Gender Stereotyping in the Labor Market: A Descriptive Analysis of Almost One Million Job Ads across 710 Occupations and Occupational Positions

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Abstract

This study presents patterns of gender stereotyping in job ads in the German labor market. Using a large dataset of job ads from the "BA-Jobbörse", one of the largest online job portals in Germany, we apply a machine learning algorithm to identify the explicitly verbalized job descriptions. We then use a dictionary of agentic (male-associated) and communal (female-associated) signal words to measure gender stereotyping in the job descriptions. We collect information for 710 different occupations. Our first result shows that more jobs are female-stereotyped than male-stereotyped. We then take the example of two occupational groups that reveal clear differences in tasks contents and are highly relevant regarding important megatrends like digitalization and the demographic change: one the one hand, Science, Technology, Engineering, and Mathematics (STEM) and, on the other hand, Health and Social Services occupations. Additionally, we investigate the hierarchical aspect of occupational gender segregation. We distinguish jobs according to their required skill level and whether or not they are supervisory and leadership positions. In contrast to our first result, we find within STEM occupations as well as in supervisory and leadership positions that the majority of jobs is male-stereotyped. Our findings indicate a positive association between gender stereotyping and occupational gender segregation, suggesting that gender stereotyping in job ads might contribute to the underrepresentation of women in certain occupations and occupational positions.

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1 Introduction

Gender stereotypes pose a significant obstacle to achieving gender equality in the labor market (Bertrand 2020; Campero 2021; Gorman 2005). Gender stereotyping in job ads is one way in which employers contribute to occupational gender segregation, a leading cause of economic gender inequality (England et al. 2020). For example, Damelang and Rückel (2021) showed with factorial survey methodology that stereotypically male job ads can discourage women from applying for job positions that they might otherwise be qualified for and interested in. Gender stereotyping in job ads can lead to a self-selection bias, where women choose not to apply for these jobs, even if they meet the qualifications, due to the perception that they are not a good fit. On the demand side, Yavorsky (2019) demonstrates that hiring discrimination is more likely in jobs with stereotypically male job ads. Stereotypically male job ads can lead to a bias in the hiring process, where women are unfairly evaluated as being less competent or less suitable for the job.

The language used in job ads is crucial for attracting potential applicants, as it outlines the job's requirements and responsibilities. Employers emphasize certain desirable qualities in job ads based on their understanding of the role and the type of candidate they are looking for. This practice shapes the image of the ideal employee and perpetuates a narrative of these qualities that job seekers encounter repeatedly (Kuokkanen et al. 2013; Solvberg 2021).

Despite this understanding, there is limited knowledge on the pattern of gender stereotyping in the labor market. Is male stereotyping in job ads a widespread phenomenon? Which kind of jobs are male-stereotyped? Research has been mostly confined to case studies, such as in software engineering (Campero 2021), law firms (Gorman 2005), and a selection of eight occupations (Yavorsky 2019), or has focused on experimental evidence without a specific occupational context (Damelang and Rückel 2021). A study by Tang et al. (2017) provides an exception, as it analyzed a large sample of online job ads, but the study only classified job ads into broad occupational categories.

In this paper, we explore the pattern of gender stereotyping in the German labor market and its association with the unequal distribution of men and women across the occupational hierarchy in a very detailed manner. Using the very detailed classification of German occupational categories (5-digit occupations of the KldB 2010), we can identify 710 different occupations. For each occupation, we collect data from job ads on the presence of gender stereotypes. With this information, we show the pattern of gender stereotyping across all occupations. We then

highlight the association between gender stereotyping and occupational gender segregation by focusing on occupations in Science, Technology, Engineering, and Mathematics (STEM) and in Health and Social Services. We chose these fields as examples because both occupational groups have significant differences in the content of their tasks and are highly relevant with regard to important megatrends such as digitalization and demographic change. Moreover, they have a highly imbalanced gender distribution and face a significant shortage of skilled workers. Eliminating obstacles and motivating individuals of the opposite gender to pursue these occupations can potentially reduce the skills gap and promote gender equality.

Second, we address the vertical dimension of occupational gender segregation by distinguishing between job requirement levels and by analyzing supervisory and leadership positions. For supervisory and leadership positions, we again use the example of STEM and the Health and Social Services occupations to show differences in gender stereotyping. Gender stereotypes, especially the predominantly male connotation of leadership, are a factor contributing to the vertical dimension of occupational gender segregation. For example, Correll et al. (2020) found gender differences in the language used by managers to describe performance. Using a small sample of job ads data, Askehave and Zethsen (2014 for Denmark) and Solvberg (2021 for Norway) both show that leadership positions are still constructed in a gendered way, even in countries like Denmark and Norway where there has been significant progress in gender equality.

So far, there is no comprehensive analysis that explores the extent to which employers use gender stereotypes in job ads and that is able to accurately gauge the significance of such stereotypes. Identifying whether and at which occasion gender stereotypes are used is a critical step in the pursuit of gender equality. To this end, we focus on examining the process of job search and recruiting, an important stage for the analysis of occupational gender segregation. Though the majority of career choices may have already been made, eventual gendered patterns in the job search and recruiting process would underscore the significance of gender stereotypes for the (re)production of gender inequality in the labor market.

As database, we use job ads published on the employment website of the Federal Employment Agency (“BA Jobbörse”). The “BA Jobbörse” ranks among the largest online job portals in Germany (Stops et al. 2021). Its primary advantage over other job portals is its extensive use across almost all occupations and qualification levels. Therefore, our analysis covers the use of

gender stereotypes across a vast majority of occupations and occupational positions in the German labor market.[1]

Gender stereotypes are relatively similar across cultures (Williams and Best 1990), attributing communal characteristics to women and agentic characteristics to men (Bakan 1966; Eagly et al. 2000). Communal characteristics emphasize warmth and community, whereas agentic characteristics prioritize decisiveness and personal growth. For example, the word "empathetic" represents a stereotypically feminine characteristic, while the word "assertive" conveys a stereotypically masculine characteristic.

In this paper, our focus is on the use of agentic and communal words in job ads, because these convey gender stereotypes. Social-psychological research shows that in particular male-masculine expressions (directly) let women feel not being adequate and discourage them, e.g., to apply for jobs (e.g., Sczesny et al. 2016). Unlike women, gendered wording of job ads does not seem to affect men (Born and Taris 2010). Building on this concept, we define language that expresses traits typically attributed to either females or males, or words generally linked to one gender, as gender biased language. To quantify gender biased language, we compute the share of agentic words on the total of agentic and communal signal words in each occupation.

2 Gender biased language and gender inequality

One strategy on the road to gender equality is the use of language that is not gender biased (OECD 2015a). For example, gender neutral language removes gender from the job title and other words, for example, “workforce” replaces “manpower” and “person, people” replace “man” (OECD 2015b). Previous research has shown that addressing women with masculine pronouns (Stout and Dasgupta 2011) and masculine job titles (Bem and Bem 1973; Damelang and Rückel 2021) can discourage women from applying for these jobs (see also Hodel et al. 2017; Horvarth and Sczesny 2015). This type of exclusionary language is now illegal in Germany, where gender-neutral job titles are required in job ads as of 2019. Therefore, we address a different, yet more subtle dimension of gender biased language. We focus on language that conveys gender stereotypes.

[1] We are aware that job ads are only one element of the job search and recruiting process. However, gender stereotyping explicitly formulated by employers in job ads impact also activities and decisions by both the employers and the job searchers in the further search and recruiting process.

The use of gender biased language by employers in job ads, which includes the use of agentic and communal words, is not currently regulated by law. While the OECD (2015b) does not explicitly recommend avoiding this type of gender biased language, we argue that this practice opposes the principle of equal opportunity and reinforces gender inequality. When language conveys gender stereotypes, it can act as a subtle or implicit form of discrimination, discouraging women from pursuing certain jobs. Implicit discrimination, which may be unintentional and beyond the discriminator's awareness (Bertrand et al. 2005), nonetheless perpetuates gender inequality in the labor market.

Gender-neutral language is currently a topic of much discussion, and those advocating for it draw on key principles from feminist language critique. The feminist language critique highlights that language shapes gender stereotypes, which then become ingrained in our perceptions and thoughts, thus reinforcing gender hierarchies. The current language norm where masculine terms are considered neutral, perpetuates men as the norm and everyone else as deviations. The recent language norm creates an asymmetry between the genders (Frank 1992). Various studies support this conclusion. For example, Stahlberg et al. (2007) show that supposedly neutral forms such as the generic masculine are spontaneously and immediately associated with men as typical referents. Additionally, languages that integrate gender into their grammatical structure have been linked to higher levels of gender inequality. In a cross-country comparison, Prewitt-Freilino et al. (2012) found a correlation between the language system and the level of gender inequality controlling for other influencing factors, such as geographic location or culture. Similarly, Jakiela and Ozier (2020) show a lower female labor force participation in countries whose native languages use grammatical gender. Over time, the stereotypical associations in the written English language have diminished, yet they are still prevalent (Jones et al. 2019). These examples show that language correlates with perception, thinking, and behavior, and contributes to the perpetuation of gender inequality.

Thus, language serves as a factor in social inequality, especially when it leads to disadvantages for women in the labor market. Language is particularly important when addressing individuals, such as in job ads. Gender biased language has an impact on women and employers in subtle ways that may go unnoticed. However, we can interpret the use of gender biased language in job ads as a form of normative discrimination. Normative discrimination involves treating individuals unfairly based on societal norms and expectations that dictate certain behaviors, attitudes, and characteristics as suitable for one gender but not the other (Ridgeway and Correll 2004; Benard and Correll 2010). Gender stereotypes are closely connected to social norms

because people's beliefs about gender influence what they view as acceptable or appropriate behavior for men and women (Ellemers 2018). In general, social norms provide cues about what behavior is likely to be effective and accepted (Cialdini and Trost 1998), and people tend to conform to them. If one conforms to gender stereotypes, one is more likely to be evaluated positively by others and oneself (Eagly et al. 2000) - which subsequently raises the probability of acting in line with gender stereotypes.

Whether or not gender stereotypes have been completely internalized or are part of one's self-view, the pursuit of social recognition clarifies why gender stereotyping in job ads affects women's job application behaviors and employers' choices of candidates. Job-seeking women may feel like they do not fit the gendered expectations of the role, or may feel that they will not be taken seriously or given the same opportunities as their male counterparts. Employers may refrain from hiring women because stereotypes can influence the evaluation of job applicants and lead to the selection of candidates who are perceived as more fitting with traditional gender roles. Both mechanisms are relevant for the horizontal dimension of occupational gender segregation and for its vertical dimension. Particularly supervisory and leadership positions are often male-stereotyped as employer look for candidates that are, for example, assertive and achievement-oriented.

3 Data

For the empirical analysis, we created a dictionary of agentic and communal words that signal gender stereotypes based on social-psychological research. Then, we applied this dictionary to a sample of nearly one million German job ads from the “BA-Jobbörse”. At the occupational level, we extracted the content of the job ads with respect to agency and communal signal words using text-mining methodology and aggregated this information.

Accurate operationalization of occupations is essential to our analyses. To comprehensively explore the patterns of gender stereotyping in the labor market, it is essential to not only distinguish between occupations, but also to identify salient patterns within occupations (Campero 2021; Martin-Caughey 2021), which enables us to observe whether individuals are sorted into different positions within an occupation. This level of detail is particularly important for our work, as it allows us to measure gender stereotyping very accurately. Therefore, we use a very detailed operationalization of occupations in Germany, the 5-digit German classification of occupations 2010 (KldB 2010). This comprehensive level of classification not only

differentiates between occupations but also allows us to use variation both between and within occupations. Importantly, it allows us to distinguish hierarchical job positions within an occupation in two ways: Supervisory and leadership positions, and subdivisions of the occupational required skill level into unskilled or semi-skilled activities, skilled activities, complex activities, and highly complex activities.[2] Using this detailed classification provides us with the precision needed to identify gender stereotyping in the labor market.

Dictionary of agentic and communal signal words

In our study, we operationalize gender biased language in job ads as language and characteristics that are commonly associated with one gender. Specifically, social-psychological research has shown that men are more commonly associated with agentic characteristics, while women are often associated with communal characteristics (e.g., Eagly and Karau 2002; Rudman et al. 2012). To identify words that describe agentic and communal characteristics in job ads, we constructed a dictionary of agentic and communal signal words by drawing from established social-psychological research.

While there is no established definition for which words should be classified as agentic or communal, social psychologists have used a two-step process to develop lists of gendered characteristics. First, they created a list of personality traits, and then they prioritized these traits based on whether they are regarded as more socially desirable for one gender compared to the other. The Bem Sex Role Inventory (BSRI), which was originally developed by Bem (1974) and has been updated and validated for German language use by Schneider-Düker and Kohler (1988) and Troche and Rammsayer (2011), is one widely used collection of such words. Besides the BSRI, we use a scale developed by Berger (2010) that follow a similar ranking process. We also incorporated words identified in prior studies on gender stereotypes conducted by Gaucher et al. (2011) and Hentschel et al. (2019).

The resulting dictionary comprises 88 agentic signal words and 73 communal signal words, which are characteristics widely regarded as either gender-attributed or gender-associated by

[2] Note that in the occupational code leadership positions are marked with a „9“ in the 4th digit of the occupational code whereas the required skill level is marked with a number between „1“ (for unskilled activities) and „4“ (for highly complex activities) in the 5th digit. Hereby, „unskilled or semi-skilled activities“ do not require formal qualification or only short term training; „skilled activities“ usually require a formal vocational education training of at least 2 years; „complex activities“ usually require a university degree or master craftsman’s certificate; and „highly complex activities“ usually require a university degree or similar and, beyond that, profound professional experience or further formal highly specialized qualification certificates like a doctorate or a habilitation.

scholars. Next, we use this dictionary to analyze the job ads data by identifying and extracting the specified dictionary words.

Data on job ads

To examine the usage of agentic and communal signal words, we analyzed a sample of job ads posted on the "BA-Jobbörse", an online job platform offered by the Federal Employment Agency.[3] Specifically, we selected job ads published between October 1, 2019, and November 30, 2019, based on the ad creation date, thereby ensuring that each job ad was included only once.[4] Our dataset comprises nearly 1.05 million job ads obtained through this selection process.[5]

In order to standardize the job ad texts, we subjected them to comprehensive pre-processing procedures using text mining techniques. These procedures included converting certain characters to lowercase, removing non-relevant words based on a stop word list, fragmenting the text into analyzable word units, and shortening synonymous words to their common stem (for more details, see Stops et al. 2021).

After pre-processing the job ad texts, we identify the parts of the job ads that specify the qualifications required from applicants and describe the activities to be performed. This segmentation procedure is essential to avoid misinterpreting certain words in the job ads as stereotypical job descriptions. Job ads serve several purposes, including presenting the company or institution and providing functional parts with legal information or notes on specific applicant groups or the application process. We exclude any parts of the job ad texts that contain company presentations, legal information, or notes on the application procedure as they are not relevant to our analysis of gender biased language in job ads. By focusing on the job description section, we ensure that we accurately identify and measure any gender stereotypes present in the job ads.

[3] The "BA Jobbörse", now has been called "Jobsuche der BA" since Spring 2022, is a major online job portal in Germany with over 1.6 million vacancies registered in its database as of August 14, 2019. The platform is free of charge for both applicants and companies. While individuals can search for vacancies directly on the site without registration, registration is required for further services. Companies can create a profile to create and publish job ads, which are available for up to 30 days and can be renewed. Additionally, companies can request support from the BA's placement services and can publish job ads automatically through an interface.

[4] A cross-sectional survey of job ads that are actively published during a specific period longer than the survey frequency would include the same vacancies multiple times.

[5] In our analysis, we did not weigh the job ads (contents) with the number of positions they are published for, even though employers may create a job ad for several vacancies with the same characteristics and for different places of work, as this information is included in our data. We made this decision because our main focus is to understand how employers use communal and agentic words in job ads for each occupation, on average.

Our analysis focuses specifically on the explicitly stated requirements for applicants and job descriptions in the job ad texts. To accurately isolate and analyze this relevant part of the text, we employed a classification procedure based on machine learning algorithms to label it as the "job description" section, while separating the remaining "other" parts which are not relevant to this study.[6] To ensure the quality of the job ads used in our analyses, we implemented two quality checks. We removed all job ads from our dataset that used less than 20 words in the "job description" section, as this indicates a lack of effort or care in the job ad creation process. Moreover, we excluded all jobs for which there were less than 30 job ads to increase robustness to outliers. These quality checks resulted in the removal of a small number of job ads (91,315 in the first check and 3,350 in the second), leaving us with a final dataset of 952,151 job ads for 710 occupations to use in our analyses.

To determine the presence of gender biased language in job ads, we compared the processed text in the "job description" section of the ads to our dictionary of agentic and communal signal words. We considered the number of occurrences of each identified agentic and communal signal word in the job ad text. Building on earlier research by Tilcsik (2011) and Yavorsky (2019), we incorporated all the language used in a job ad and analyzed the interplay of various agentic and communal signal words, rather than focusing on a single word alone. This method allows us to understand the broader context of the job ad. We count the number of agentic and communal words used in job ads for each occupation at the 5-digit level of the KldB 2010. Across all job ads, we found 82,963 agentic signal words and 114,764 communal signal words.

4 Results

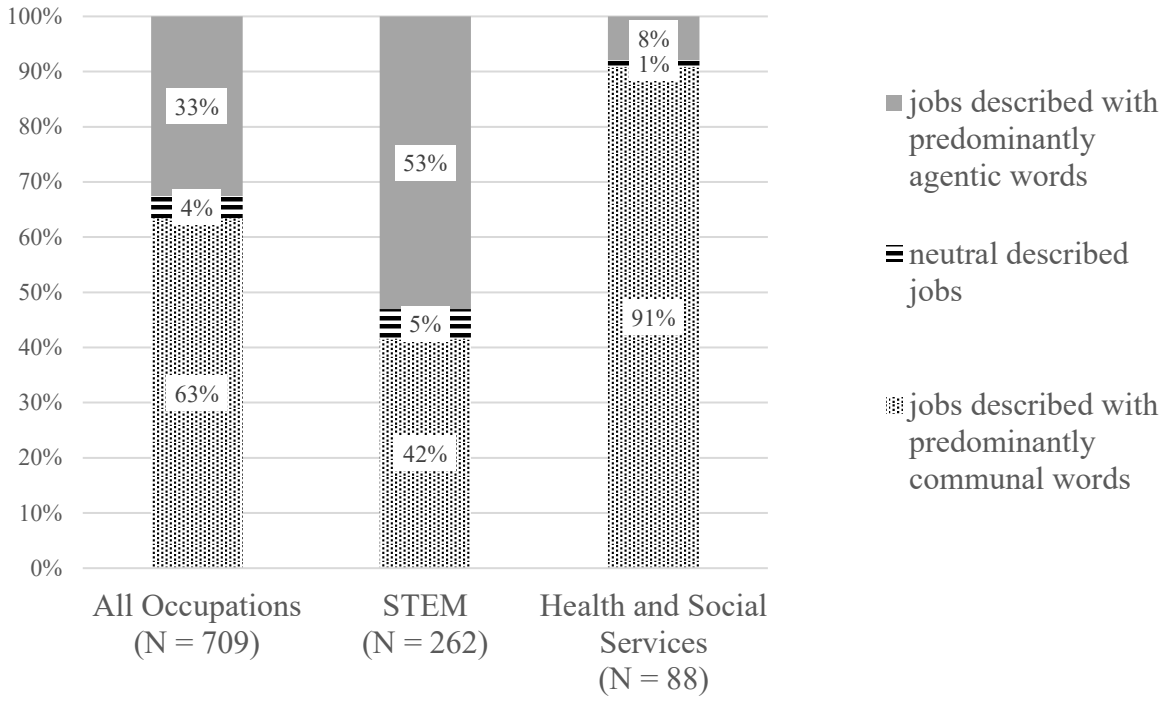
This section shows the pattern of gender stereotyping in job ads and its association with occupational gender segregation in the German labor market. For that purpose, we calculate the share of agentic words on the total of agentic and communal signal words in each occupation as a measure of gender stereotyping. For the following Figures, we categorized each occupation type according to the 5-digit code of the KldB 2010 with a greater number of communal signal words than agentic signal words as female stereotyped (share of agentic words < 0.5), while we categorized those with more agentic words as male stereotyped (share of agentic words > 0.5). Occupations with an equal number of agentic and communal signal words were considered

[6] This differentiation was achieved through multiple steps: initially, the job ad texts were processed using a term frequency/inverse document frequency algorithm (TFIDF), which prepared them for further analysis. The TFIDF algorithm "vectorizes" the texts by assigning a unique vector to each token. Subsequently, 1,182 job ad texts were manually segmented, with segment tags for "job description" and "other" added. These tagged texts were then used in their vectorized form to train the classifier (see Stops et al (2021) for more details).

gender-neutral. This coding approach generated a trichotomous categorical measure that encompasses jobs described with predominantly communal words as female stereotyped, jobs described with predominantly agentic words as male stereotyped, and neutral described jobs.

First, we discuss the pattern of gender stereotyping across all occupations. Subsequently, we examine how gender stereotyping is linked to occupational gender segregation, focusing on Science, Technology, Engineering, and Mathematics (STEM) occupations and on Health and Social Services occupations.[7] These two fields, which are predominantly held by men or women, respectively, highlight the association between gender stereotyping and occupational gender segregation. An alternative way of presenting this information is to classify all occupations into three categories (male, female, mixed), which is included in the appendix (see Figure A1 in the appendix). Second, we examine the vertical aspect of occupational gender segregation by analyzing gender stereotyping at different skill requirement levels and at positions with leadership and supervisory responsibilities.

Figure 1: Gender stereotyping and its association to horizontal occupational gender segregation



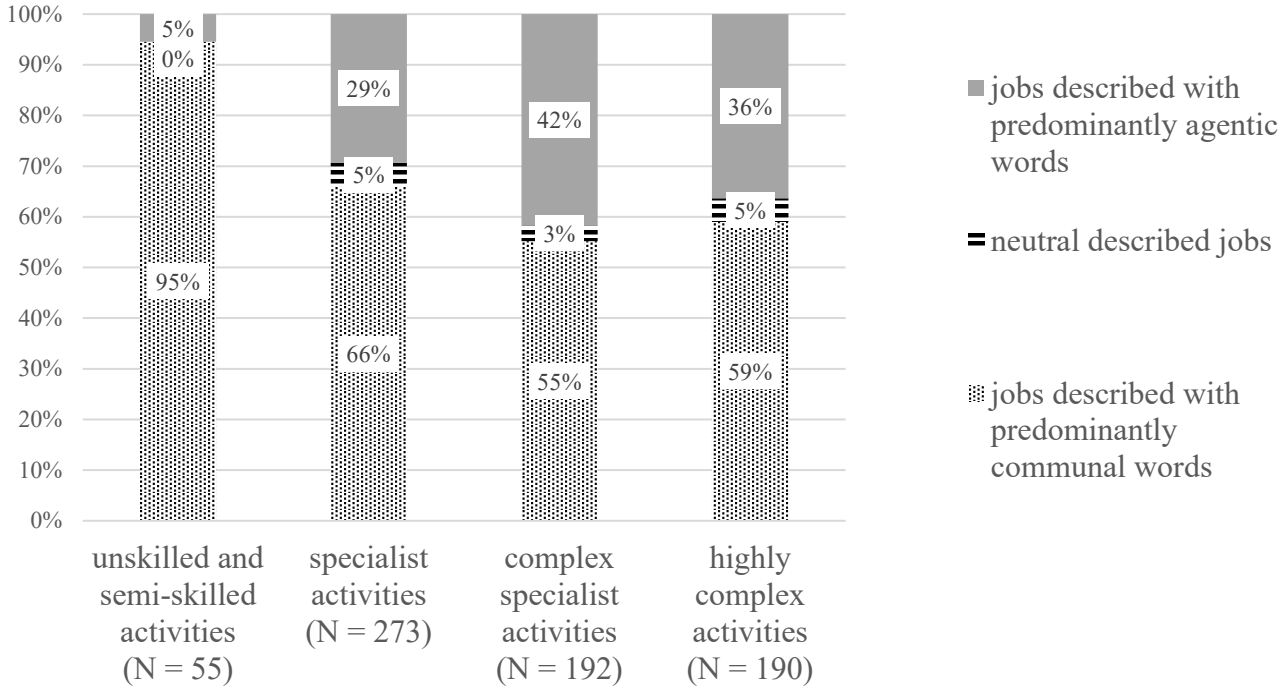
Source: Own calculations.
Note: N denotes the number of single occupations at the 5-digit level within each occupational area.

[7] Based on the KldB 2010, we have assigned various occupations into the occupational field STEM, following the classification of the Federal Employment Agency (https://statistik.arbeitsagentur.de/DE/Navigation/Grundlagen/Klassifikationen/Klassifikation-der-Berufe/KldB2010-Fassung2020/Arbeitsmittel/Arbeitsmittel-Nav.html). We have assigned all occupations within the occupational segments 81, 82, and 83 to the occupational field Health and Social Services.

Figure 1 shows the patterns for all occupations and differentiated by STEM and Health and Social Services. Regarding all occupations, Figure 1 reveals that employers are more likely to use communal signal words than agentic signal words in the majority of occupations (two-thirds). In detail, the trichotomous categorical measure categorizes 450 occupations and occupational positions as female-stereotyped, 232 as male-stereotyped, and 28 as neutral. The higher proportion of female-stereotyped jobs is the case despite the presence of a wider range of agentic signal words in our dictionary (88 agentic signal words and 73 communal signal words). This could indicate an increasing recognition of the value of communal attributes in jobs, and a shift away from a more traditionally male-oriented focus. These findings are consistent with previous research conducted on job ads in the United States (Yavorsky 2019).

When comparing the patterns of gender stereotyping in STEM with those in Health and Social Services, the association between gender stereotyping and occupational gender segregation becomes evident. In STEM, over half of all jobs are male-stereotyped, and 42 per cent are female-stereotyped. In contrast, in Health and Social Services, a small number of only 8 per cent of all jobs are male-stereotyped, while more than 90 per cent are female-stereotyped.

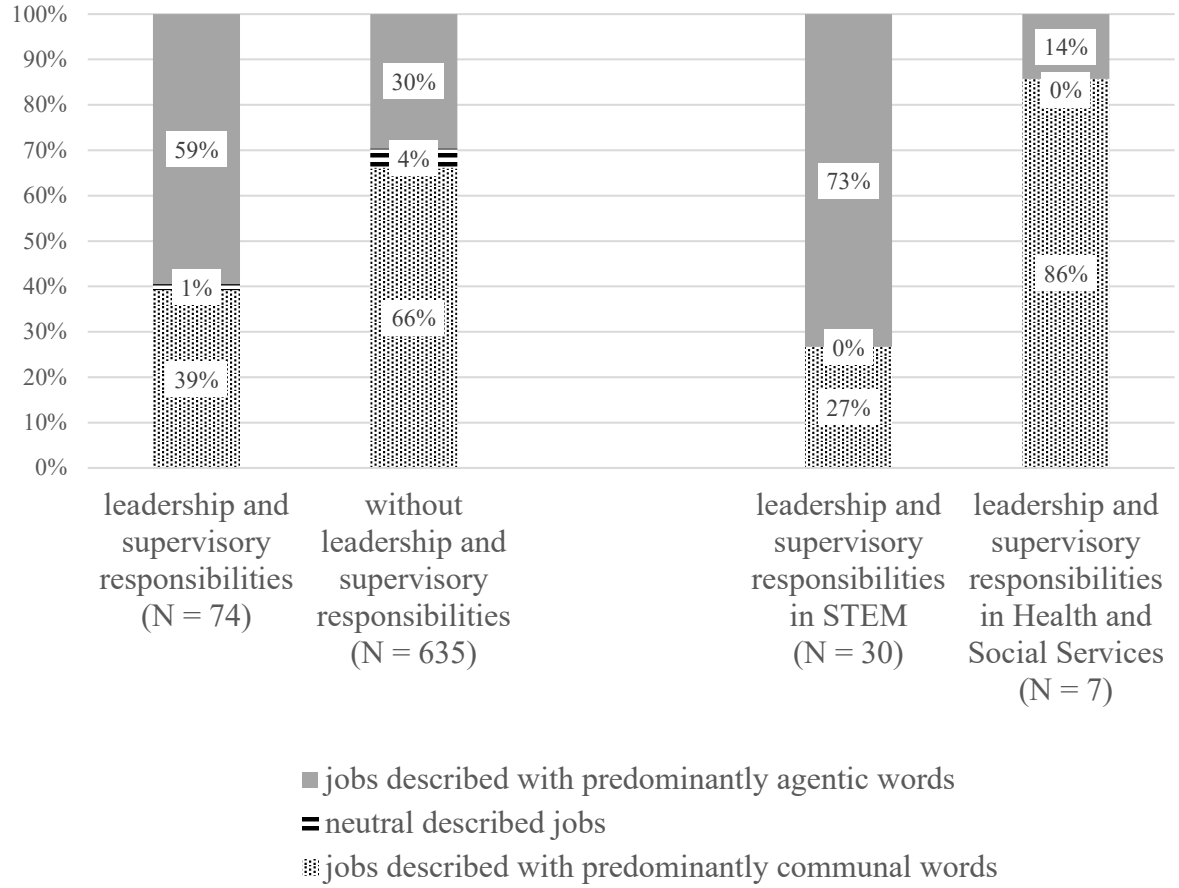
Figure 2: Gender stereotyping and its association to vertical occupational gender segregation – required skill level



Source: Own calculations.
Note: N denotes the number of single occupations at the 5-digit level within each occupational area.

Figure 2 shows the difference in gender stereotyping across the required skill level of jobs. The results show two main patterns. First, in jobs with the lowest required skill level that involves unskilled or semi-skilled activities, almost all jobs were female stereotyped. Second, for the other three qualification requirements (specialist, complex specialist, and highly complex activities), we observe only small differences. The proportion of male-stereotyped jobs ranges from 29 per cent for specialist activities to 42 per cent for complex specialist activities. Jobs with highly complex activities are in between at 36 per cent. For STEM and Health and Social Services, the pattern is analogous to that in Figure 2. Only occupation-specific level differences can be observed. In STEM, the share of male-stereotyped jobs is higher across all skill levels, while in Health and Social Services the share is lower (see Figure A2 and A3 in the appendix).

Figure 3: Gender stereotyping and its association to vertical occupational gender segregation – leadership and supervisory positions



Source: Own calculations.
Note: N denotes the number of single occupations at the 5-digit level in each analyzed group.

Figure 3 contrasts jobs with and without leadership and supervisory responsibilities on the left and shows the interaction between jobs with leadership and supervisory responsibilities in Health and Social Services and in STEM on the right. The comparison between jobs with and without leadership and supervisory responsibilities clearly demonstrates the gender stereotyping pattern. Among leadership and supervisory positions, 59 per cent are male-stereotyped, while only 39 per cent are female-stereotyped. In contrast, for jobs without leadership and supervisory responsibilities, only 30 per cent are male-stereotyped, while 66 per cent are female-stereotyped.

The comparison of leadership and supervisory positions in STEM and Health and Social Services indicates that these roles are not inherently stereotyped as male. Although leadership and supervisory positions in STEM show even greater male stereotyping than the average,

leadership and supervisory positions in Health and Social Services are quite different. In this sector, only 14 per cent of the jobs are stereotyped as male whereas with 86 per cent the most jobs are stereotyped as female.

5 Discussion and conclusion

This study on gender stereotyping and its relation to occupational gender segregation extended prior research (Gorman 2005; Kmec 2006; Tilcsik 2011; Yavorsky 2019) by providing a comprehensive and nuanced picture of the actual pattern of gender stereotyping in job ads in the German labor market. Overall, we found that the majority of occupations (two-thirds) is female-stereotyped, while only one-third is male-stereotyped. At first glance, this is an encouraging result with regard to gender equality in the labor market. However, if we look at the use of gender stereotypes for different, horizontal and vertical occupational segments, a far more nuanced picture emerges. Focusing on two important occupational fields, Science, Technology, Engineering, and Mathematics (STEM) and Health and Social Services, the results showed that gender stereotyping is strongly associated with occupational gender segregation, with over half of STEM jobs being male-stereotyped, while 91 per cent of jobs in Health and Social Services are female-stereotyped. This could contribute to the continued underrepresentation of women in STEM and thus to the gender wage gap.

With regard to the vertical dimension of occupational gender segregation, we focused on different job requirement levels and supervisory and leadership positions. The required skill level of jobs is only weakly related to gender stereotyping, with only small differences observed between specialist, complex specialist, and highly complex activities. Nevertheless, the fact that nearly all jobs with unskilled or semi-skilled activities are female-stereotyped shows that female attributes are considered less valuable in the labor market, as these jobs are typically lower paid and offer fewer opportunities for advancement. In line with these findings, employers assess characteristics attributed to women as less valuable than male characteristics (Drydakis et al. 2018).

Moreover, we investigated gender stereotyping in jobs with and without leadership and supervisory responsibilities, and found that 60 per cent of leadership and supervisory positions are male-stereotyped, while only 30 per cent of jobs without leadership and supervisory responsibilities are male-stereotyped. This could be a contributing factor to the persistent underrepresentation of women in leadership positions, as well as the gender wage gap.

However, leadership and supervisory positions do not necessarily carry male stereotypes, as the comparison between leadership and supervisory positions in STEM and Health and Social Services indicates. The results showed that only 14 per cent of leadership and supervisory positions in Health and Social Services are stereotyped as male, while in STEM, leadership and supervisory positions show even greater male-stereotyping than the average.

In conclusion, the results suggest that male-stereotyping in job ads is an issue, particularly in certain occupational fields such as STEM, which may contribute to gender inequality by perpetuating gendered norms and expectations about what types of jobs are suitable for men and women (cf., Napp and Breda 2022). By using language that conveys stereotypical characteristics and expectations associated with men, job ads create an unwelcoming and discriminatory environment for women. Women are discouraged from applying for jobs they are qualified for (e.g., Gaucher et al. 2011), and when they do apply, they are more likely to be perceived as less competent and suitable, simply because of their gender (e.g., González et al. 2019). Gender stereotyping in job ads seems to be one factor that perpetuates the underrepresentation of women in certain occupations and occupational positions and contributes to the overall gender wage gap and other forms of gender inequality in the labor market.

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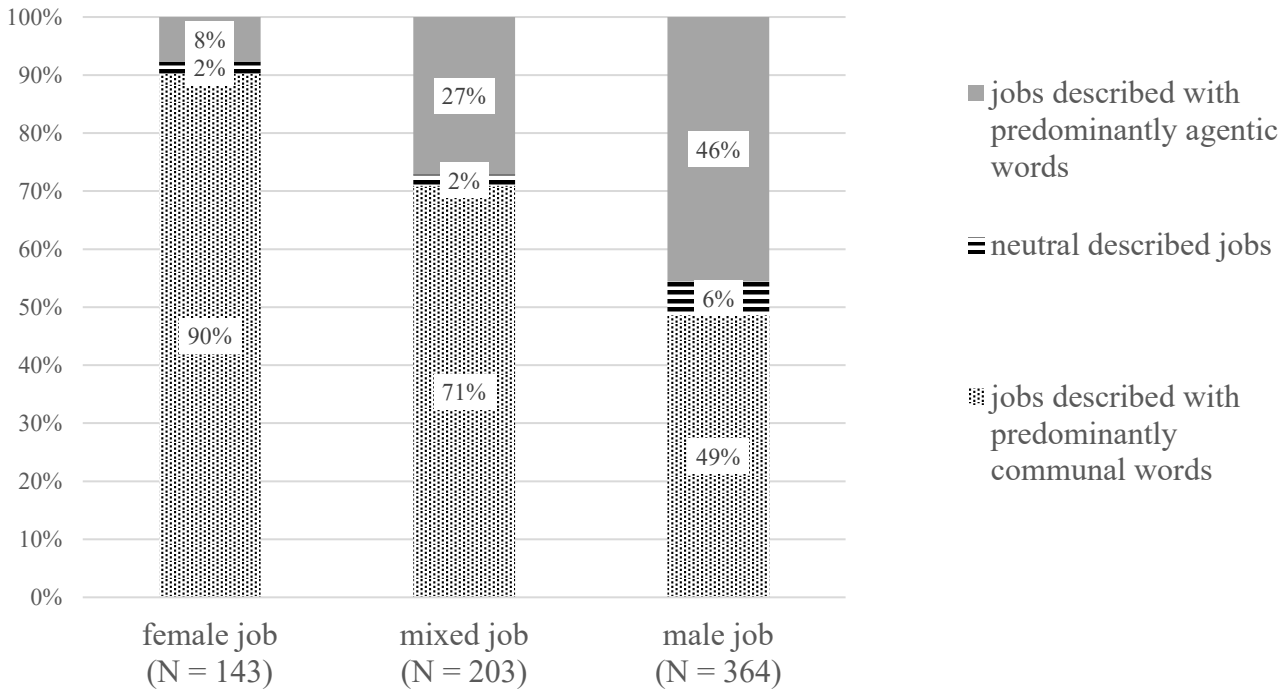
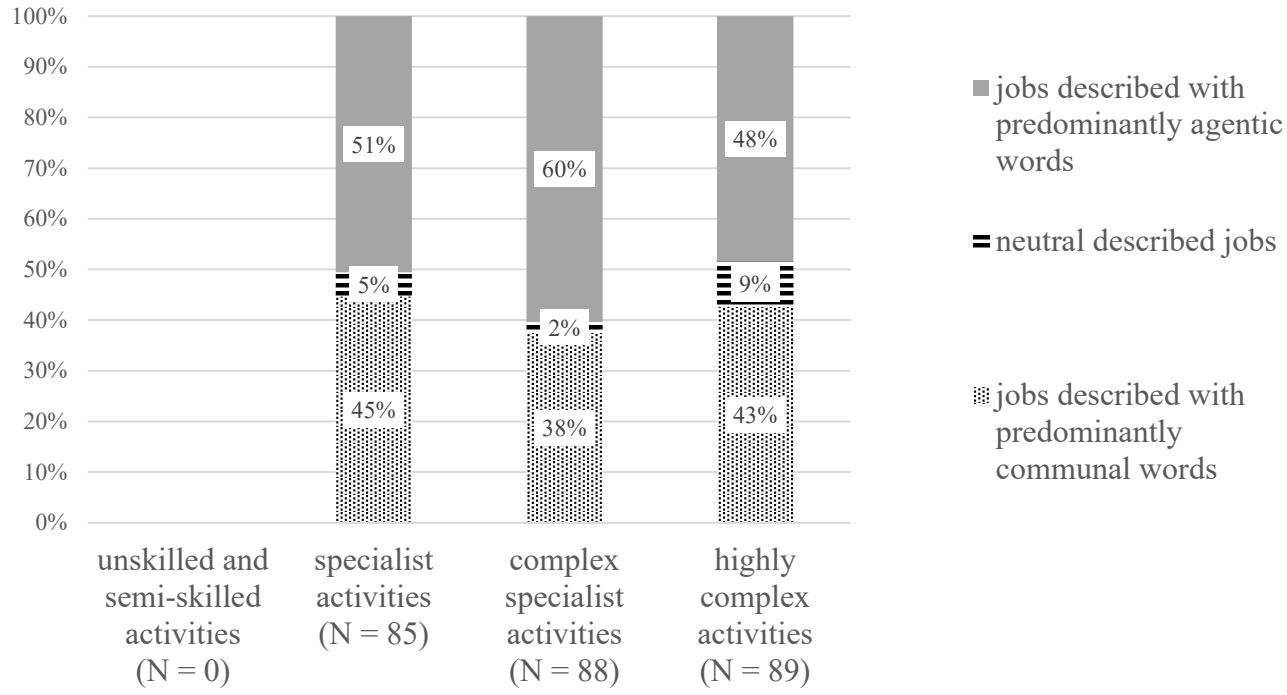
Appendix

Figure A1: Gender stereotyping and its association to male-, female-, mixed-jobs



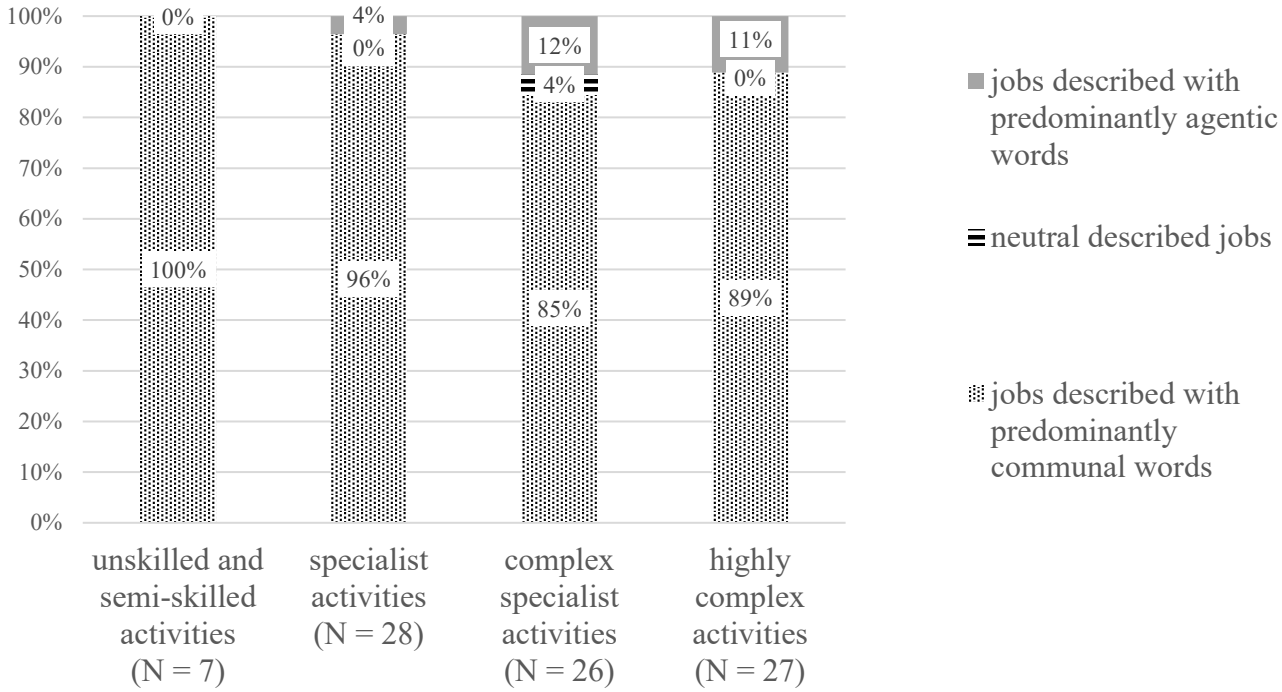
Source: Own calculations.
Note: N denotes the number of single occupations at the 5-digit level in each required skill level. We classify jobs as female if they have a proportion of women that is 66 percent or higher, and similarly, we classify jobs as male if they have a proportion of men that is 66 percent or higher.

Figure A2: Gender stereotyping and its association to vertical occupational gender segregation –required skill level in STEM



Source: Own calculations.
Note: N denotes the number of single occupations at the 5-digit level in each required skill level.

Figure A3: Gender stereotyping and its association to vertical occupational gender segregation –required skill level in Health and Social Services



Source: Own calculations.
Note: N denotes the number of single occupations at the 5-digit level in each required skill level.