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RESEARCH ARTICLE

Is there a beauty is beastly effect in electoral success? An empirical analysis of the German federal elections 2005 to 2021

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Abstract
Research shows that attractive women may face disadvantages in male-dominated contexts or those stereotypically associated with masculinity, because they tend to be ascribed more stereotypically feminine character traits and capabilities. This is known as the "beauty is beastly effect." However, its impact on political elections remains largely unexamined. This study investigates whether such an effect exists for female candidates in Germany, where political competition is male-dominated and rewards stereotypically masculine traits. Using a comprehensive data set from the 2005 to 2021 federal elections, we empirically test for interactions between gender and physical attractiveness. Despite extensive multilevel analyses, no evidence was found for the "beauty is beastly effect" in this context. Nevertheless, positive main effects suggest female candidates may still face disadvantages. Possible explanations for these findings are discussed.

Keywords: candidates; discrimination; federal elections; physical attractiveness; multilevel analyses

Introduction

A person's physical attractiveness can influence how their life unfolds in various areas of life from early childhood onwards: more attractive infants get more attention from their caregivers, are awarded better grades in schools, are subsequently more popular among their peers, find jobs faster, earn more, and win promotions earlier than less attractive people (Hamermesh, 2011; Langlois et al., 1995; Lerner & Lerner, 2021). Attractiveness seems to provide a boost even in politics: evidence from various countries and political systems shows that attractive candidates and politicians, on average, generate a higher vote share for themselves and their parties than their less attractive competitors (e.g., Berggren et al., 2010; Jäckle et al., 2020; Jäckle & Metz, 2017; King & Leigh, 2009; Lawson et al., 2010; Lutz, 2010; Potrafke et al., 2020; Praino et al., 2014; Rosar & Klein, 2020; Stockemer & Praino, 2017).

Electoral research has also demonstrated that female candidates remain at a disadvantage in comparison with male candidates in modern democracies (e.g., Bieber, 2022; Fox & Lawless, 2010; Gulzar, 2021; Schwindt-Bayer, 2005; Schwindt-Bayer & Squire, 2014). The reasons for this disparity are complex and not yet fully understood. There are good reasons to assume that an interaction between gender, physical appearance, and the situational context such as the competition for political power could also play a role here. This article aims to address this research gap by drawing on insights from attractiveness research to explain why female candidates are penalized by voters. Specifically, the "beauty is beastly effect" that has been shown in other social spheres is investigated as a possible explanation for gender disparities in electoral success. The underlying rationale of this effect posits that in domains

associated with masculinity, attractive women face a disadvantage due to the non-attribution or perceived lack of traits deemed essential in these domains. If politics is understood as such a domain of action with masculine connotations, it is plausible that a "beauty is beastly effect" could occur in this context and that it could be a factor underlying or at least contributing to the competitive disadvantages faced by women seeking election to political office.

These considerations are investigated empirically below, starting with an initial discussion of underlying mechanisms determining how physical attractiveness unfolds its social impact, followed by a discussion of the relevance of these mechanisms in the political sphere. The male-dominated nature of politics—both in terms of the factual situation and prevailing stereotypes—is highlighted. Hypotheses concerning the relationship between gender, physical attractiveness and vote shares are derived assuming a disadvantage for female candidates, especially those who are particularly good-looking. The hypotheses are then tested based on data from five German federal elections from 2005 until 2021 by estimating multilevel models adjusting for a wide range of covariates. The results do not support the existence of a "beauty is beastly effect." The effect does not become evident even when testing further specifications that address gender differences, i.e., considering only male-dominated parties, testing for nonlinearity, controlling for each election year, and estimating models separately for male and female candidates. Finally, the importance of gendered effects is discussed when studying candidate appearance on electoral outcomes and future areas of research are outlined.

Potential causal mechanisms of physical attractiveness in politics

Physical attractiveness can naturally only have an impact in social interactions when it is recognized relatively consistently. Attractiveness research has uncovered that beauty does not actually—despite the old saying—lie in the eye of the beholder. Although idiosyncratic and cultural differences exist, people are relatively united in their appraisals of who is attractive and to what degree (see also Cunningham, 1986; Cunningham et al., 1990, 1995). This mechanism has been termed the "attractiveness consensus" (Rosar et al., 2008). From the perspective of evolutionary psychology, characteristics that serve as prospective indicators of reproductive success are considered attractive—characteristics, in other words, that are associated with health, fitness, and youthfulness (e.g., Cunningham et al., 2002; Grammer et al., 2003).

More attractive people are noticed more—and more quickly—by those around them; this phenomenon has been termed the "attractiveness attention boost" (Klein & Rosar, 2017). Attractive people are consequently more visible in social spaces and people remember them and their actions better (see also Maner et al., 2003; Mulford et al., 1998).

The best-known mechanism is probably the "attractiveness stereotype". Consistent with the well-established "halo effect" in psychology, individuals deemed attractive are automatically and subconsciously attributed positive character traits, guided by the implicit belief that "what is beautiful is good" (Dion et al., 1972, p. 289). For instance, more attractive people are often seen as more successful, competent, intelligent, and likeable than their less attractive counterparts (Eagly et al., 1991; Langlois et al., 2000; Zebrowitz et al., 2002).

Attractive people also benefit from an "attractiveness glamour effect" that makes it more likely that any wrongdoing on their part will not be perceived as such by others or will be attributed to external factors (Bassili, 1981; Klein & Rosar, 2017). This happens because the positive image created by stereotypical perception would otherwise be damaged.

Be it due to the mechanisms described above, attractive people receive more favorable treatment in their social environments. The phenomenon that more attractive people are shown more respect, have more trust placed in them, and receive more support (and therefore have an advantage over less attractive people in social interactions) has been termed the "attractiveness treatment advantage" (Klein & Rosar, 2017; Langlois et al., 2000).

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Taken together, these various mechanisms constitute an "attractiveness competition advantage" or "beauty premium" that people who are good-looking benefit from in a variety of situations and social domains. The advantages of beauty in the partner market are obvious, but considerable evidence supporting the influence of appearance in the workplace also exists (for an overview, see e.g., Hamermesh, 2011). More attractive people are more likely to be invited to job interviews when photographs are part of their CVs, their salaries are on average higher, and they tend to be promoted at an earlier stage and more rapidly (Hamermesh & Biddle, 1994; Hosoda et al., 2003; Shapir & Shtudiner, 2022; Watkins & Johnston, 2000). In this light, it is hardly surprising that physical attractiveness is also relevant in the political arena: numerous studies demonstrate that physical appearance can play a role in the voting choices made by the electorate — and sometimes also the party selectorate (Laustsen & Petersen, 2018; Potrafke et al., 2020). Having an attractive physical appearance increases the chances of being elected. This has been shown clearly and consistently by research focused on elections based on the first-past-the-post (FPTP) principle (Potrafke et al., 2020; Stockemer & Praino, 2017). This finding has been reached by studies that examined a range of different countries and controlled for a considerable number of relevant factors (Berggren et al., 2010; Jäckle et al., 2020; Jäckle & Metz, 2017; King & Leigh, 2009; Lawson et al., 2010; Lutz, 2010; Potrafke et al., 2020; Praino et al., 2014; Stockemer & Praino, 2017). Even in elections in which candidates are not directly elected, the physical attractiveness of candidates has been identified as an influence on the performance of the parties for which they stand, albeit to a lesser extent and less consistently (Rosar & Klein, 2020). The effectiveness of candidates' appearance does not depend on the level of political competition: attractiveness has been shown to have positive effects in local or mayoral (Berggren et al., 2010; Rosar et al., 2012), regional (Rosar, 2009; Rosar et al., 2008), national (e.g. Jäckle & Metz, 2017; Lutz, 2010), and supranational elections (Rosar & Klein, 2014).

The reasons underlying the effects of candidate appearance in political contexts can be identified, directly or indirectly, in the causal mechanisms outlined above (for a detailed account, see Klein & Rosar, 2017, pp. 692–694). The direct effects of attractiveness can be expected to lead to voters recognizing attractive politicians as such, paying more attention to them, and remembering them better. They can also be expected to make voters more likely to forgive them for blunders (see also Stockemer & Praino, 2019) and attribute positive character traits to them such as competence and a capacity to perform at a high level (see also Todorov et al., 2005; Verhulst et al., 2010). Indirect effects that could be expected include attractive politicians receiving more favorable treatment from journalists and media professionals and, for instance, being featured more frequently and in a more positive light (see also Markowitz-Elfassi & Tsfati, 2019; Maurer & Schoen, 2010; Waismel-Manor & Tsfati, 2011). More attractive politicians could, finally, even have a genuine productivity advantage over less attractive competitors if self-fulfilling-prophecies lead to them being able to count on preferential treatment from an early stage and having higher social but also human capital resources as a result (for a similar line of thinking, see Converse et al., 2016; Nault et al., 2020). For their actual behavior once elected there is evidence that attractive politicians are more absent from parliament and engage more in activities outside of their work as members of parliament (Gründler et al., 2024).

The "beauty is beastly effect"

Attractiveness effects, however, are not always positive and linear. Beyond the mechanisms discussed above, additional mechanisms also moderate the influence of appearance in certain situations and contexts of action (for an overview, see Klein & Rosar, 2017; Rosar et al., 2008). One of them is the "beauty is beastly effect": when specific conditions are met, the positive influence of attractiveness can turn into a disadvantage. The "beauty is beastly effect" is inherently gendered. Given that attractive people are not only more likely to have positive character traits ascribed to them to a greater extent, they are also likely to be perceived as very feminine or very manly, respectively, as feminine women and masculine men are seen as particularly attractive. As a result, gender stereotypes are easily ascribed to them (see, for example, Lippa, 1998), e.g., this means that attractive women are more likely to be

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perceived as empathetic and caring, but also as less competent and decisive. On the other hand, attractive men are more likely to come across as dominant and powerful. Once an attractive person (e.g., woman) moves into a sphere that is dominated by the "other" gender (e.g., politics) or seems to require traits stereotypically associated with the "other" gender (e.g., masculinity), they (e.g., women) tend to have less competence and a lower capacity for performance ascribed to them. Thereby, the "beauty is beastly effect" in explaining disadvantages of (attractive) women substantially overlaps with Eagly and Karau's role congruity theory (2002) which suggests that an incongruity between female gender roles and expectations for leadership roles leads to prejudices.

Gender stereotypes of political candidates have recently gained attention, particularly in the U.S., starting with the political socialization and aspirations for a political career, differences in media coverage of candidates, political careers and public perceptions (e.g., Bos et al., 2022; Ladam et al., 2018; Lawless, 2015; Sweet-Cushman, 2022; Van der Pas & Aaldering, 2020). There has been an examination of the role of stereotypes for voting behavior which did not find an effect for gender stereotypes on actual vote choice even though the stereotypes are widely accepted by voters (Dolan, 2014). However, the role of physical attractiveness has not been examined in this context.

To date, the "beauty is beastly effect" has been primarily observed in the context of the career progression of attractive women in roles within areas such as management, the military, and IT (Johnson et al., 2010; Paustian-Underdahl & Walker, 2016). Heilman and Saruwatari (1979) used a factorial design in their pioneering study on the "beauty is beastly effect." They asked participants to rate the attractiveness of job applicants and to judge their suitability for either a management or non-management position. This way, they were able to show that a high level of physical attractiveness was an advantage for women only when seeking a non-managerial role. "Looking good" was a disadvantage when it came to securing a managerial position: participants saw attractive women as less suitable for the job, opted to award them a lower starting salary, and were less likely to recommend hiring them than they were to recommend less attractive women. Although a decreasing prevalence of gender-specific stereotypes and with it the "beauty is beastly effect" is likely (Johnson et al., 2010), gender stereotypes persist. Recent studies (e.g., Paustian-Underdahl & Walker, 2016) have still found similar results comparable to Heilman's and Saruwatari's study (1979). In addition, Sheppard and Johnson (2019) found supporting evidence for what they call a "femme fatale effect" that could intensify the "beauty is beastly effect" under certain circumstances and lead to particularly attractive women being perceived as less trustworthy based on assumptions that they exploit their appearance for the purpose of manipulation.

To date, little or no research into the possible influence of a "beauty is beastly effect" in the context of political elections has been carried out, although many criteria for such an effect may well be fulfilled in this area. The "beauty is beastly effect" could provide an explanation for why (attractive) female candidates are not only penalized by the electorate, but often also at a disadvantage with their fellow party members—the party selectorate. This should be the case for party systems and societies that are to this day influenced by traditional gender roles, e.g., modern democracies in Western countries with strong conservative or Christian parties (e.g., Bale & Krouwel, 2013; Giuliani, 2022). Two conditions need to be met to ascertain effects that could be subsumed under a "beauty is beastly effect": firstly, the relevant domain of action would need to be factually dominated by or stereotypically associated with one gender, and secondly, attractive people belonging to a given group of people (women, for example) would need to be shown to be disadvantaged vis-à-vis less attractive members of the same group or people from a different group.

The German case

Following these assumptions, Germany can be an example to investigate the "beauty is beastly effect" in politics. To address the first point: political competition for votes in Germany is indeed male-dominated and thus comparable both to other domains for which "beauty is beastly effects" have been demonstrated and to politics in most other democracies. It is noticeable that the proportion of women who ran as direct

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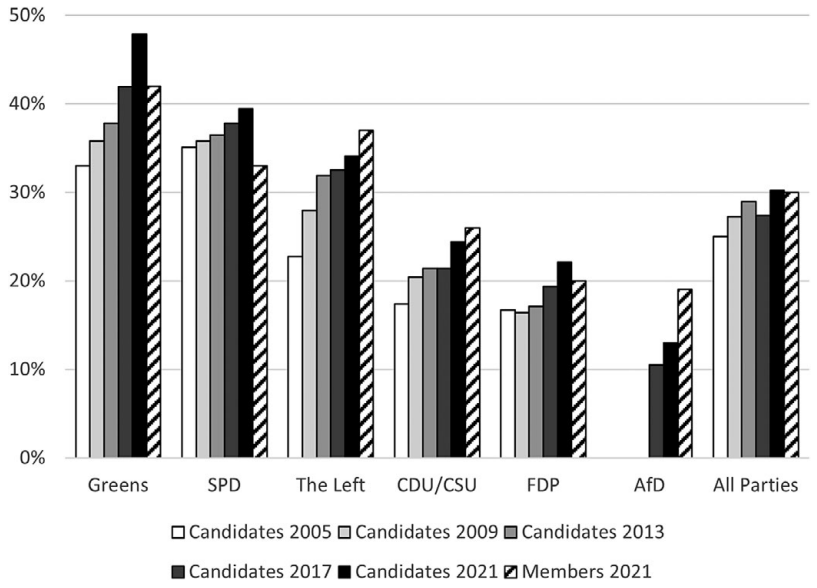

Figure 1. Share of female candidates and female party members in Germany by party and election year.

candidates for election to the German Bundestag between 2005 and 2021 was below 50% in every political party (see Figure 1). Clear differences across the left–right political spectrum are also evident: in the (more) right-wing parties (AfD, CDU/CSU and FDP), the proportion of female direct candidates lies between 11% and a maximum of just under 24% (CDU/CSU 2021). Even the Greens, who particularly value the advancement of female candidates (Bieber, 2022), had less than 50% female direct candidates in 2021. Looking at the proportion of female members in political parties in 2021 yields a similar picture: the Greens have the highest share of female members (42%) and the average proportion of female members in political parties is just under a third. A slight trend toward increasing numbers of female candidates can, however, be observed in all parties.

Gender differences in German politics

The second issue to be addressed is the evidence that (attractive) women are disadvantaged in political competition both within parties and in electoral contests. Multiple studies concerning Germany show that female candidates receive fewer votes than their male counterparts, on average, in particular under majority voting (e.g., Bieber, 2022; Holtkamp et al., 2020; Masch et al., 2021; Rosar et al., 2008). Others, however, find no clear evidence for a direct discrimination of women by the electorate (see a short overview in Deiss-Helbig, 2017, p. 390). There is, however, a consensus that an important reason for the under-representation of women in (German) politics (see also Figure 1) lies in the selection processes of the parties. Here, women are disadvantaged at different stages—from entering a party to the allocation of positions (Debus & Himmelrath, 2024; Höhne, 2020). For example, female candidates are more likely to receive party nominations to run in districts that are considered unwinnable or likely to be highly competitive (Bieber, 2016, 2022). In addition to the fact that fewer women are elected through the direct vote, a list candidacy is often a more promising option for some female candidates. Furthermore, female politicians make up about a third of the current German parliament and tend to occupy prestigious positions within the parties and political system to a lesser extent than their male counterparts (Höhmann, 2017). The reasons for this discrimination are complex and can generally be attributed to structures within parties as well as party-specific or social barriers such as stereotypes concerning female politicians (see below; see, for example, Thomsen & King, 2020; Debus & Himmelrath, 2024). These

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barriers differ between parties and party level and may hinder women from being elected at various stages of the selection process, from joining a political party and demonstrating commitment to seeking political positions and running for office.

Gender stereotypes and candidate appearance

People and candidates are perceived on at least two underlying dimensions: *warmth* and *competence* (Bittner, 2011; Fiske et al., 2002). While female candidates are often perceived as warm (e.g., friendly, likeable, trustworthy) but not competent (e.g., intelligent, able to solve problems, decisive), male candidates are often evaluated as competent and slightly less warm (e.g., Masch, 2020; Renner & Masch, 2019). The character traits seen as desirable in politics mostly correlate with stereotypes of masculinity or competence, respectively (see also Huddy & Terkildsen, 1993; Rosenwasser & Dean, 1989). It has been shown, for instance, that voters favor politicians who come across as dominant (Aichholzer & Willmann, 2020; Laustsen & Petersen, 2017). This means that attractive women can be expected to face disadvantages in election campaigns (in comparison with less attractive women and attractive men) on account of stereotypically feminine traits being ascribed to them that are incompatible with the personality traits seen as desirable in politicians. Hence, a "beauty is beastly effect" is thus likely to be found in politics since they are strongly connected to stereotypically male character traits. It is likely to occur when running for office.

Hypotheses

The following expectations to be empirically tested emerge out of what has been said so far: based on the potential causal mechanisms that have been described above, more attractive politicians can be expected to reap direct and indirect benefits from their appearance. Many international studies and studies specific to Germany demonstrate that greater physical attractiveness increases candidates' chances of being elected (e.g., Berggren et al., 2010; Jäckle et al., 2020; Jäckle & Metz, 2017; Klein & Rosar, 2005; Lutz, 2010; Potrafke et al., 2020; Rosar et al., 2008; Stockemer & Praino, 2017). This is especially true for elections in majoritarian electoral systems. Higher physical attractiveness can generally be expected to correlate positively with the share of the votes received. Therefore, the following can be expected:

H1: *The higher the physical attractiveness of a candidate, the higher their direct vote share.*

Additionally, although other studies have not identified gender disparities in vote share in the German context (e.g., Deiss-Helbig, 2017, p. 390), there is still evidence that female candidates receive fewer votes than men, on average (Bieber, 2022; Holtkamp et al., 2020)—in particular when investigating appearance effects (Masch et al., 2021; Rosar et al., 2008). Accordingly, the following hypothesis will be tested:

H2: *Female candidates receive lower direct vote shares than male candidates.*

The inconsistent findings concerning females' electoral success compared to male candidates, however, could be attributed to only a subgroup of women being disadvantaged—the group of highly attractive women—while lower levels of physical attractiveness could correlate positively with other women's chances of being elected. This could be explained by the "beauty is beastly effect" which has been found in different professions (Heilman & Saruwatari, 1979; Johnson et al., 2010; Paustian-Underdahl & Walker, 2016). This phenomenon occurs when attractive women act in domains that are dominated by men or stereotypically associated with masculinity. Competing for votes can be understood as one such domain, since women are systematically under-represented in politics and the electorate tends to value stereotypically masculine character traits in politicians more (Bos et al., 2022; Ladam et al., 2018; Lawless, 2015; Rosenwasser & Dean, 1989; Sweet-Cushman, 2022; Van der Pas & Aaldering, 2020). For example, Klein and Rosar (2005) find empirical evidence for a possible "beauty is beastly effect" in political competition:

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although an interaction between gender and physical attractiveness to estimate the first vote share in the 2002 Bundestag elections does not reach the threshold of statistical significance (see for similar results for the 2017 Bundestag election Jäckle and Metz (2019)), they show that the electorate rewards women for adopting a more masculine style. However, Jäckle and Metz (2016) find no evidence for a "beauty is beastly effect" in the 2013 German general election. Lizotte and Meggers-Wright (2019) nevertheless show that more attractive female candidates are judged more negatively than their non-attractive male counterparts when attention is drawn to their appearance. If the "beauty is beastly" effect also occurs in the political context, it can be expected that this effect is gendered, whereby very attractive female candidates are penalized for their beauty. It can, thus, be expected that physical attractiveness influences electoral success:

H3: *High levels of physical attractiveness has a positive effect on the direct vote shares for male candidates and a negative effect on vote shares for female candidates.*

Methods and data

Sample

The data set we use to test our hypotheses covers the German Bundestag elections from 2005 to 2021 for the politically relevant parties AfD (from 2017 on), CDU, CSU, FDP, the Greens (*Bündnis 90/Die Grünen*), The Left (*Die Linke*), and SPD. Our analyses are based on the "direct votes" (*first votes*) reached by direct candidates who ran for office in the 299 electoral districts. Parts of this data set (up to the 2017 Bundestag election) were already used for other studies and its design and structure have been described in the relevant publications (for an overview, see Klein & Rosar, 2017, and for further details, see Masch et al., 2021). Here is an overview:

Measurements

The data have been compiled from four sources that provide official statistics to the general public Federal Returning Officer, the German Bundestag, and the official websites of the political parties, and candidates. Based on this public information, the following candidate-centered variables were used in the analysis:

- The share of first votes received by the direct candidate.
- Year of the Bundestag election (coded in the data set from 2005 = 0 to 2021 = 16).
- Number of opposing candidates in each electoral district.
- Party affiliation of each candidate (dummy-coded in the data set with CDU-West as the reference category).
- Age of each candidate (recoded in decades).
- Squared age of each candidate (recoded in decades).
- Gender (dummy-coded in the data set with male = 0 and female = 1).
- Whether the candidate was already a sitting member of the Bundestag at the time of the election (dummy-coded in the data set with no = 0 and yes = 1).
- Whether the candidate was especially prominent at the time of the election as federal chancellor, a federal minister, the president of the Bundestag, a parliamentary group leader (or state group leader, in the case of CSU candidates), a party leader or a party's top candidate (dummy-coded in the data set with no = 0 and yes = 1).
- A portrait photograph of the candidate.

Furthermore, attractiveness ratings were obtained by rating studies conducted at the time for each Bundestag election to determine physical attractiveness scores for each candidate. Taking advantage of

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the attractiveness consensus, attractiveness research makes widespread use of the truth of consensus method for determining a person's physical attractiveness (e.g., Henss, 1992; Patzer, 1985): if practically everyone asked to rate the physical attractiveness of a person arrives at very similar results, the easiest way to determine a given person's attractiveness is to simply ask people to spontaneously rate it on the basis of their first impression of their appearance. These ratings generally use a Likert scale item, and since idiosyncratic and cultural differences in preferences make remarkably little difference, a very small group of raters suffices to balance out these differences in taste and raters' response styles. The "true" attractiveness of the person being appraised (their attractiveness score) can then be determined simply by calculating the mean value of the individual ratings. The relevant literature considers that no more than half a dozen to a dozen raters are needed to measure attractiveness reliably using the truth of consensus method (see e.g., Biddle & Hamermesh, 1998; Hamermesh & Parker, 2005). In our experiments, 24 raters were used for each Bundestag election (Masch et al., 2021; Rosar & Klein, 2020). In each case, they were social science students with an identical age distribution (12 female and 12 male students). The rater assessed the physical attractiveness on a seven-point scale from "unattractive" (coded 0 in the data set) to "attractive" (coded 6 in the data set) and the raters were asked to give an impulsive attractiveness rating according to their first impression. To determine the intra-rater reliability starting with the Bundestag election 2009 a part of the pictures got shown twice in the questionnaire. The attractiveness score for each candidate was then calculated by averaging the different ratings. Key data on the attractiveness scoring and reliability are shown for each Bundestag election in Table 1. The intra-rater reliability can be described as homogeneous and in its quality as satisfactory to very good. The inter-rater reliability can be considered as very good throughout. Moreover, we find no pattern in the attractiveness ratings regarding the rater's gender. Of course, we cannot rule out that raters recognized some people and matched them to their party—for example, because they live in their electoral district or because the person in the picture is a well-known politician. This could lead to a bias in the attractiveness rating due to the rater being politically close to a certain party or disliking them. Empirical studies, however, find

Table 1. The reliability of attractiveness scoring and the distribution of attractiveness scores by Bundestag election (2005–2021)

		Bundestag election				
		2005	**2009**	**2013**	**2017**	**2021**
Intra-rater reliability (Cronbach's alpha)						
	Mean	–	0.87	0.85	0.86	0.86
	Median	–	0.87	0.88	0.89	0.88
	Std. dev.	–	0.06	0.08	0.08	0.07
	Skewness	–	−1.37	−0.75	−1.33	−1.41
	Min.	–	0.71	0.69	0.63	0.65
	Max.	–	0.95	0.95	0.95	0.95
Inter-rater reliability (Cronbach's alpha)		0.99	0.955	0.95	0.95	0.96
Attractiveness scores	Mean	2.15	1.96	1.91	1.78	2.26
	Median	2.00	1.79	1.71	1.58	2.04
	Std. dev.	0.83	0.92	0.87	0.98	1.16
	Skewness	0.81	0.85	0.88	1.02	0.57
	Min.	0.33	0.04	0.13	0.04	0.25
	Max.	5.21	5.17	5.33	5.33	5.50

Note: Only five photographs were rated twice in the questionnaire used to evaluate the candidates for the 2005 Bundestag election, too small a number to evaluate intra-rater reliability robustly using Cronbach's alpha. Looking at the proportion of deviations between the first and second ratings of each double rated photographs across all raters shows that no deviation was registered in 53% of cases. A difference of one point on the seven-point attractiveness rating scale was registered for 35% of the double ratings, a difference of two scale points was found in 11% of cases, and only 1% deviated by three scale points.
Source: Original data collection.

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Figure 2. The three most attractive female constituency candidates and the three most attractive male constituency candidates of the Bundestag elections 2005–2021.

that this is not really an issue: most of the time the raters do not recognize the people in the pictures (Rosar, 2009; Rosar & Klein, 2013). This is most likely because the way the candidates are presented is decontextualized which makes the recognition more difficult.

If we look at the statistics of the attractiveness scores themselves, we can first notice that the distribution is slightly skewed to the right and the photos are rated as slightly unattractive on average. At the same time, we can also see that almost the entire measurement scale, ranging from zero to six, is covered empirically. The lowest attractiveness score determined is 0.04, the highest is 5.50. As Figure 2 of the most attractive female and male constituency candidates illustrates, the measurements reflect the characteristics that, according to current research findings, determine attractiveness very well (see for an overview Little, 2014; Gründl, 2022). For example, you can see that the women and men with the highest attractiveness scores are slim and young, they have smooth skin and full hair, symmetric faces and moreover they have distinctive gender-typical facial features. The figure also shows that women tend to be more attractive than men.

Statistical analysis

The share of first votes reached by direct candidates in their electoral districts is central to our study and the dependent variable. The gender and attractiveness scores of candidates are central as the independent variable. The other attributes for which data were collected are covariates that are known from the literature to have significant effects on electoral success or that need to be controlled for to permit the clear disentangling of main or interaction effects of physical attractiveness in the analysis (e.g., Rosar et al., 2008). In total, we have complete data for all variables included in the study for all 8,031 direct candidates who contested Bundestag elections on behalf of the parties included in the study between 2005 and 2021 (see a breakdown of the included variables by gender and election year in Table A1). As we are dealing with a complete coverage applying inferential statistics is essentially superfluous (for a discussion of significance tests in full samples, see, for example, Western & Jackman, 1994; Berk et al., 1995; Broscheid & Gschwend, 2005). But since it could technically be argued that our analysis of the Bundestag elections is only a partial coverage of all Bundestag elections along the dimension of time, we will nevertheless report them (for a more detailed discussion see Rosar et al., 2025). It is important to note that our data basis has a hierarchical structure with three levels. The first level is formed by the candidates, which are nested in the second level by the electoral districts, which in turn, are nested in the specific Bundestag elections as a third level. Hence, all analyses reported below were calculated as linear multilevel models with three levels to reflect the nested structure within the analysis. The underlying fixed effects regression equation of the baseline model without interaction is therefore as follows:

Level 1 (excerpt):

$$\mathrm{DV}_{ijk} = \beta_{0jk} + \beta_{1jk} \times \mathrm{PA}_{ijk} + \beta_{2jk} G_{ijk} + \cdots + r_{ijk} \quad (1)$$

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DV: Direct Vote Share; PA: Physical Attractiveness; G: Gender; β_{0jk}: Intercept for constituency j within election year k; β_{1jk}: Attractiveness effect in constituency j, election year k; β_{2jk}: Gender effect in constituency j, election year k; r_{ijk}: Residual error on individual level.

Level 2:

$$\beta_{0jk} = \gamma_{00k} + \gamma_{01k} \times \mathrm{OC}_{jk} + u_{0jk} \tag{2}$$

β_{0jk}: Intercept for constituency j within election year k; γ_{00k}: Average Intercept within election year k; γ_{01k}: Effect of the number of opposing candidates on the intercept; OC_{jk}: Number of opposing candidates in constituency j, election year k (later fixed due to small variation between constituencies); u_{0jk}: Random effect of constituency j within election year k.

Level 3:

$$\gamma_{00k} = \delta_{000} + \beta_1 \times \mathrm{EY_k} + \nu_{00k} \tag{3}$$

γ_{00k}: Average Intercept within election year k; δ_{000}: Grand mean direct vote share across all levels; EY_k: Election Year; ν_{00k}: Random effect of election year k.

Furthermore, all models consider a range of potentially confounding factors. To account for path dependencies the party affiliation of the candidate is combined with the location of the electoral district in East or West Germany. Additionally, the estimations are adjusted for number of district candidates, age, squared age, election year, and whether the candidate is a well-known public figure or previously was a member of parliament.

Results

To investigate the assumed effects of gender and physical attractiveness as well as a possible "beauty is beastly effect" appropriately, we first calculated a model as a reference that included all candidates and did not include any interaction effects. In addition to physical attractiveness and gender, we included the relevant covariates (Model 1 in Table 2). As expected, the influence of physical attractiveness on candidate success is positive and substantial (ß = 0.816 percentage points of the first vote share, $p < 0.001$). Therefore, *H1* can be confirmed. The same is true for *H2*: Female candidates receive fewer votes than men, on average, adjusted for all other covariates in Model 1 (by 1.283 percentage points on average, $p < 0.001$). While these are not the most powerful factors—party affiliation differentiated by region had the largest influence and can essentially be seen as a proxy for the potential vote share reachable by candidates—physical attractiveness and gender can nevertheless play a role in determining the winners in tight contests. Official election statistics clearly demonstrate that the number of tightly contested electoral districts in Bundestag elections has now increased considerably.

That physical attractiveness and gender both show effects in Bundestag elections does not yet say anything about a possible "beauty is beastly effect"; to ascertain the presence of such an effect, the influence of attractiveness would need to be different for men and women. In the ideal-typical case, it would be positive for men and negative for women. Higher attractiveness could be expected to benefit male politicians on account of the political arena likely being a male-dominated sphere of action. At the same time, it can be expected to disadvantage female politicians. To test this, we added an interaction term between gender and attractiveness score to the basic model (Model 2 in Table 2). The empirical findings, however, did not confirm this expectation. Not only is the interaction term barely different from zero and insignificant, but it also has the wrong sign. This suggests (leaving the lack of significance aside) that attractiveness could have a slightly stronger positive effect for female candidates than for their male counterparts. The effect is, in fact, more or less equally strong for both genders. Therefore, *H3* has to be rejected. When the base model is calculated separately for female and male candidates (Models 3 and

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Table 2. Results of multi-level models for estimating the first vote share

	Direct vote share (%)							
	All	All	Women	Men	Women	Men	Women	Men
	1	2	3	4	5	6	7	8
Gender (female vs. male)	−1.283***	−1.605***						
	(0.174)	(0.393)						
Physical attractiveness	0.816***	0.754***	0.746***	0.826***	0.701	0.699+	0.504+	0.701**
	(0.089)	(0.112)	(0.151)	(0.113)	(0.587)	(0.385)	(0.268)	(0.253)
Physical attractiveness^2					0.008	0.030		
					(0.103)	(0.086)		
Election year trend variable (2005 = 0)	−0.151***	−0.151***	−0.156***	−0.155***	−0.156***	−0.156***	−0.224**	−0.179*
	(0.037)	(0.037)	(0.034)	(0.047)	(0.034)	(0.047)	(0.075)	(0.076)
Gender × physical attractiveness		0.142						
		(0.156)						
Election year × physical attractiveness							0.026	0.011
							(0.024)	(0.023)
Number of district candidates	−0.230***	−0.230***	−0.078	−0.300***	−0.079	−0.300***	−0.088	−0.297***
	(0.043)	(0.043)	(0.077)	(0.051)	(0.077)	(0.051)	(0.078)	(0.051)
Party affiliation (versus CDU/CSU West Germany)								
CDU/CSU (East Germany)	−8.823***	−8.827***	−7.500***	−9.005***	−7.502***	−9.006***	−7.520***	−9.006***
	(0.415)	(0.415)	(0.890)	(0.464)	(0.891)	(0.464)	(0.890)	(0.464)
SPD (East Germany)	−16.410***	−16.410***	−14.130***	−17.120***	−14.130***	−17.120***	−14.120***	−17.120***
	(0.419)	(0.419)	(0.780)	(0.497)	(0.781)	(0.497)	(0.780)	(0.497)
SPD (West Germany)	−7.905***	−7.894***	−7.392***	−7.475***	−7.392***	−7.475***	−7.404***	−7.481***
	(0.256)	(0.256)	(0.508)	(0.298)	(0.509)	(0.298)	(0.508)	(0.298)
FDP (East Germany)	−31.530***	−31.530***	−30.040***	−31.850***	−30.050***	−31.860***	−30.060***	−31.860***
	(0.428)	(0.428)	(1.079)	(0.460)	(1.081)	(0.461)	(1.079)	(0.461)
FDP (West Germany)	−31.020***	−31.010***	−28.860***	−31.460***	−28.860***	−31.460***	−28.860***	−31.470***
	(0.269)	(0.269)	(0.604)	(0.298)	(0.604)	(0.298)	(0.604)	(0.298)
Greens (East Germany)	−31.590***	−31.590***	−29.480***	−32.230***	−29.480***	−32.230***	−29.480***	−32.240***

(Continued)

Table 2. *Continued*

	Direct vote share (%)							
	All	All	Women	Men	Women	Men	Women	Men
	1	2	3	4	5	6	7	8
	(0.430)	(0.430)	(0.784)	(0.515)	(0.784)	(0.516)	(0.784)	(0.515)
Greens (West Germany)	−28.130***	−28.120***	−25.350***	−29.270***	−25.350***	−29.270***	−25.340***	−29.270***
	(0.270)	(0.270)	(0.520)	(0.320)	(0.520)	(0.320)	(0.520)	(0.320)
The left (East Germany)	−16.180***	−16.160***	−13.750***	−16.980***	−13.750***	−16.990***	−13.750***	−16.980***
	(0.424)	(0.425)	(0.737)	(0.528)	(0.739)	(0.529)	(0.737)	(0.528)
The left (West Germany)	−31.540***	−31.540***	−29.380***	−32.070***	−29.380***	−32.080***	−29.400***	−32.090***
	(0.277)	(0.277)	(0.569)	(0.316)	(0.571)	(0.318)	(0.569)	(0.317)
AfD (East Germany)	−14.430***	−14.440***	−12.490***	−14.690***	−12.490***	−14.700***	−12.390***	−14.640***
	(0.646)	(0.646)	(1.995)	(0.675)	(1.996)	(0.675)	(1.997)	(0.676)
AfD (West Germany)	−26.620***	−26.630***	−25.020***	−26.850***	−25.020***	−26.860***	−24.970***	−26.820***
	(0.366)	(0.367)	(0.969)	(0.396)	(0.969)	(0.397)	(0.969)	(0.398)
Member of parliament	4.233***	4.236***	3.598***	4.501***	3.599***	4.505***	3.609***	4.515***
	(0.177)	(0.177)	(0.322)	(0.212)	(0.322)	(0.212)	(0.322)	(0.212)
Candidate is a public figure	5.119***	5.119***	4.152***	5.912***	4.153***	5.910***	4.148***	5.915***
	(0.545)	(0.545)	(0.907)	(0.679)	(0.908)	(0.679)	(0.907)	(0.679)
Age	0.862*	0.850*	−0.090	1.080*	−0.076	1.098*	−0.166	1.068*
	(0.421)	(0.421)	(0.961)	(0.463)	(0.977)	(0.466)	(0.963)	(0.465)
Age^2	−0.073	−0.072	0.009	−0.089+	0.008	−0.091+	0.019	−0.088+
	(0.045)	(0.045)	(0.104)	(0.049)	(0.106)	(0.049)	(0.105)	(0.049)
Constant	35.990***	36.140***	34.880***	36.150***	34.900***	36.230***	35.710***	36.410***
	(1.125)	(1.137)	(2.410)	(1.275)	(2.425)	(1.295)	(2.530)	(1.432)
Observations on Level 3 (election year)	5	5	5	5	5	5	5	5
Observations on Level 2 (election districts within election years)	1495	1495	1224	1495	1224	1495	1224	1495
SD Level 3 Intercept (election year)	0.421	0.423	0.148	0.540	0.149	0.540	0.364	0.823
SD Level 2 Intercept (election districts within election years)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SD random effect (PA by election year)	–	–	–	–	–	–	0.077	0.191

(Continued)

Table 2. *Continued*

	Direct vote share (%)							
	All	All	Women	Men	Women	Men	Women	Men
	1	2	3	4	5	6	7	8
Observations	8,031	8,031	2,235	5,796	2,235	5,796	2,235	5,796
Log likelihood	−26,096	−26,096	−7,321	−18,695	−7,322	−18,696	−7,323	−18,697
Akaike Inf. Crit.	52,237	52,240	14,686	37,434	14,691	37,439	14,696	37,444
Bayesian Inf. Crit.	52,398	52,408	14,812	37,581	14,822	37,592	14,839	37,611
R^2	0.210	0.210	0.778	0.434	0.778	0.434	0.778	0.434

Note: Unstandardized regression coefficients; Standard errors in parentheses; $+p < 0.1$; $*p < 0.05$; $**p < 0.01$; $***p < 0.001$; R^2 is calculated as 1 minus the ratio of the log-likelihood of the model to the log-likelihood of the null model; VIF scores are reported in Table A2.
Source: Original data collection.

4 in Table 2), the difference in the unstandardized regression coefficient of the attractiveness variable is only very marginal (ß = 0.746, $p < 0.001$ versus 0.826, $p < 0.001$).

Two plausible reasons for the absence of a "beauty is beastly effect" in the analysis of the presented models could be that the effect is non-linear or has changed over time. It is conceivable that attractiveness scores might not dampen political success evenly for all women, but only exert a negative effect upwards of a certain score. This would make the effect non-linear. The chances of being elected in this case would initially increase in the lower attractiveness range (with rising attractiveness scores) and the influence of gender stereotyping would only become pervasive enough to harm women's chances of electoral success in the upper range of attractiveness scores. Additionally, changes over time could also explain the absence of the "beauty is beastly effect," especially as the general perception of politics in Germany as a male-dominated arena may have been successively eroded. In this context, it could make perfect sense that considering all the Bundestag elections from 2005 to 2021 together in a summary analysis does not reveal gender disparity in the influence of attractiveness (Table 2).

Empirical analysis, however, does not support either of these lines of thinking. Model 3—and, as a reference, Model 4—from Table 2 were recalculated for the female and male subpopulations with each considering a squared attractiveness term (Model 5 and 6). Neither the model for the female candidates nor the model for the male candidates shows a significant and negative effect for the squared attractiveness term. The effect of physical attractiveness is therefore linear and positive for both genders. This is further underscored by a detailed analysis of gender-specific marginal effects of attractiveness that visualizes it clearly (see Figure 3). On average, a highly attractive female direct candidate is estimated to receive a vote share of around 20% with highly attractive male candidates receiving slightly more. This result, however, is not significant as also illustrated by the overlapping confidence intervals. For the sake of completeness, it should be mentioned that we also tested for non-linear attractiveness effects by calculating models that included a cubic attractiveness term in addition to the squared attractiveness term. But once again, we were unable to find clear evidence for gender-specific non-linear attractiveness effects (see Model 1 in Table A3 in the appendix). Models 7 and 8 in Table 2, which both consider an interaction between election year and attractiveness score separately for each gender, yielded comparable results. Here, too, the empirical analysis produced a null finding. It could be argued, however, that this is because we have included the election year as a linear

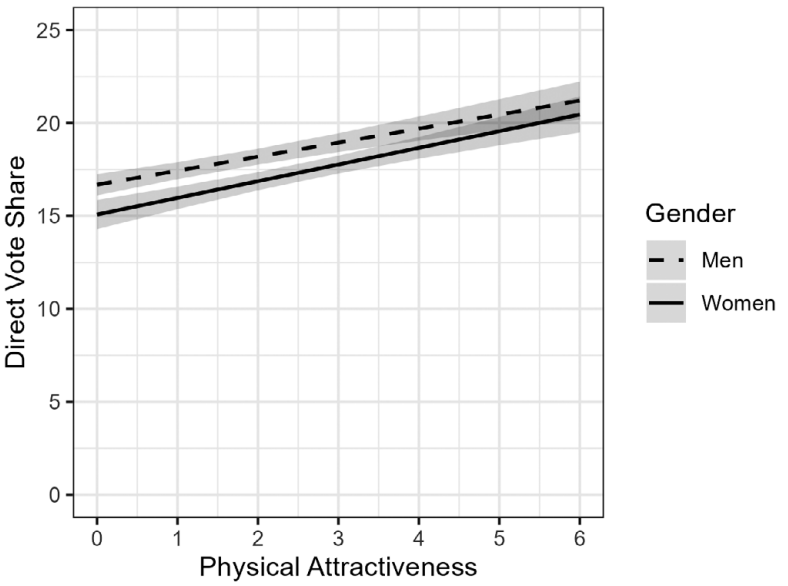

Figure 3. Effect of physical attractiveness on direct vote share by gender with 95% confidence intervals based on Model 2 in Table 2.

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characteristic. With that in mind, we respecified models 7 and 8 to dummy-code the election years so that we could use the year dummies to specify various interactions with attractiveness (Model 2–5 in Table A3). But this approach also yielded no evidence for a systematic change over time in the attractiveness effect for either gender. In both variants for modelling the election time, moreover, an intermediate model in which the slope of the regression coefficient of the attractiveness score was dropped at the third model level, the election years, always showed that the variance of the slope is not more statistically significant than random chance.

A third possibility, which cannot per se be ruled out, supplies another potential explanation for why no "beauty is beastly effect" was found in the overall analysis. Figure 1 shows not only that gender parity has still not been reached in the 21st century (in terms of both party membership numbers in Germany and direct candidacies in German federal elections) but also that the differences between parties in this area are still considerable. A rough dividing line can be drawn with the Greens, SPD, and The Left on one side and CDU/CSU, FDP and AfD on the other. Male dominance is comparatively weak in the three parties that are broadly more to the left of the political spectrum and considerably stronger in the center-right and more decidedly right-wing parties. Could the "beauty is beastly effect" play a role mainly in contexts in which politics is still factually a business largely transacted between men? To delve into this, we recalculated Models 3, 5, and 7 from Table 2, which all look specifically at female candidates, separately for the (more) right-wing and (more) left-wing groups. The resulting findings are shown in Table 3. An initial comparison of Model 1 and Model 4 from Table 3 shows that physical attractiveness has a substantial positive influence on the average share of first votes reached by female candidates in both groups of parties. The effect of the attractiveness variable is even somewhat stronger for the (more) right-wing parties. It follows that women in these parties tend to benefit even more from looking attractive.

Substantial evidence that a "beauty is beastly effect" applies in ways specific to certain groups of parties is not found and this picture does not change when additional testing for the non-linearity of the attractiveness effect is carried out (Models 2 and 5 in Table 3) or its change over time is examined (Models 3 and 6 in Table 3). Although the squared attractiveness term for the (more) right-wing parties has a negative sign, in line with expectations, it is very weak (ß = −0.048, $p = 0.810$) and lacks significance (Model 2). Examining changes in the attractiveness effect over time yields a null result for the more right-wing parties. For the parties of the left, the attractiveness effect increases significantly over time—albeit admittedly only moderately (ß = 0.052, $p = 0.092$). We also calculated these models again without including the AfD, for which it can be argued that its role as a protest party (Bieber et al., 2018) could lead to different or no attractiveness effects. Here once again, we were not able to find any substantial differences from the findings in the reported models (see Table A4 in the Appendix).

Conclusions

This article aimed to examine a possible "beauty is beastly effect" affecting electoral success in German federal elections. In general, the physical appearance of candidates can directly, indirectly or even in the form of a productivity (dis-)advantage influence their election outcome. Thereby, it has already been shown in numerous studies and contexts that physical attractiveness is positively associated with electoral success (Berggren et al., 2010; Jäckle et al., 2020; Jäckle & Metz, 2017; King & Leigh, 2009; Lawson et al., 2010; Lutz, 2010; Potrafke et al., 2020; Praino et al., 2014; Stockemer & Praino, 2017). A further observation is that female candidates are, to some extent, penalized compared to their male counterparts (e.g., Bieber, 2022; Fox & Lawless, 2010; Masch et al., 2021; Schwindt-Bayer, 2005). Based on the "beauty is beastly effect" it was then assumed that perceptions of physical attractiveness affect male and female candidates differently, potentially—in combination with male dominance in politics—explaining electoral advantages and disadvantages. This led to the hypotheses that (1) physical attractiveness is positively associated with the first vote share, (2) female candidates receive fewer first votes than male candidates, and (3) the association between physical attractiveness and first vote share is

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Table 3. Multilevel models for estimating the first vote share of female candidates separately for right-wing and left-wing parties

	Direct vote share (%)					
	Right			Left		
	1	2	3	4	5	6
Physical attractiveness	0.989***	1.268	1.048	0.700***	0.490	0.220
	(0.284)	(1.191)	(0.678)	(0.176)	(0.667)	(0.317)
Physical attractiveness^2		−0.048			0.039	
		(0.199)			(0.120)	
Election year trend variable (2005 = 0)	−0.051	−0.050	−0.033	−0.202**	−0.202**	−0.340***
	(0.158)	(0.158)	(0.137)	(0.075)	(0.075)	(0.088)
Election year × physical attractiveness			−0.004			0.052$^+$
			(0.063)			(0.029)
Number of district candidates	−0.697***	−0.696***	−0.706***	0.210*	0.209*	0.201*
	(0.140)	(0.140)	(0.139)	(0.097)	(0.097)	(0.097)
Party affiliation (versus CDU/CSU West Germany)						
CDU/CSU (East Germany)	−7.446***	−7.434***	−7.358***			
	(0.871)	(0.873)	(0.875)			
FDP (East Germany)	−29.820***	−29.790***	−29.600***			
	(1.104)	(1.109)	(1.109)			
FDP (West Germany)	−29.150***	−29.150***	−29.160***			
	(0.632)	(0.633)	(0.634)			
AfD (East Germany)	−11.500***	−11.480***	−11.550***			
	(1.998)	(2.001)	(1.999)			
AfD (West Germany)	−24.080***	−24.060***	−24.300***			
	(1.016)	(1.019)	(1.020)			
Party affiliation (versus SPD West Germany)						
SPD (East Germany)				−6.882***	−6.880***	−6.846***
				(0.716)	(0.716)	(0.715)
Greens (East Germany)				−22.090***	−22.090***	−22.050***
				(0.718)	(0.718)	(0.718)
Greens (West Germany)				−17.910***	−17.920***	−17.890***
				(0.428)	(0.428)	(0.428)
The Left (East Germany)				−6.429***	−6.449***	−6.414***
				(0.668)	(0.671)	(0.667)
The Left (West Germany)				−21.960***	−21.980***	−21.970***
				(0.484)	(0.487)	(0.483)
Member of parliament	3.321***	3.324***	3.238***	3.751***	3.759***	3.774***
	(0.588)	(0.588)	(0.589)	(0.374)	(0.375)	(0.374)
Candidate is a public figure	5.330***	5.331***	5.388***	3.006**	3.007**	2.954**
	(1.482)	(1.483)	(1.486)	(1.114)	(1.114)	(1.113)
Age	−0.008	−0.095	−0.101	−0.180	−0.114	−0.335
	(1.673)	(1.714)	(1.683)	(1.143)	(1.161)	(1.144)
Age^2	−0.048	−0.039	−0.036	0.047	0.040	0.067

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Table 3. *Continued*

	Direct vote share (%)					
	Right			Left		
	1	2	3	4	5	6
	(0.180)	(0.184)	(0.181)	(0.124)	(0.126)	(0.125)
Constant	39.290***	39.120***	39.420***	25.250***	25.340***	26.790***
	(4.462)	(4.516)	(4.477)	(2.881)	(2.896)	(2.938)
Observations on Level 3 (election year)	5	5	5	5	5	5
Observations on Level 2 (election districts within election years)	572	572	572	1086	1086	1086
SD Level 3 Intercept (election year)	1.85	1.85	0.000	0.822	0.827	0.472
SD Level 2 Intercept (election districts within election years)	0.000	0.000	0.000	0.000	0.000	0.000
SD Random effect (PA by election year)	–	–	0.599	–	–	0.127
Observations	656	656	656	1,579	1,579	1,579
Log likelihood	−2,131	−2,132	−2,135	−5,146	−5,148	−5,147
Akaike Inf. Crit.	4,295	4,298	4,308	10,325	10,329	10,332
Bayesian Inf. Crit.	4,367	4,374	4,393	10,411	10,420	10,433
R^2	0.935	0.935	0.935	0.844	0.844	0.844

Note: Unstandardized regression coefficients; Standard errors in parentheses; +$p < 0.1$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; R^2 is calculated as 1 minus the ratio of the log-likelihood of the model to the log-likelihood of the null model. VIF scores are reported in Table A2.
Source: Original data collection.

positive for male and negative for female candidates. These assumptions were tested using multi-level regression models based on data gathered from German federal elections from 2005 to 2021.

As expected, the analysis repeatedly showed that a higher level of physical attractiveness is linked to a higher vote share even when a range of possible influencing factors are controlled for: the more attractive a direct candidate was, the higher their share of the vote was on average (*H1*). However, the main concern of this article was examining a possible "beauty is beastly effect" in political competition in Germany. In sum, no model showed support for such an effect (*H3*). This is true both for models that include an interaction between gender and physical attractiveness and for models calculated separately for male and female candidates. Testing for non-linear effects (ceiling effects, for instance) that could possibly influence a potential "beauty is beastly effect" was also performed. In addition, it was investigated whether the null result could be attributed to differences in effects between parties further to the left and further to the right, as a "beauty is beastly effect" could conceivably be more likely to occur in parties on the right-hand side of the political spectrum. Here, once again, our data did not show this effect—the advantages of attractiveness, on the contrary, proved to be even stronger for (more) right-wing parties. We were, finally, also able to rule out changes over time, that is, between the 2005 and 2021 Bundestag elections, as a possible explanation for the absence of a "beauty is beastly effect." Although a "beauty is beastly effect" was not supported by the data, all models showed that female candidates attract fewer votes, on average, than their male counterparts (*H2*). Subsequent analyses, which space does not permit us to report in detail here, show that there are indeed interactions between gender and other candidate attributes that exert substantial influence on electoral success. We discovered, for instance, that two attributes with a substantial positive influence on vote share in all the models—being a well-known public figure and incumbency (already being a member of the Bundestag)—influence success considerably less strong for women than for men (see Model 6 in Table A3). Female candidates clearly

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encountered discrimination which was reinforced by its reciprocal interactions with other factors in the German federal elections between 2005 and 2021, but the results of our analyses do not allow the disadvantaging of female candidates to be traced back to their attractiveness.

Three explanations for these findings are possible. Female candidates may be more likely to receive party nominations in electoral districts seen as unwinnable by their parties (Bieber, 2016). This could mean that women find themselves in contests in which appearance is a relevant influence on voting choices less often than their male colleagues. It could also be the case that (attractive) women adapt the way they present themselves to visually match the conventions of the stereotypically masculine context of politics. Adaptations in how women dress or in their demeanor, for instance, could possibly relativize the influence of a "beauty is beastly effect" (see, e.g., Klein & Rosar, 2005). Another possibility that must be considered is that politics in Germany could have already lost its strongly masculine associations before the beginning of the period studied here, so that the kind of interactions described by the "beauty is beastly effect" have already faded away despite the persistence of direct and other indirect negative stereotypes affecting female candidates during this period. The absence of evidence for an interaction between gender, physical attractiveness, and the gendered associations of the domain of politics could be interpreted, in that light, as an early signal that perceptions of the political sphere as a male-dominated sphere of action are slowly fading in Germany.

In conclusion, a "beauty is beastly effect" cannot be found in German elections. The question remains as to whether considering a different voting system or a different period with different conditions, such as even more pronounced male dominance, would have yielded different results. As the "beauty is beastly" effect (in politics) concerns the interplay of physical attractiveness, voting behavior based on candidate appearances, and gender stereotypes, it would be fruitful to replicate these findings for different electoral systems and political cultures. With cultural backlash, conservative and far-right parties on the rise, images of female candidates are used strategically to appear moderate, and appeal to many voters. Hence, it is highly relevant to analyze candidate appearances, gender stereotypes and votes shares in the context of far-right voting and far-right success.

Competing interests. The authors declare none.

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Appendix

Table A1. Descriptive overview by gender and election year

	2005		2009		2013		2017		2021	
	Men	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**
Physical attractiveness (∅)	1.96	2.70	1.77	2.47	1.76	2.28	1.53	2.45	1.96	2.95
Number of district candidates (∅)	5.90	5.96	6.33	6.39	8.02	8.09	7.56	7.62	10.19	10.39
Age (∅)	46.94	46.71	47.57	47.74	47.72	48.71	48.19	47.84	46.83	45.05
Share of parliament member	30.01%	43.40%	30.54%	40.39%	32.23%	38.89%	24.38%	35.73%	30.13%	31.55%
Share of public figures	1.17%	3.23%	1.48%	2.22%	2.07%	2.55%	1.32%	2.05%	1.36%	2.03%
Share of UNION candidates	22.19%	14.02%	21.96%	15.02%	22.15%	14.81%	18.19%	13.14%	18.11%	13.47%
Share of SPD candidates	17.43%	28.30%	17.71%	26.35%	17.91%	25.23%	14.40%	23.20%	14.50%	21.77%
Share of FDP candidates	22.37%	13.48%	23.06%	12.07%	23.28%	11.81%	18.65%	11.91%	18.67%	12.18%
Share of Green candidates	17.88%	26.42%	17.53%	26.11%	17.53%	26.16%	13.39%	25.67%	12.50%	26.38%
Share of Linke candidates	20.13%	17.79%	19.74%	20.44%	19.13%	21.99%	15.56%	19.92%	15.63%	18.63%
Share of AfD candidates	–	–	–	–	–	–	19.81%	6.16%	20.43%	7.01%

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Table A2. VIF of the predictor variables in Tables 2 and 3

	M[1]1, T[2]2	M2, T2	M3, T2	M4, T2	M5, T2	M6, T2	M7, T2	M8, T2	M1, T3	M2, T3	M3, T3	M4, T3	M5, T3	M6, T3
Election year Trend Variable (2005 = 0)	1.10	1.10	1.61	1.09	1.61	1.09	7.85	3.52	1.07	1.07	1.90	1.12	1.12	1.76
Gender (female vs. male)	1.26	6.40	–	–	–	–	–	–	–	–	–	–	–	–
Physical attractiveness	1.54	2.43	1.51	1.32	22.76	15.35	4.42	3.72	1.53	26.94	3.65	1.46	20.93	4.09
Number of district candidates	1.11	1.11	1.58	1.09	1.58	1.09	1.62	1.12	1.09	1.09	1.15	1.14	1.14	1.14
CDU/CSU (East Germany)	1.19	1.19	1.23	1.18	1.23	1.18	1.23	1.18	1.14	1.14	1.14	–	–	–
SPD (East Germany)	1.21	1.21	1.34	1.18	1.34	1.18	1.34	1.18	–	–	–	1.15	1.15	1.15
SPD (West Germany)	1.74	1.75	2.28	1.59	2.28	1.59	2.28	1.58	–	–	–	–	–	–
FDP (East Germany)	1.26	1.26	1.19	1.29	1.19	1.29	1.19	1.29	1.24	1.25	1.24	–	–	–
FDP (West Germany)	1.92	1.92	1.83	1.96	1.83	1.96	1.83	1.95	1.51	1.51	1.52	–	–	–
Greens (East Germany)	1.27	1.27	1.41	1.23	1.41	1.23	1.41	1.23	–	–	–	1.21	1.21	1.21
Greens (West Germany)	1.94	1.94	2.49	1.76	2.49	1.76	2.49	1.75	–	–	–	1.55	1.56	1.56
The Left (East Germany)	1.22	1.22	1.41	1.17	1.42	1.17	1.41	1.17	–	–	–	1.18	1.19	1.18
The Left (West Germany)	2.03	2.03	2.20	2.01	2.21	2.03	2.20	1.99	–	–	–	1.53	1.56	1.53
AfD (East Germany)	1.11	1.11	1.06	1.13	1.06	1.13	1.06	1.13	1.08	1.08	1.08	–	–	–
AfD (West Germany)	1.43	1.43	1.26	1.49	1.26	1.49	1.25	1.47	1.24	1.25	1.29	–	–	–
Member of parliament	1.40	1.40	1.31	1.45	1.31	1.46	1.31	1.45	1.39	1.39	1.38	1.27	1.28	1.27
Candidate is a public figure	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.02	1.04	1.04	1.04
Age	49.26	49.31	56.40	47.91	58.26	48.56	55.51	44.24	51.67	54.10	42.39	58.17	59.99	56.16
Age^2	48.12	48.14	55.42	46.76	56.99	47.35	54.59	43.41	50.82	53.07	41.93	57.27	58.78	55.55
Gender × physical attractiveness	–	8.44	–	–	–	–	–	–	–	–	–	–	–	–
Physical attractiveness^2	–	–	–	–	22.85	15.13	–	–	–	26.86	–	–	21.03	–
Election year × physical attractiveness	–	–	–	–	–	–	11.40	6.22	–	–	3.77	–	–	4.36

Note: [1]M: Model, [2]T: Table.

Table A3. Further results of multilevel models estimating the first vote share

	Direct vote share (%)					
	Women only				All candidates	
	(1)	(2)	(3)	(4)	(5)	(6)
Gender (female vs. male)					−1.612***	−0.499*
					(0.393)	(0.209)
Physical attractiveness	−1.971	0.750***	0.633	0.633+	0.758***	0.810***
	(1.664)	(0.153)	(31.940)	(0.360)	(0.112)	(0.089)
Physical attractiveness^2	1.096+					
	(0.642)					
Physical attractiveness^3	−0.130+					
	(0.076)					
Number ofdistrict candidates	−0.077	−0.119	−0.122	−0.122	−0.231***	−0.232***
	(0.077)	(0.082)	(0.082)	(0.082)	(0.044)	(0.043)
Party affiliation (versus CDU/CSU West Germany)						
CDU/CSU (East Germany)	−7.491***	−7.502***	−7.516***	−7.516***	−8.826***	−8.693***
	(0.890)	(0.890)	(0.891)	(0.891)	(0.415)	(0.415)
SPD (East Germany)	−14.150***	−14.130***	−14.120***	−14.120***	−16.410***	−16.290***
	(0.781)	(0.781)	(0.781)	(0.781)	(0.419)	(0.419)
SPD (West Germany)	−7.377***	−7.387***	−7.401***	−7.401***	−7.895***	−7.734***
	(0.508)	(0.508)	(0.509)	(0.509)	(0.256)	(0.257)
FDP (East Germany)	−30.010***	−30.010***	−30.060***	−30.060***	−31.530***	−31.330***
	(1.080)	(1.080)	(1.084)	(1.084)	(0.428)	(0.427)
FDP (West Germany)	−28.840***	−28.850***	−28.850***	−28.850***	−31.010***	−30.830***
	(0.604)	(0.604)	(0.604)	(0.604)	(0.269)	(0.269)
Greens (East Germany)	−29.500***	−29.460***	−29.470***	−29.470***	−31.590***	−31.420***
	(0.784)	(0.784)	(0.785)	(0.785)	(0.430)	(0.429)
Greens (West Germany)	−25.370***	−25.340***	−25.340***	−25.340***	−28.130***	−28.000***
	(0.520)	(0.520)	(0.520)	(0.520)	(0.270)	(0.270)
The Left (East Germany)	−13.760***	−13.720***	−13.730***	−13.730***	−16.160***	−15.970***
	(0.739)	(0.737)	(0.738)	(0.738)	(0.425)	(0.424)
The Left (West Germany)	−29.390***	−29.380***	−29.400***	−29.400***	−31.540***	−31.360***
	(0.571)	(0.569)	(0.569)	(0.569)	(0.277)	(0.278)
AfD (East Germany)	−12.480***	−12.250***	−12.160***	−12.160***	−14.420***	−14.220***
	(1.995)	(2.000)	(2.003)	(2.003)	(0.647)	(0.645)
AfD (West Germany)	−25.050***	−24.930***	−24.900***	−24.900***	−26.600***	−26.370***
	(0.968)	(0.971)	(0.972)	(0.972)	(0.367)	(0.367)
Member of parliament	3.593***	3.606***	3.611***	3.611***	4.236***	4.934***
	(0.322)	(0.322)	(0.322)	(0.322)	(0.177)	(0.207)
Candidate is a public figure	4.176***	4.154***	4.158***	4.158***	5.115***	5.837***
	(0.907)	(0.907)	(0.908)	(0.908)	(0.545)	(0.692)
Age	−0.127	−0.089	−0.153	−0.153	0.845*	0.849*
	(0.977)	(0.961)	(0.965)	(0.965)	(0.421)	(0.420)
Age^2	0.014	0.009	0.017	0.017	−0.071	−0.072

(Continued)

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Table A3. *Continued*

	Direct vote share (%)					
	Women only				All candidates	
	(1)	(2)	(3)	(4)	(5)	(6)
	(0.106)	(0.104)	(0.105)	(0.105)	(0.045)	(0.045)
Election year trend variable (2005 = 0)	−0.156***					−0.154***
	(0.034)					(0.037)
Election year (versus 2005)						
2009		−0.548	−0.303	−0.303	0.184	
		(9.093)	(13.510)	(1.292)	(1.041)	
2013		−0.748	−0.724	−0.724	−0.285	
		(9.095)	(13.510)	(1.274)	(1.045)	
2017		−2.141	−3.009	−3.009*	−1.570	
		(9.093)	(13.510)	(1.233)	(1.043)	
2021		−2.119	−2.749	−2.749*	−2.145*	
		(9.099)	(13.520)	(1.303)	(1.057)	
2009 × Physical attractiveness			−0.110	−0.110		
			(45.160)	(0.463)		
2013 × Physical attractiveness			−0.031	−0.031		
			(45.160)	(0.466)		
2017 × Physical attractiveness			0.341	0.341		
			(45.160)	(0.435)		
2021 × Physical attractiveness			0.227	0.227		
			(45.160)	(0.424)		
Gender × physical attractiveness					0.144	
					(0.156)	
Member of parliament × gender						−2.141***
						(0.332)
Candidate is a public figure × gender						−1.711
						(1.114)
Constant	36.820***	35.040***	35.490***	35.490***	35.700***	35.710***
	(2.669)	(6.865)	(9.868)	(2.626)	(1.312)	(1.122)
Observations on Level 3 (election year)	5	5	5	5	5	5
Observations on Level 2 (election districts within election years)	1224	1224	1224	1224	1495	1495
SD Level 3 Intercept (election year)	0.144	6.421	7.900	6.420	0.665	0.416
SD Level 2 Intercept (election districts within election years)	0.000	0.000	0.000	0.000	0.000	0.000
SD Random Effect (PA by election year)	–	0.000	14.37	–	–	–
Observations	2,235	2,235	2,235	2,235	8,031	8,031
Log likelihood	−7,323	−7,317	−7,316	−7,316	−26,091	−26,071
Akaike Inf. Crit.	14,693	14,687	14,694	14,688	52,236	52,192
Bayesian Inf. Crit.	14,830	14,841	14,871	14,848	52,425	52,367

Note: Unstandardized regression coefficients; Standard errors in parentheses; +$p < 0.1$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.
Source: Original data collection.

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Table A4. Further results of multilevel models estimating the first vote share of female candidates within (more) right wing parties excluding the AfD

	Direct vote share (%)		
	Women only		
	1	2	3
Physical attractiveness	1.034***	1.668	0.990
	(0.310)	(1.350)	(0.712)
Physical attractiveness^2		−0.108	
		(0.223)	
Election year trend variable (2005 = 0)	−0.071	−0.069	−0.071
	(0.171)	(0.172)	(0.149)
Election year*Physical attractiveness			0.003
			(0.068)
Number of district candidates	−0.632***	−0.631***	−0.643***
	(0.158)	(0.158)	(0.158)
Party affiliation (versus CDU/CSU West Germany)			
CDU/CSU (East Germany)	−7.481***	−7.457***	−7.387***
	(0.897)	(0.899)	(0.903)
FDP (East Germany)	−29.760***	−29.710***	−29.550***
	(1.141)	(1.147)	(1.149)
FDP (West Germany)	−29.080***	−29.080***	−29.080***
	(0.655)	(0.655)	(0.659)
Member of parliament	3.507***	3.510***	3.409***
	(0.628)	(0.629)	(0.631)
Candidate is a public figure	5.665***	5.689***	5.722***
	(1.665)	(1.667)	(1.674)
Age	0.997	0.812	0.724
	(1.903)	(1.942)	(1.915)
Age^2	−0.166	−0.147	−0.133
	(0.208)	(0.212)	(0.209)
Constant	36.730***	36.310***	37.500***
	(4.931)	(5.012)	(4.935)
Observations on Level 3 (election year)	5	5	5
Observations on Level 2 (Election districts within election years)	533	533	533
SD Level 3 Intercept (election year)	2.020	2.020	0.000
SD Level 2 Intercept (election districts within election years)	0.000	0.000	0.000
SD Random Effect (PA by election year)	–	–	0.627
Observations	588	588	588
Log likelihood	−1,930	−1,930	−1,934
Akaike Inf. Crit.	3,887	3,890	3,901
Bayesian Inf. Crit.	3,949	3,956	3,976

Note: Unstandardized regression coefficients; Standard errors in parentheses; +$p < 0.1$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.
Source: Original data collection.

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