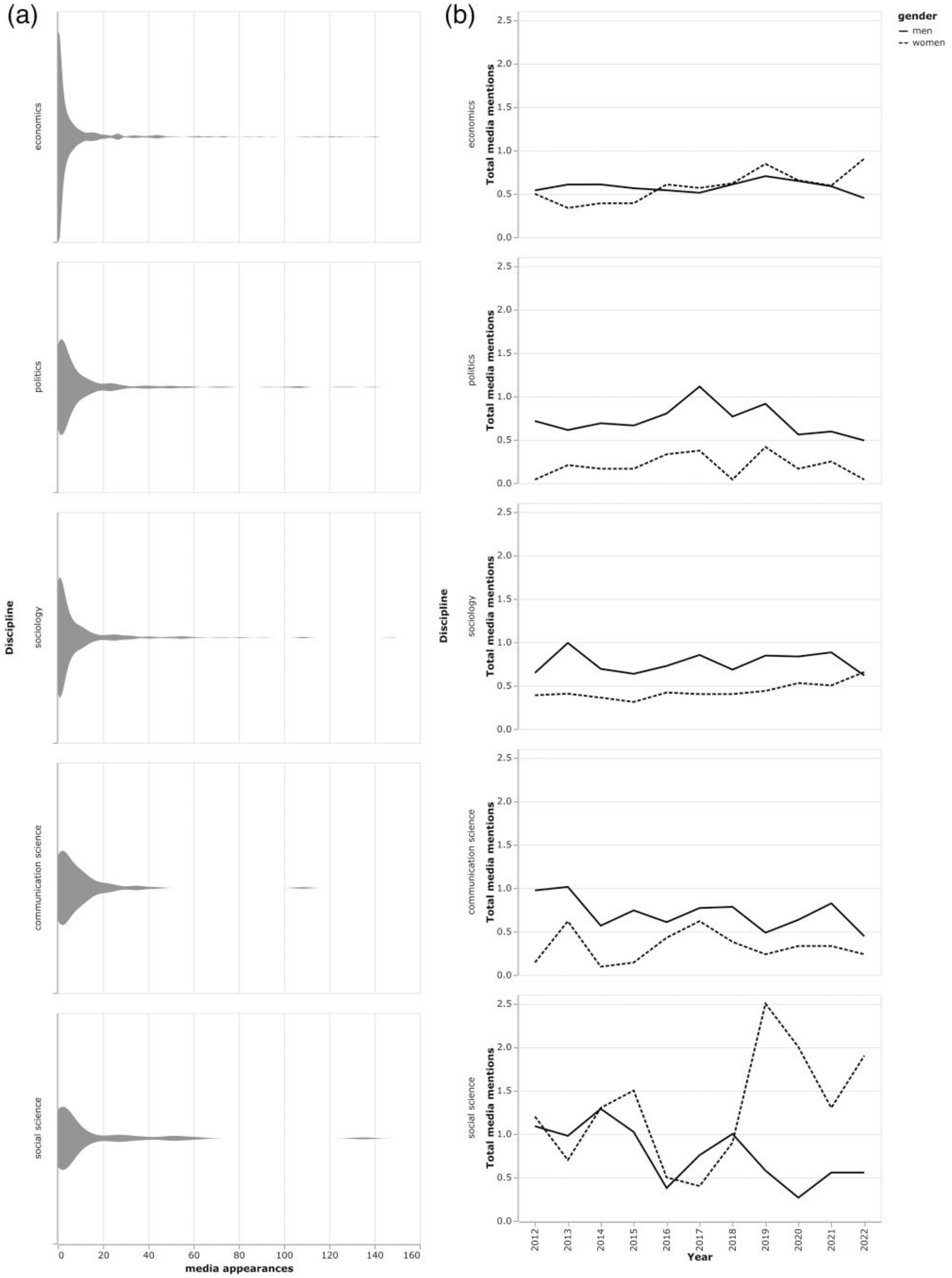


**Figure 2** Distribution of media appearances by discipline (a) and the number of media mentions per year by discipline and gender (b)

mentions does vary between men and women professors (Model 4, $B = -0.03$; $P < 0.05$). Specifically, we find that men professors have about.03 more logged newspaper appearances in a given year compared with women (or: about one more appearance). Why do these results vary between any or the number of newspaper mentions? The variation in the number of newspaper mentions is not considered in the binary outcome, and the divergent results suggest that male professors are likely to be at the high end of newspaper mentions and more so than women. We tested this intuition in a post-hoc logistic regression analysis with 'being in the top-10 per cent of the number of newspaper mentions: yes/no' as the dependent variable (see

**Table 2** Top-5 media professors across disciplines

| Economics | | Politics | | Sociology | | Communication science | |
|---|---|---|---|---|---|---|---|
| Scholar | *N* | Scholar | *N* | Scholar | *N* | Scholar | *N* |
| Lucke, Bernd | 378 | Walter, Franz | 216 | Hurrelmann, Klaus | 219 | Brettschneider, Frank | 132 |
| Jungwirth, Carola | 217 | Patzelt, Werner J. | 144 | Nassehi, Armin | 173 | Ernst, Wolfgang | 80 |
| Müller, Stefan | 216 | Messner, Dirk | 139 | Berger, Peter A | 160 | Quandt, Thorsten | 28 |
| Schumann, Jan Hendrik | 181 | Merkel, Wolfgang | 126 | Bude, Heinz | 157 | Maurer, Marcus | 26 |
| Ficher, Andreas | 178 | Leggewie, Claus | 123 | Schmidt, Robert | 131 | Trebbe, Joachim | 18 |

Supplementary Appendix S5). We then regress that outcome on the same independent and control variables and the results support our post-hoc intuition. Men professors have a higher likelihood than women professors to be among these mediagenic (i.e., top-10 per cent) professors.

Do cumulative advantage dynamics vary by gender (H2)? The results depicted in Table 3 provide evidence in support of H2 and show gender-specific cumulative advantage associations. The correlation between at least one news mention in the prior year and being in the news this year (yes/no) is stronger for men (logodds = 2.49) than for women (logodds = 2.04 [2.49 −0.45]) (difference between the two conditions $P < 0.05$). Additionally, the correlation between at least one news mention in the prior year and the logged number of newspaper mentions in the ensuing year is stronger for men than for women (*B* for men = 0.73; *B* for women = 0.51 [.73−0.22], and these differ significantly with $P < 0.001$). These results overlap with what we find in Figure 4. Here we observe the differences in the growth between men and women in their AMEs [left-hand panel] or predicted values [right-hand panel] when moving from no to at least one prior news mention on any or the number of media mentions differs by gender in the four conditions: women and men with no prior mentions hardly differ in any or number of mentions, yet with prior mentions the correlation grows stronger for men rather than women. In sum, this provides evidence for H2: The positive effect of prior media mentions on (i) the likelihood and (ii) number of ensuing media mentions is stronger for men rather than women professors.

### Reputational standing

Does professors' reputational standing increase the likelihood and number of media mentions (H3)? The results of Models 1 and 4 in Table 3 suggest that the lagged number of citations as a proxy for professors' recent reputation, positively relates to the likelihood (H1a) yet not the number of (H1b) ensuing newspaper appearances. An increase of 1 log(citation) in the prior year (or: about 3 citations), increases the probability of newspaper appearance in the ensuing year by ~10 per cent (logodds = 0.09; $P < 0.001$). At the same time, an increase in citations in $t-1$ does not relate to an increase in ensuing media mentions. The average marginal effects (logit, AMEs) and predicted values (OLS) of both models are depicted in Figure 5. In short, our analyses provide partial evidence in support of Hypothesis 1: professors' reputation increases the likelihood but not the number of media mentions. As a robustness analysis for reputation, we analyzed the number of publications in the prior year and its correlation to the likelihood and number of media mentions in the ensuing year as an alternative reputation metric in Supplementary Appendix S6. Here we do find that publication a year earlier positively and significantly relates to both outcomes.

Does the association between citations and newspaper appearances vary by gender (H4)? Models 3 and 6 in Table 3 answer that question. Model 3 shows that the correlation between the number of logged citations and the likelihood of any news mentions does not vary by gender, thus not providing any credence to Hypothesis 4. Yet, for our productivity we do see that the number of publications relates more to the number of printed media mentions for men rather than women professors (Supplementary Appendix S6).

## Conclusion

This paper set out to shed light on a seemingly straightforward yet key question for academia: whether and to what extent scientists appear in print media as a result of cumulative advantage, reputation, and gender (Albæk *et al.*, 2003; Wien, 2014)? On the one hand, the representation of scientific ideas and facts is increasingly important in an era of information over-abundance and disinformation. On the other hand, funding agencies and university leaders increasingly demand that professors not only excel in research, but

**Table 3** Regression results of any and number of media mentions

| | Logit, DV: mediaMention (binary) | | | OLS, DV: number of mediaMentions (logged) | | |
|---|---|---|---|---|---|---|
| | **Model 1** | **Model 2** | **Model 3** | **Model 4** | **Model 5** | **Model 6** |
| Intercept | −2.12*** (0.14) | −2.16*** (0.14) | −2.13*** (0.14) | 0.07** (0.03) | 0.06* (0.03) | 0.07** (0.03) |
| H1: MediaMentions$_{t-1}$ | 2.40*** (0.07) | 2.49*** (0.08) | 2.40*** (0.07) | 0.69*** (0.03) | 0.73*** (0.04) | 0.69*** (0.03) |
| H2: MediaMentions$_{t-1}$× Gender(women) | | −0.45** (0.15) | | | −0.22*** (0.06) | |
| H3: Log(Citations$_{t-1}$) | 0.09*** (0.02) | 0.09*** (0.02) | 0.10*** (0.02) | 0.01 (0.01) | 0.01 (0.01) | 0.01 (0.01) |
| Gender(women) | 0.00 (0.07) | 0.17* (0.08) | 0.06 (0.09) | −0.03* (0.01) | 0.01 (0.01) | −0.01 (0.02) |
| H4: Log(Citations$_{t-1}$)× Gender(women) | | | −0.05 (0.05) | | | −0.02 (0.01) |
| Control variables | | | | | | |
| Academic Age | 0.01*** (0.00) | 0.01*** (0.00) | 0.01*** (0.00) | 0.00* (0.00) | 0.00* (0.00) | 0.00* (0.00) |
| Big City | 0.16* (0.07) | 0.17* (0.07) | 0.16* (0.07) | 0.04* (0.02) | 0.04* (0.02) | 0.04* (0.02) |
| Discipline (ref: comm. science) | | | | | | |
| Economics | −0.35** (0.12) | −0.34** (0.12) | −0.35** (0.12) | −0.00 (0.03) | −0.00 (0.03) | −0.01 (0.03) |
| Politics | 0.03 (0.12) | 0.04 (0.12) | 0.03 (0.12) | 0.03 (0.03) | 0.03 (0.03) | 0.03 (0.03) |
| Sociology | −0.16 (0.12) | −0.15 (0.13) | −0.16 (0.12) | 0.01 (0.03) | 0.01 (0.03) | 0.01 (0.03) |
| Social Sciences | −0.04 (0.20) | −0.02 (0.20) | −0.04 (0.20) | 0.05 (0.05) | 0.05 (0.05) | 0.05 (0.05) |
| Adj. McFadden $R^2$ (logit)/ Adj. $R^2$ (OLS) | 0.20 | 0.20 | 0.20 | 0.26 | 0.26 | 0.26 |

$N$ (Professors) = 2,207; $N$ (Observations) = 22,070. We omit our year indicator covariates from the table for clarity here.
$^{***}P < 0.001$; $^{**}P < 0.01$; $^{*}P < 0.05$.

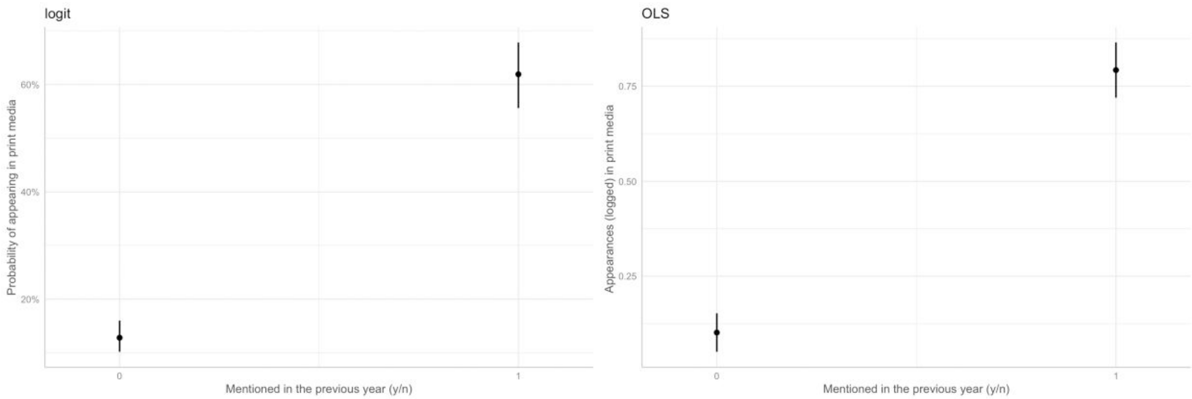


**Figure 3** Probability of media appearances (AMEs, yes/no [left panel] and frequency [predicted values, right panel]) by prior media appearances

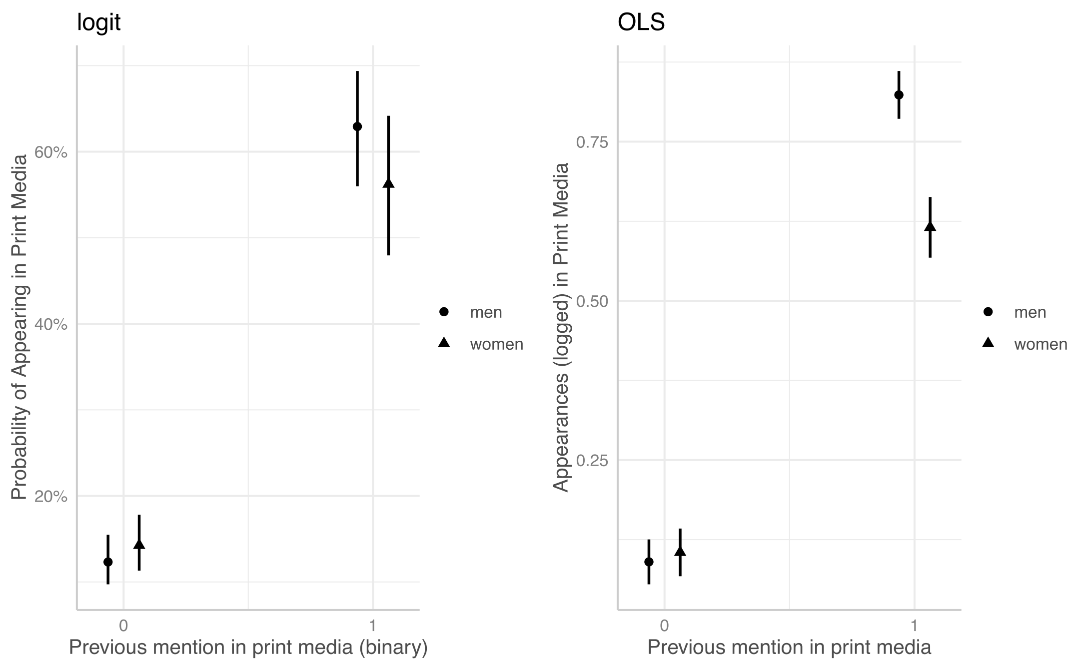


**Figure 4** Probability of media appearances (AMEs, yes/no [left panel] and frequency [predicted values, right panel]) of media appearances by prior media mentions and gender

also disseminate their findings to the public. For these dynamics, it seems essential to quantify and explain scientists' media presence.

We focus on scientists themselves and analyze, which scientists are mentioned in the media and why. We therefore collected a unique dataset comprising a list of social science professors in Germany, their bibliometric data and gender, and innovatively linked this information to subsequent appearances in the German print media. We leaned on key explanations in the literature on inequality in science and the science of science that explain differences in academic indicators and developed conjectures on the effects of cumulative advantage, gender, and academic reputation.

Most strikingly, our findings underscore the persistence of Matthew effects within the science-media nexus. This finding strongly relates to prior research on cumulative advantage in academia (Merton, 1968; Bol *et al.*, 2018), yet simultaneously extends it to a professors' media visibility. Similar to patterns observed in citations,

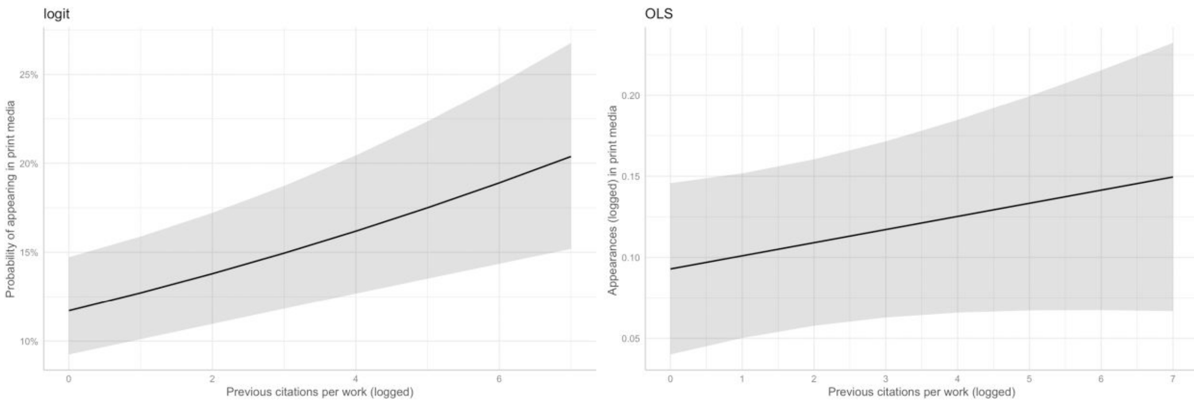


**Figure 5** Probability of media appearances (AMEs, yes/no [left panel] and frequency [predicted values, right panel]) by prior citations

funding, and academic promotions, prior media mentions dramatically increase a scientist's likelihood of being featured again in print outlets. This self-reinforcing cycle suggests that media visibility operates not purely on meritocratic criteria, but is shaped by path dependence and familiarity—thereby our work confirms earlier findings on the social reproduction of 'fame' more broadly (Van De Rijt *et al.*, 2013). Our results extend this literature by empirically demonstrating how media gatekeeping interacts with these dynamics: once a scientist is featured, they appear to enter an informal 'short list' of go-to experts. This pattern reflects not only a dependence on established professional networks but also supports the theory of third-order inference (Correll *et al.*, 2017), where journalists infer credibility based on prior media visibility rather than independent assessment of expertise. In this sense, our work builds on and contributes nuances on existing models of cumulative advantage by showing how media logics—specifically journalistic routines and heuristics—amplify academic inequality. More specifically, we provide new insights on the interplay between science and the media.

A professor's gender relates to media mentions under specific conditions: on the number of media appearances. And, most notably, there are gender differences on the upper ends of media visibility—men are more likely than women to be in the top-10 per cent of mediagenic professors. The findings of these gender differences fit in a long line of research on science that evidences how women fare less well than men in academia. Women have fewer citations (Lerman *et al.*, 2022), less scientific impact (Hofstra *et al.*, 2020), and lower career survival (Hofstra *et al.*, 2022; Mulders, Hofstra and Tolsma, 2024). We extend these findings on academic gender inequality to scientific visibility in the public sphere. The findings diverge somewhat from the literature on gender inequality when we consider 'any' media attention. This 'strictest' dependent variable dichotomizes the media presence distribution, thereby obscuring gender differences found especially at the upper regions of this distribution. Note also that there are some methodological caveats to these findings. Our gender associations are somewhat sensitive to near-duplicate articles being removed and to excluding the top-5 per cent frequent names. The former likely relates to men professors' news stories being pushed by universities PR and newsrooms that are then near-copied by media outlets. Dropping these articles decreases men professors' news mentions and pulls it closer to that of women. The latter finding relates to more men being dropped from the data as their names are less diverse compared with women (Lieberson and Bell, 1992).

Moreover, our findings indicate that cumulative advantage in media coverage operates unevenly across genders: men professors are more likely than their women counterparts to benefit from repeated mentions. This supports our hypothesis and aligns with broader evidence on gendered stratification in academic visibility (Rossiter, 1993; Van Den Brink and Benschop, 2014). By demonstrating that men are more likely to be reinforced through journalistic selection processes over time, our results extend prior research on cumulative advantage by showing how media practices contribute to the reproduction of gendered hierarchies in science communication in particular. More generally, the gendered dynamics that women often face in academia (i.e., the 'Matilda effect') are present here as well: women professors' prior media mentions get devalued as compared to those of men. This fits in a longer line of research on the devaluation of women's scientific work (see, e.g., Hofstra *et al.*, 2020), and here we extend it to gendered cumulative advantages in the media.

Our findings also show that academic reputation, proxied through citation, increases the likelihood of media mention but not the number of mentions—partially confirming our hypothesis. This pattern reflects established dynamics in academic careers, where scholarly reputation impacts important academic outcomes (Leahey, 2007). Notably, we find that this citation-based effect does not differ by gender, suggesting that citation metrics function as a relatively gender-neutral signal of academic authority in the eyes of journalists. However, this diverges somewhat with literature highlighting gender disparities in citations themselves (Larivière *et al.*, 2013). This raises new questions about which reputational indicators are most salient for media actors and how they intersect with gender: how do citations, media visibility, or productivity relate to science careers, for instance? We stress this, because we also find that academic productivity—the number of publications in the prior year—predicts both the likelihood and frequency of media mentions in the following year. This suggests that recent publication activity may serve as a more immediate cue for journalistic selection than cumulative citation records. Taken together, these findings nuance existing understandings of how academic reputation translates into public recognition. While media visibility partially reflects academic standing, the relationship is filtered through selection practices that reward certain types of productivity over others. Our study thus extends prior research by unpacking the differentiated mechanisms through which reputation is converted into public visibility, and by showing that not all indicators of scholarly success carry equal weight within the science-media link.

In sum, the constellation of explanations derived from the sociology of science generally applies to science-media linkages as well. The explanatory power of each varies, yet may be a useful departure point for future studies of science-media links. By illuminating these dynamics in the media domain for professors, our study contributes a novel dimension to the literature on academic inequality: media capital, a potentially increasingly important form of academic capital for career advancement and scientific influence. In doing so, we deepened our understanding of how academic capital is built and maintained by adding this new dimension to it, and simultaneously shifted the focus on the factors (cumulative advantage, reputation, gender) that best predict who gets heard in science communication. We commend future work that further deepens our understanding of academic media capital. How does it affect careers and promotion, for instance? And is academic media capital best captured by newspaper quotes, social media presence, or popular articles, or by its combinations?

At least four limitations of our study merit attention. First, we faced challenges on linking bibliometric data of scientists with media articles. Foremost, the issue of false positives—common names found in the media but not addressing the scientist in question—needed to be mitigated. While we find no substantial change in results after controlling for name frequencies, more fine-grained queries or more sophisticated cleaning procedures might improve data quality further. In addition, it might be worthwhile for future studies to develop a 'ground truth' by interviewing scientists so that we can assess the error rate of big data approaches like ours.

Second, a limitation results from our focus on print media. Arguably, digital social media has yielded a hybrid media system (Chadwick, 2017), where traditional 'mass media' logics and social media logics (including public participation and viral spreading of information) intersect. Here, knowledge generated within the institutionalized scientific system is often discussed vis-à-vis so-called 'alternative' forms of knowledge, and are often subject to scepticism and doubt, rumours and even conspiracy theories (Neuberger *et al.*, 2023). The problematic side effects of this have become apparent during the Coronavirus crisis, where academic evaluations, traditional media coverage and social media debates diverged considerably (Chowdhury, Khalid and Turin, 2021). Thus, considering scientists' own activities or mentions on social media would provide an important extension of the study at hand, also because gatekeeping dynamics vary between print and online media. The former may be viewed as a more gatekept form of media translation, and the latter as a more democratized way to spread one's science.

Third, we focus on citations as a proxy of academic reputation. While this is a widely used metric within the science of science (e.g., see Hofstra *et al.*, 2022), it might only partly translate to other parts of society, like journalism where perceived prestige could stem from a publishing history in similar topics or other status signals like prizes or additional academic positions. It is noteworthy that the number of publications as an alternative proxy seems to more strongly relate to both of our outcomes. We refer to our prior intuition on interviewing journalists to ascertain more-specific mechanisms to science-media translation.

Fourth, we root our approach mostly in publications and citations of journal articles as a possible signal to journalists. While journal articles may be the go-to outlet for state-of-the-art research based on a journal's visibility (e.g., high visibility journals like Nature or Science), this approach could undercount the science to media translation of professors that mainly publish books or book chapters as well as the effect of academic age based solely on journal publications. We commend future work that combines both journal articles and published books and how it relates to science-media translation.

Ultimately, our study of the science-media nexus may enable future studies to resolve the so-called 'researcher dilemma' (Kassab, 2019), i.e., assess the effects of media outreach on scientists' careers. Do researchers profit from media activities or do media activities raise eyebrows among colleagues? The latter is sometimes summarized as the 'Sagan effect'. Carl Sagan was a 'superstar science popularizer' whose biographers argued that his popularity was met with great scepticism from other academics (Martinez-Conde, 2016). Those arguments have been fed by a startling survey reporting that 'public engagement was done by those [scientists] who were 'not good enough'' (Royal Society, 2006). This skepticism translates to scientists' use of social media. For instance, a 'Kardashian index' (Hall, 2014) proposes to identify scientists more interested in social media attention than writing papers. In contrast, some studies find public outreach positively correlates with performance. Yet, this research is limited to one Swiss research centre (Kassab, 2019) and activities of French CNRS researchers (Jensen *et al.*, 2008). Thus, there is a 'persistent ambiguity' (Olmos-Peñuela, Benneworth and Castro-Martínez, 2015): whether scientists are penalized for spending time on activities outside of academia or profit from it. This results in the before-mentioned dilemma: while they are pushed by funding agencies or university administrations to increase public outreach, academic peers might devalue their research if they do so. Our study paved the way to answer the question how public outreach affects the evaluation and careers of scientists.

## Notes

1. Some German universities have joint departments of, for instance, politics and sociology, called 'Sozialwissenschaften' (social sciences).
2. We thank an anonymous reviewer for pointing this out.
3. The remaining 26 per cent have mixed-gender author teams, or have authors of unknown or non-binary genders.
4. 'wissenschaft*' spans all fields and is easily understandable as referring to scientific matters. Nexis Uni did not yield many (if any) results for the alternative '*ologie', especially when paired with professors' names.
5. We include the same estimation but with publications instead of citations in Supplementary Appendix S3 as a robustness analysis.
6. We do not capture other forms of scientific publications, in particular, books.
7. Note that academic age and number of citations is correlated ($r = 0.59$, $P < 0.001$). Hence, by including academic age we present a conservative estimate on the association of citations and media mentions.
8. We omitted the 'social sciences'/'Sozialwissenschaften' category because these professors are usually from joint departments and their chair might therefore be misclassified.
9. This is an edge case owing to the inclusion of Peter Berger in the Data of 2019. We provide a sensitivity analysis in Supplementary Appendix S2. Peter Berger passed away in 2018, yet the 2019 HLVU may have already been in press by then, leading to the inclusion of this edge case.

## Supplementary data

Supplementary data are available at *ESR* online.

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## Author contributions

All authors equally contributed to this manuscript.

## Data availability

The data underlying this article were accessed from DeGruyter, SCOPUS and NexisUni under an institutional license and from genderize.io and Forebears under a commercial license. Data will be shared on request to the corresponding author with permission of the respective third parties. The associated OSF project page (https://osf.io/57fpq/overview) to this study contains open access code that covers our data manipulations and analyses. This page also includes demonstration code to parse data.

## References

Akin, H. (2017). Chapter 2: Overview of the science of science communication. In Jamieson, K. H., Kahan, D. M. and Scheufele, D. A. (Eds.), *The Oxford Handbook of the Science of Science Communication*. Vol. **1**. New York, NY: Oxford University Press, pp. 24–33.

Albæk, E., Christiansen, P. M. and Togeby, L. (2003). Experts in the mass media: researchers as sources in Danish daily newspapers, 1961–2001. *Journalism & Mass Communication Quarterly*, **80**, 937–948.

Allison, P. D. (2009). *Fixed Effects Regression Models*. Thousand Oaks, CA: SAGE.
Baldi, S. (1998). Normative versus social constructivist processes in the allocation of citations: a network-analytic model. *American Sociological Review*, **63**, 829.
Bao, L. *et al.* (2024). Are productive scientists more willing to engage with the public? *Science Communication*, **46**, 65–91.
Biegert, T., Kühhirt, M. and Van Lancker, W. (2023). They can't all be stars: the matthew effect, cumulative status bias, and status persistence in NBA all-star elections. *American Sociological Review*, **88**, 189–219.
Bol, T., De Vaan, M. and Van De Rijt, A. (2018). The Matthew effect in science funding. *Proceedings of the National Academy of Sciences of the United States of America*, **115**, 4887–4890.
Bordons, M. *et al.* (2015). The relationship between the research performance of scientists and their position in co-authorship networks in three fields. *Journal of Informetrics*, **9**, 135–144.
Brück, O. (2023). A bibliometric analysis of the gender gap in the authorship of leading medical journals. *Communications Medicine*, **3**, 179.
Chadwick, A. (2017). *The Hybrid Media System: Politics and Power*. 2nd edn. New York, NY: Oxford University Press.
Chowdhury, N., Khalid, A. and Turin, T. C. (2021). Understanding misinformation infodemic during public health emergencies due to large-scale disease outbreaks: a rapid review. *Journal of Public Health*, **31**, 553–573. https://doi.org/10.1007/s10389-021-01565-3.
Committee on the Science of Science Communication: A Research Agenda, Division of Behavioral and Social Sciences and Education, & National Academies of Sciences, Engineering, and Medicine. (2017). *Communicating Science Effectively: A Research Agenda*. Washington, DC: National Academies Press. https://doi.org/10.17226/23674.
Correll, S. J. *et al.* (2017). It's the conventional thought that counts: how third-order inference produces status advantage. *American Sociological Review*, **82**, 297–327.
Crettaz Von Roten, F. (2011). Gender differences in scientists' public outreach and engagement activities. *Science Communication*, **33**, 52–75.
Dudo, A. (2015). Scientists, the media, and the public communication of science. *Sociology Compass*, **9**, 761–775.
Dudo, A., Besley, J. and Yuan, S. (2021). Science communication training in North America: preparing whom to do what with what effect? *Science Communication*, **43**, 33–63.
Eddy, K. *et al.* (2023). Women and leadership in the news media 2023: evidence from 12 markets. *Reuters Institute for the Study of Journalism*, https://doi.org/10.60625/RISJ-XCN5-1V09.
EJO. (2018). Where are the women journalists in Europe's media? *European Journalism Observatory*, available from: <https://en.ejo.ch/research/where-are-all-the-women-journalists-in-europes-media> [accessed 7 August 2024].
Fischhoff, B. and Scheufele, D. A. (2013). The science of science communication. *Proceedings of the National Academy of Sciences of the United States of America*, **110**, 14031–14032.
Hall, N. (2014). The Kardashian index: a measure of discrepant social media profile for scientists. *Genome Biology*, **15**, 424.
HLVU. Hochschullehrer Verzeichnis [Database]. *De Gruyter*. (2021). https://doi.org/10.1515/hlvu
Hofstra, B. *et al.* (2020). The diversity–innovation paradox in science. *Proceedings of the National Academy of Sciences of the United States of America*, **117**, 9284–9291.
Hofstra, B. *et al.* (2022). Diversifying the professoriate.socius. *Sociological Research for a Dynamic World*, **8**, 237802312210851.
Jensen, P. *et al.* (2008). Scientists who engage with society perform better academically. *Science & Public Policy*, **35**, 527–541.
Kassab, O. (2019). Does public outreach impede research performance? Exploring the 'researcher's dilemma' in a sustainability research center. *Science & Public Policy*, **46**, 710–720.
Kavanagh, E. and Brown, L. (2020). Towards a research agenda for examining online gender-based violence against women academics. *Journal of Further and Higher Education*, **44**, 1379–1387.
Keuschnigg, M. and Wolbring, T. (2017). Robert K. Merton: the self-fulfilling prophecy/the Matthew effect in science. In Kraemer, K. and Brugger, F. (Eds.), *Schlüsselwerke der Wirtschaftssoziologie*. Wiesbaden: Springer Fachmedien Wiesbaden, pp. 177–184.
Kim, L. *et al.* (2022). Gendered knowledge in fields and academic careers. *Research Policy*, **51**, 104411.
King, M. M. *et al.* (2017). Men set their own cites high: gender and self-citation across fields and over time. *Socius: Sociological Research for a Dynamic World*, **3**, 237802311773890.
Landrum, A. R. (2017). A recap—the role of intermediaries in communicating science. In Jamieson, K. H., Kahan, D. M. and Scheufele, D. A. (Eds.), *The Oxford Handbook of the Science of Science Communication*. Vol. **1**. New York, NY: Oxford University Press, pp. 253–258.
Larivière, V. *et al.* (2013). Bibliometrics: global gender disparities in science. *Nature*, **504**, 211–213.
Leahey, E. (2007). Not by productivity alone: how visibility and specialization contribute to academic earnings. *American Sociological Review*, **72**, 533–561.
Lerchenmueller, M. J., Sorenson, O. and Jena, A. B. (2019). Gender differences in how scientists present the importance of their research: observational study. *BMJ*, **l6573**, 1–8. https://doi.org/10.1136/bmj.l6573.
Lerman, K. *et al.* (2022). Gendered citation patterns among the scientific elite. *Proceedings of the National Academy of Sciences of the United States of America*, **119**, e2206070119.
Lieberson, S. and Bell, E. O. (1992). Children's first names: an empirical study of social taste. *The American Journal of Sociology*, **98**, 511–554.
Lincoln, A. E. *et al.* (2012). The matilda effect in science: awards and prizes in the US, 1990s and 2000s. *Social Studies of Science*, **42**, 307–320.
Martinez-Conde, S. (2016). Has contemporary academia outgrown the Carl Sagan effect? *Journal of Neuroscience*, **36**, 2077–2082.
McPherson, M., Smith-Lovin, L. and Cook, J. M. (2001). Birds of a feather: homophily in social networks. *Annual Review of Sociology*, **27**, 415–444.

Mede, N. G. and Schäfer, M. S. (2020). Science-related populism: conceptualizing populist demands toward science. *Public Understanding of Science*, **29**, 473–491.
Merton, R. K. (1968). The matthew effect in science. *Science*, **159**, 56–63.
Merton, R. K. (1988). The Matthew effect in science, II: cumulative advantage an the symbolism of intellectual property. *Isis*, **79**, 606–623.
Mervis, J. Politics, science, and public attitudes: What we're learning, and why it matters [Dataset]. (2021). https://doi.org/10.1126/science.aaa7906
Mulders, A. M., Hofstra, B. and Tolsma, J. (2024). A matter of time? Gender and ethnic inequality in the academic publishing careers of Dutch PhDs. *Quantitative Science Studies*, **5**, 487–515.
Münch, R. (2014). *Academic Capitalism: Universities in the Global Struggle for Excellence*. New York, NY: Routledge.
Neuberger, C. *et al.* (2023). The digital transformation of knowledge order: a model for the analysis of the epistemic crisis. *Annals of the International Communication Association*, **47**, 180–201.
Nielsen, M. W. and Andersen, J. P. (2021). Global citation inequality is on the rise. *Proceedings of the National Academy of Sciences of the United States of America*, **118**, e2012208118.
Niemi, M. K. and Pitkänen, V. (2017). Gendered use of experts in the media: analysis of the gender gap in Finnish news journalism. *Public Understanding of Science*, **26**, 355–368.
Olmos-Peñuela, J., Benneworth, P. and Castro-Martínez, E. (2015). What stimulates researchers to make their research usable? Towards an 'Openness' approach. *Minerva*, **53**, 381–410.
Palmer, S. E. and Schibeci, R. A. (2014). What conceptions of science communication are espoused by science research funding bodies? *Public Understanding of Science*, **23**, 511–527.
Parish, A. J., Boyack, K. W. and Ioannidis, J. P. A. (2018). Dynamics of co-authorship and productivity across different fields of scientific research. *PLoS One*, **13**, e0189742.
Peng, H. *et al.* (2025). The gender gap in scholarly self-promotion on social media. *Nature Communications*, **16**, 5552.
Petersen, A. M. *et al.* (2011). Quantitative and empirical demonstration of the Matthew effect in a study of career longevity. *Proceedings of the National Academy of Sciences of the United States of America*, **108**, 18–23.
Ponds, R., Van Oort, F. and Frenken, K. (2007). The geographical and institutional proximity of research collaboration. *Papers in Regional Science: The Journal of the Regional Science Association International*, **86**, 423–444.
Ross, M. B. *et al.* (2022). Women are credited less in science than men. *Nature*, **608**, 135–145.
Rossiter, M. W. (1993). The Matthew Matilda effect in science. *Social Studies of Science*, **23**, 325–341.
Rowe, G. and Frewer, L. J. (2005). A typology of public engagement mechanisms. *Science, Technology, & Human Values*, **30**, 251–290.
Royal Society. (2006). *Factors Affecting Science Communication: A Survey of Scientists and Engineers*, available from: <https://royalsociety.org/topics-policy/publications/2006/science-communicat ion/> [accessed 8 July 2024].
Schäfer, M. S. (2011). Sources, characteristics and effects of mass media communication on science: a review of the literature, current trends and areas for future research. *Sociology Compass*, **5**, 399–412.
Scheufele, D. A. and Krause, N. M. (2019). Science audiences, misinformation, and fake news. *Proceedings of the National Academy of Sciences of the United States of America*, **116**, 7662–7669.
Shor, E. *et al.* (2015). A paper ceiling: explaining the persistent underrepresentation of women in printed news. *American Sociological Review*, **80**, 960–984.
Simis, M. J. *et al.* (2016). The lure of rationality: why does the deficit model persist in science communication? *Public Understanding of Science*, **25**, 400–414.
Uddin, S., Hossain, L. and Rasmussen, K. (2013). Network effects on scientific collaborations. *PLoS One*, **8**, e57546.
Unger, S. *et al.* (2022). Benefits and detriments of interdisciplinarity on early career scientists' performance. An author-level approach for U.S. physicists and psychologists. *PLoS One*, **17**, e0269991.
Van Den Brink, M. and Benschop, Y. (2014). Gender in academic networking: the role of gatekeepers in professorial recruitment. *Journal of Management Studies*, **51**, 460–492.
Van De Rijt, A. *et al.* (2013). Only 15 minutes? The social stratification of fame in printed media. *American Sociological Review*, **78**, 266–289.
Van Kerkhoff, L. and Lebel, L. (2006). Linking knowledge and action for sustainable development. *Annual Review of Environment and Resources*, **31**, 445–477.
VolkswagenStiftung. (2024). *Additional Funding for Science Communication*. VolkswagenStiftung, available from: <https://www.volkswagenstiftung.de/en/funding/funding-offer/additional-funding-science-communication> [accessed 10 August 2024].
Wang, J. (2014). Unpacking the Matthew effect in citations. *Journal of Informetrics*, **8**, 329–339.
Wieczorek, O. *et al.* (2021). Mapping the field of psychology: trends in research topics 1995–2015. *Scientometrics*, **126**, 9699–9731.
Wien, C. (2014). Commentators on daily news or communicators of scholarly achievements? The role of researchers in Danish news media. *Journalism*, **15**, 427–445.
Yin, Y. *et al.* (2022). Public use and public funding of science. *Nature Human Behaviour*, **6**, 1344–1350.
Zuckerman, H. A. (1965). *Nobel Laureates in the United States: A Sociological Study of Scientific Collaboration*.

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