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Signaling Effects of Women's Quotas: An Analysis of Workforce Perceptions and Reactions

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ABSTRACT

Women's quotas are widely used to promote gender equality in organizations, yet little is known about how the general workforce perceives and reacts to them. Drawing on signaling theory, we examine employees' awareness of women's quotas and how it influences their reactions. Using data from the Linked Personnel Panel, a representative German dataset linking employer and employee reports ($N = 2270$), we distinguish between signal awareness and signal interpretation to assess their distinct roles. Awareness differs systematically between women and men, with women more likely to correctly recognize whether a quota exists. At the same time, we observe substantial misalignment between formal policy and employee perception: 42.6% of employees fail to recognize an existing quota, and 30.0% believe a quota exists where it does not. Perceiving a quota is associated with higher work engagement among both women and men; however, this relationship is significantly weaker when quotas are legally obligated, indicating that external obligation reduces their signaling value. Theoretically, our study advances signaling research in HRM and diversity by showing that awareness is a critical precondition and that employees respond to quotas based on their signaling value. Practically, our findings suggest that organizations should actively ensure quotas are noticed and interpreted as commitments to gender equality, as complying with legal obligations alone is insufficient.

1 | Introduction

Gender equality and the challenges of building a gender-diverse workforce remain central concerns for organizations across sectors. In response, many organizations have adopted women's quotas, which are quantitative goals for the proportion of women in management positions (Leslie 2019; Nishii et al. 2018). Beyond addressing underrepresentation in leadership, such quotas are often understood as conveying a broader organizational commitment to gender equality (Bertrand et al. 2019; Leslie 2019), although their effectiveness and consequences remain subject to ongoing debate (Olenick and Somaraju 2024; Trzebiatowski et al. 2024).

Prior research has predominantly examined the effects of women's quotas at the organizational level, focusing on outcomes such as board composition, candidate qualifications, and firm performance (e.g., Adams and Ferreira 2009; Ahern and Dittmar 2012; Bertrand et al. 2019; Eckbo et al. 2022; Mazzotta and Ferraro 2020; Wang and Kelan 2013). However, much less is known about how these policies shape perceptions and reactions among the general workforce. Yet women's quotas are intended not only to influence promotion outcomes for upper management positions, but also to promote gender equality more broadly within organizations (Ahern and Dittmar 2012; Bertrand et al. 2019; Gould et al. 2018). As such, they may signal to all employees that the organization values gender equality

and is committed to promoting equal opportunities at all levels. Understanding their broader organizational impact therefore requires attention to how employees perceive and interpret these signals.

Addressing this gap, our study examines both employees' awareness of women's quotas and their reaction to them. We define awareness as employees' recognition of whether a quota does or does not exist, corresponding to Drover et al.'s (2018) notion of "noticing" a signal. Following recent calls to explicitly address the often-overlooked early stages of receivers' cognitive processing of signals (Drover et al. 2018; Ross et al. 2025), we argue that awareness is more likely among women, for whom women's quotas carry greater personal relevance. Beyond awareness, we examine how employees interpret the meaning behind a quota and how these interpretations shape their work engagement, which is an important driver of individual and organizational performance (Bailey et al. 2017). Specifically, we suggest that employees react more positively when they view the quota as an expression of the organization's commitment to gender equality rather than an externally imposed legal obligation.

We test our framework using the Linked Personnel Panel (LPP), a large, multi-source federal dataset of employees nested in German private-sector organizations (Mackeben et al. 2018a). This dataset allows us to link employees' perceptions with organizational reports of quota existence, offering a rare insight into signal perception across diverse firms. Furthermore, because Germany's Leadership Positions Act (FüPoG I) applies only to publicly listed companies that are subject to co-determination,[1] our sample includes organizations with and without legal obligations, thereby enabling us to examine how variations in legal obligations shape employee reactions.

Our study contributes to signaling theory in HRM and diversity research in three key ways, extending the focus from macro-level outcomes, such as board composition and firm performance, to the broader workforce. Building on signaling theory, we distinguish between signal awareness and signal interpretation (Connelly et al. 2025; Ross et al. 2025). First, we highlight the foundational role of signal awareness, a critical but often-overlooked stage in the signaling process (Ross et al. 2025). Although this initial stage is recognized in signaling theory (Connelly et al. 2011), it has received limited empirical attention. Our analyses reveal gender differences in awareness, reflecting differences in personal relevance. Moreover, descriptive statistics and confusion matrices show that even formal and explicit policies such as women's quotas often go unnoticed: 42.6% of employees fail to recognize an existing quota, and 30.0% perceive a quota where none exists. Our post hoc analyses further unpack these patterns. Taken together, our findings demonstrate that awareness is a nontrivial precondition for signaling effects and underscore the need to incorporate signal (mis)perception into theoretical models of HRM and diversity research to understand downstream signaling effects.

Second, we show that when employees perceive a women's quota to be in place, this perception is associated with higher work engagement. Employees seem to respond to perceived quotas based on the symbolic meaning they attribute to the organization's values and priorities, such as its commitment to gender equality. The fact that we did not find gender differences reinforces that, at the interpretation stage, this signaling effect operates independently of personal relevance. This suggests that the signaling value of women's quotas may be more consequential for work engagement than their anticipated direct effects (e.g., changes in promotion probabilities). Rather than viewing quotas solely as instrumental diversity policies, our findings show that employees respond to them based on their signaling value.

Third, we find that external regulations, such as legal obligations, weaken the signaling effects of quotas. When quotas are legally obligated, employees are more likely to attribute the policy to external pressures rather than organizational commitment, reducing the link between the signal and the underlying construct. These results highlight a limitation in HRM research, which often underappreciates the role of employees' perceptions of organizations' external motives in shaping their responses (for review, see Hewett 2021), especially for policies like women's quotas where external regulations are common. Given that legally obligated quotas are intended to enhance gender equality (Ahern and Dittmar 2012; Bertrand et al. 2019; Gould et al. 2018), our findings raise questions about whether externally mandated policies achieve the intended signaling effects among employees.

Practically, our findings show that the effectiveness of women's quotas depends not only on their formal adoption but also on whether and how employees perceive them. This highlights the need for deliberate strategies to ensure employees notice such policies, including regular assessments of awareness. We also emphasize the signaling value of women's quotas in conveying organizational values and priorities, that is, whether employees interpret them as reflecting the organization's commitment to gender equality. Complying with legal obligations is therefore insufficient to elicit positive responses from the workforce, making legal obligations an important contextual factor when evaluating quota effectiveness.

2 | Women's Quotas as Organizational Signals

Organizational goals and practices serve as signals for employees to interpret the intentions, values, and priorities of the organization for which they work. This signaling process triggers attributional and social-cognitive reactions that shape how employees perceive and respond to their workplace (Connelly et al. 2011; Guest et al. 2021; Trzebiatowski et al. 2024). To assess whether a women's quota functions as an organizational signal, we draw on Connelly et al. (2025) recent framework of signaling theory, which identifies four essential elements that must be examined to determine whether an action or feature qualifies as a signal in the strict sense: (1) the key components, that is, the signaler, receiver, and the signal; (2) the unobservable construct; (3) signal honesty; and (4) signaling costs.

We continue with a discussion of these four elements, as they are essential in deciding whether an observed policy such as a women's quota meets the theoretical criteria for a signal.

Key components: A foundational principle of signaling theory is the distinction between the signaler, the receiver, and the signal

(Spence 1973; Connelly et al. 2011). The *signaler* is the actor that emits the signal. In our context, the signaler is the organization, typically represented through top management or HR leadership. The *receivers* are the audiences that interpret the signal. Although signals may target multiple stakeholder groups (e.g., shareholders, customers, regulators, or investors), our study focuses on employees, who constitute the relevant receiving audience in the organizational setting we examine.

The *signal* refers to the observable organizational action or feature that conveys information about underlying, less observable qualities, intentions, or values (Spence 1973; Connelly et al. 2011). Accordingly, it is necessary to examine whether a women's quota qualifies as a signal in this sense, that is, whether it constitutes an organizational action, is observable, and conveys information about underlying characteristics. First, a women's quota can be conceptualized as an organizational action insofar as it represents a formal policy that explicitly commits the organization to reserving a certain number or proportion of leadership positions for women. Second, observability refers to the extent to which a signal can, in principle, be noticed by receivers (Connelly et al. 2011). It is a characteristic of the signal that varies along a continuum and can be shaped by the sender's actions (i.e., whether the signal is made visible; Ross et al. 2025), whereas awareness refers to the receiver's side and captures whether employees actually notice and register the signal. Women's quotas are typically highly observable in the public domain due to their visibility in organizational reports, political debates, and media coverage (e.g., discussions in Norway; Eckbo et al. 2022). However, internal communication practices determine how observable the quota is within and across the organization, and awareness may still differ across employee groups even when overall observability is high. Finally, because quotas explicitly communicate the organization's intentions regarding gender proportions in leadership, they offer a particularly suitable case for examining how employees infer organizational motives, values and priorities. Taken together, these considerations suggest that a women's quota can be regarded as a signal within the framework of signaling theory.

Unobservable construct: A signal must point toward an unobservable characteristic of the sender that they intend to communicate and that is of interest to the receiver. In the case of women's quotas, this unobservable characteristic is the organization's commitment to promoting gender equality (Ahern and Dittmar 2012; Bertrand et al. 2019). Because employees cannot readily assess the depth of leadership's beliefs or the sincerity of its efforts, this commitment is not easily measured or directly observable. Employees therefore rely on observable proxies such as quotas to infer these deeper, hidden attributes. A quota, then, is interpreted as an indicator that the organization values gender equality and prioritizes progress toward this goal (Leslie 2019; Wang and Kelan 2013).

Signal honesty: Signal honesty is defined as the extent to which the signal aligns with the unobservable construct, specifically whether "the signaler actually has the unobservable quality being signaled" (Connelly et al. 2025, 45). Women's quotas align with the underlying characteristic being signaled, an organization's commitment to gender equality, because they set concrete, measurable goals and establish clear accountability by requiring actual increases in female representation. Organizations that adopt such quotas are more likely to possess a commitment to gender equality. Supporting this, Kalev et al. (2006) found that accountability-based practices are more effective than less binding initiatives such as diversity trainings, and lead to the broadest increases in managerial diversity. Quotas therefore have high predictive validity as indicators of commitment to gender equality and can be understood as signals that reflect this underlying characteristic (i.e., "honest signals"; Connelly et al. 2011, 2025).

Signaling costs: Signaling costs are the costs associated with sending a signal. A core premise of signaling theory is that these costs differentiate high-quality signalers (i.e., committed organizations) from low-quality signalers (Connelly et al. 2025). Organizations that possess the underlying, unobservable characteristic face lower signaling costs, creating a negative correlation between sender quality and signaling costs (Spence 1973). Signaling costs of women's quotas include tangible and social costs (Ross et al. 2025). Tangible costs are the material resources that are used to send the signal and establish a women's quota in the organization, such as the administrative work of designing and enforcing quotas. Social costs refer to the intangible consequences associated with sending the signal or acquiring the underlying characteristic (Ross et al. 2025). For example, organizations that introduce a women's quota may need to manage resistance from employees or risk alienating groups who do not share these values (Morgenroth and Ryan 2018), which can translate into turnover, reduced attraction of certain applicants, or internal conflict. Additional social costs arise when quotas are not followed through or when follow-up actions fall short of expectations, potentially leading to reputational damage or diminished employee trust. These social costs arise from expectations and reactions of both internal and external stakeholders, and may be greater when a quota runs counter to prevailing societal or political trends. Our focus is on employees as the relevant stakeholder group.

While tangible costs are unlikely to vary substantially across organizations, social costs are expected to be lower for organizations with a commitment to gender equality because a women's quota aligns with their existing values, norms, and practices. In such contexts, employees are less likely to resist the policy, and organizations are more likely to support it with consistent follow-up actions. In contrast, for organizations that do not hold this commitment, implementing and maintaining a quota is more costly, as it may generate internal resistance or inconsistency with existing practices. This implies a negative correlation between an organization's commitment to gender equality and the signaling costs of a women's quota. In other words, when the signal is not "honest" (i.e., not backed by the organization's commitment to gender equality), maintaining the quota entails higher signaling costs. Women's quotas can therefore function as meaningful signals precisely because they are less costly for organizations that embody a commitment to gender equality.

2.1 | Employees' Awareness of a Women's Quota

Viewing women's quotas as organizational signals offers a valuable lens for understanding how such policies influence the

general workforce. Traditional signaling research typically examines how signals shape receivers' attitudes or behaviors, yet recent work highlights that an earlier stage, whether the signal is even noticed, has been largely overlooked (Ross et al. 2025). Although signaling theorists acknowledge the importance of receiver attention (Connelly et al. 2011), diversity signaling research often neglects this initial step. Employees must first notice the existence of a quota for any subsequent interpretation or reaction to occur. Without this initial awareness, even a well-designed policy cannot function as a signal.

Because we conceptualize women's quotas as organizational signals, our theorizing assumes that employees have at least some level of awareness of whether such a quota exists. At the same time, research in HRM shows that employees often misperceive organizational practices (Liao et al. 2009), with employee-manager agreement sometimes as low as $r = 0.13$ (Den Hartog et al. 2013). Therefore, it becomes important to understand which employees are more likely to attend to such information. Signaling research distinguishes between individuals who actively scan their environment for relevant cues (top-down attention) and those whose noticing is more passive and triggered only by highly salient, novel, or externally amplified cues (bottom-up attention; Drover et al. 2018; Ross et al. 2025). Top-down attention is more likely when information is personally relevant or linked to one's goals, making individuals sensitive to subtle or less observable signals. Bottom-up attention, by contrast, is reactive and more likely when the information carries limited personal relevance.

Applying this logic to women's quotas suggests that gender plays a central role. Women, as the primary potential beneficiaries of such policies, have stronger personal and professional reasons to be attuned to women's quotas. We define personal relevance as the extent to which an individual sees a signal or the underlying characteristic it represents as potentially affecting their outcomes, identity, or professional future. Even if not all women directly benefit from a quota (e.g., only those seeking leadership roles may be immediately affected), such policies generally carry greater personal relevance for their professional identity and career trajectories than for men's (Nishii et al. 2018; Trzebiatowski et al. 2024). Greater personal relevance enhances attentional focus and increases motivation to seek out or notice related information, thereby fostering top-down attention (Ross et al. 2025).

This aligns with research indicating that individuals are especially attentive to organizational signals relevant to the social categories with which they identify (Ross et al. 2025). Specifically, studies have shown that members of marginalized groups, such as women, are more sensitive to cues reflecting an organization's commitment to diversity and equality than those with non-marginalized identities (e.g., Goldberg and Allen 2008; Kang et al. 2016). Behavioral and structural factors further reinforce this pattern. Women more proactively seek information about initiatives that promote gender equality (Meyerson and Fletcher 2000; Ely and Meyerson 2000) and are more frequently exposed to such information through mentoring programs, women's networks, and diversity initiatives (Meyerson and Fletcher 2000; Ng and Burke 2005). Together, these factors tied to personal relevance increase women's likelihood of engaging in top-down attention and, consequently, of being aware of whether a quota exists.

Men, by contrast, generally perceive women's quotas as less relevant to their own outcomes, identity, or professional future. Lower personal relevance reduces attentional motivation and limits exposure to the cues needed to accurately register the (non-)existence of a quota. As a result, men are more reliant on bottom-up attention and may be more likely to overlook existing policies or mistakenly believe that one exists when it does not. Taken together, these arguments lead us to expect that the relationship between the actual existence of a women's quota and employees' perceptions of it will be stronger for women than for men.

H1. *The positive relationship between an actual women's quota and the likelihood that employees perceive the existence of a women's quota is moderated by employee gender, such that the relationship is stronger for women compared to men.*

2.2 | Employees' Reaction to a Women's Quota

Once a quota is noticed, it must be interpreted. Drawing on recent theorizing in signaling processes (Ross et al. 2025), interpretation represents the second core stage of cognitive processing in signaling, following attention. At this stage, employees draw inferences about why the organization implemented the quota and what it signifies. Interpretation depends less on the objective details of the policy and more on the meaning employees attribute to it, even if their perceptions are inaccurate. In seeking to reduce information asymmetry, employees form causal attributions about the organization's motives (Nishii et al. 2008); specifically, whether a quota reflects a well-intended, value-driven commitment (internal attribution) or is primarily the result of external pressures such as regulation, reputational concerns, or industry norms (external attribution). These attributional judgments, whether internal or external, form the basis through which employees make sense of what a quota signals about the organization.

Women's quotas are particularly well suited for examining such attributional judgments because of their distinctive characteristics. They combine a formal structural intervention with a specific and unambiguous purpose: increasing women's representation in leadership. Unlike other diversity initiatives, such as training or mentoring, quotas involve explicit, measurable targets, codified rules, and often regulatory or external oversight (e.g., media or stakeholders). This clarity makes quotas one of the most explicit signals an organization can send regarding its commitment to gender equality, giving employees a strong basis for inferring organizational motives.

When employees perceive the existence of a women's quota, they are therefore likely to engage in attributional reasoning about the organization's motives, either attributing these motives to internal organizational intentions or to external pressures. These interpretations extend beyond anticipated direct effects, such as changes in promotion probabilities, and highlight the symbolic value of quotas in signaling the organization's commitment to

gender equality. Consistent with prior research, diversity initiatives that communicate moral commitments can act as substantive, well-intended signals that foster perceptions of an ethical climate and promote engagement across the entire workforce (Leslie 2019; Trzebiatowski et al. 2024). Women's quotas thus provide a valuable empirical case for examining how diversity policies operate through signaling effects in addition to anticipated direct effects.

These interpretations have attitudinal and behavioral consequences (Nishii et al. 2018). When employees interpret organizational signals as reflecting just and equitable principles, they are more likely to reciprocate with positive attitudes and behaviors (Cropanzano and Mitchell 2005). One principal response of such positive interpretations is work engagement, a "positive, fulfilling, work-related state of mind" characterized by vigor, dedication, and absorption (Schaufeli and Bakker 2004, 295). It reflects a persistent and pervasive state that includes psychological, attitudinal, and behavioral facets (Schaufeli et al. 2006). Our theoretical focus is on the long-term, stable characteristic of work engagement that reflects enduring differences in employees' attitudes and behaviors in response to organizational policies like quotas. Prior research shows that HR signals influence employees' work engagement (Guest et al. 2021) and that engagement effects extend to both beneficiaries and non-beneficiaries of diversity initiatives (Leslie 2019). Accordingly, we expect that perceiving the existence of a women's quota is positively related to employees' work engagement.

H2. *Employees who perceive the existence of a women's quota in their organization have higher work engagement compared to employees who do not.*

Although our argument and prior research indicate that policies like quotas can influence the broader workforce (Leslie 2019), individual differences often influence causal attributions and responses to organizational signals (e.g., Avery et al. 2004; Goldberg and Allen 2008). Studies show that beneficiaries of such initiatives tend to respond more strongly than non-beneficiaries (Harrison et al. 2006; Lowery et al. 2006), suggesting the role of personal relevance in moderating the effects of these signals. Building on this, we focus on gender as a principal moderator of employees' reactions to the perceived existence of a women's quota.

For women, quotas carry both structural and symbolic relevance. Beyond opportunity-based effects of increased female representation (e.g., optimism about career prospects), women's quotas also signal organizational values and priorities that hold symbolic meaning for women. Because these values align closely with women's social identity, which shapes how individuals interpret signals (Ross et al. 2025), women are likely to respond more strongly to the quota, experiencing greater identification and belonging, and more positive evaluations of the organization (Ashforth and Mael 1989). Accordingly, the symbolic signaling value of women's quotas may be particularly strong for women, enhancing their work engagement. Women are therefore expected to exhibit higher work engagement, reflecting both the structural and symbolic value of the quota.

Men, in contrast, may view quotas as introducing a competitive shift that could slightly reduce their own promotion opportunities as women advance. Prior research has often focused on such concerns among non-beneficiaries, highlighting perceived threats to personal career prospects when others gain access to opportunities (e.g., Norton and Sommers 2011; Wilkins and Kaiser 2014). However, this perspective overlooks the symbolic signaling value of women's quotas. Even if the policy is not immediately relevant for men, they may recognize that quotas reflect the organization's commitment to gender equality, which can foster positive evaluations of the organization. Yet, because the policy's purpose is less directly tied to men's social identity, its symbolic meaning is likely to be weaker for them. As a result, while men may perceive the quota as signaling organizational values and priorities, it is less likely to strongly increase their optimism about career prospects or strengthen their identification and sense of belonging. Their work engagement responses are therefore expected to be weaker and primarily influenced by the symbolic rather than structural value of the quota.

H3. *The positive relationship between employees' perceived existence of a women's quota and work engagement is moderated by employees' gender, such that the relationship is stronger for women compared to men.*

A core principle of signaling theory is that for a signal to be effective, it must provide information about the unobservable construct it is intended to represent (Connelly et al. 2011). When the link between the signal and the underlying construct is unclear or ambiguous, it loses its interpretive power and no longer functions as an effective signal. In the case of women's quotas, this distinction matters because, although quotas may produce tangible outcomes such as increased female representation in leadership, their symbolic impact depends on whether employees interpret them as expressions of an organization's commitment to gender equality regardless of the organization's true intentions and motives. Attribution theory suggests that employees make this judgment by integrating the signal with contextual cues (Kelley 1973; Nishii et al. 2008). If these cues suggest that the quota primarily satisfies external pressures, such as regulatory mandates, reputation concerns, or industry expectations, the connection between the quota and the organization's commitment to gender equality is weakened. As a result, the symbolic value of the quota diminishes, and the organization's underlying characteristic remains ambiguous.

This issue is particularly important for women's quotas, which are often mandated by law. We argue that when an organization implements a quota under legal obligation, employees may see it as a compliance requirement rather than as evidence of internal commitment. Because the organization is required to adopt the quota regardless of its true values and priorities, employees do not interpret it as a discretionary action. Thus, although a legally obligated quota may still function instrumentally by increasing women's representation, it loses much of its signaling value. Employees cannot confidently infer organizational values from a policy that is externally imposed. As Connelly et al. (2025) argue, when the connection between a signal and the underlying construct is weak or uncertain, the signal's interpretive power diminishes to the point where it may cease to function as a meaningful signal at all.

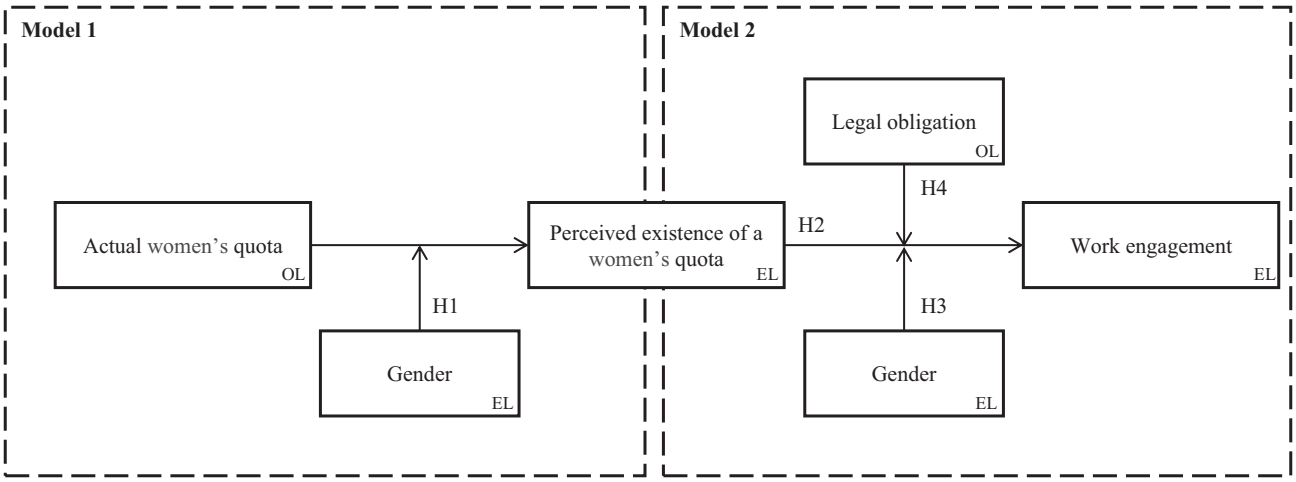

FIGURE 1 | Research model. $N = 2270$ employees nested in 537 organizations; EL, employee-level variables; H, Hypothesis; OL, organizational level variables.

This distinction is essential for understanding employees' reactions. In countries such as Norway, Belgium, France, Italy, Spain, the Netherlands, and Germany, where legal requirements for women's quotas in management are in place (Bertrand et al. 2019; Comi et al. 2020), organizations have limited discretion in adopting such policies. Importantly, these regulations typically apply only to organizations with specific characteristics. In Germany, for example, they apply only to publicly listed organizations that meet co-determination thresholds, rather than to all organizations Bundesgesetzblatt Jahrgang (2015) Teil I Nr. 17, 642ff. Employees are likely to recognize this contextual constraint and may therefore interpret the quota as offering little insight into the organization's own values and priorities. As a result, the quota loses much of its signaling value as an indicator of commitment to gender equality, which weakens its potential to foster positive attitudes or enhance work engagement. Consistent with this reasoning, Windscheid et al. (2017) found that government-mandated quotas can mitigate or buffer negative outcomes associated with certain diversity initiatives.

By contrast, in contexts without legal obligations, the decision to implement a women's quota is discretionary. Employees in these contexts are more likely to interpret the quota as a well-intended, value-driven expression of the organization's commitment to gender equality. This strengthens the quota's signaling value and increases its potential to enhance work engagement.

H4. *The positive relationship between employees' perceived existence of a women's quota and work engagement is moderated by legal obligation, such that the relationship is weaker when an organization is subject to legal obligation compared to when it is not.*

The research model is shown in Figure 1.

3 | Method

3.1 | Study Context

Our study was conducted after the Leadership Positions Act (FüPoG I) had come into effect in Germany on January 1, 2016. The new law required private organizations that are listed and subject to co-determination to set quantitative goals for the proportion of women on executive boards, upper management levels, and supervisory boards Bundesgesetzblatt Jahrgang (2015) Teil I Nr. 17, 642ff. It did not apply to smaller or non-listed organizations. With the largest listed German organizations recording low proportions of women on management (5%) and supervisory boards (20%) in 2015, the law was intended to increase the proportion of women in leadership positions and applied to more than 3500 organizations (FidAR 2015).

3.2 | Data and Sample

Our dataset is the Linked Personnel Panel (LPP), a longitudinal study in German organizations on the quality of work and economic success from the Research Data Centre of the Federal Employment Agency at the Institute for Employment Research (IAB) (Mackeben et al. 2018a). The LPP includes simultaneous observations of employer and employee perspectives on German private-sector organizations with more than 50 employees. We focused on the third wave, collected in 2016 and 2017, because it is currently the only one that includes all our main variables (specifically, perceived existence of a women's quota). Organizational level data were collected through face-to-face interviews with senior HR managers with comprehensive knowledge of the organization between June and October 2016 (employer survey), and employee-level data were collected through telephone interviews with employees between February and July 2017 (employee survey). The LPP, linked to the IAB Establishment Panel, is a credible and policy-relevant German data source, with its institutional importance, long-standing reputation, and rigorous quality controls supporting the reliability of the measures. A detailed data report is publicly available (Mackeben et al. 2018b).

The third wave includes observations from 4152 employees nested in 719 German organizations. We focus on observations with complete data across all variables used in our models, resulting in a sample of 2270 employees nested in 537 organizations with an average of 4.2 employee respondents per organization. Further sample descriptions can be found in Table 1.

TABLE 1 | Descriptive statistics.

	N	
Organizational level ($N_{total} = 719$)		
Goal to increase women in management	537	
0 = No	392	Group "No goal to increase women in management" (reference group for actual women's quota and goal communication, see Figure 2)
1 = Yes	145	
Actual women's quota	145	
0 = No	110	Group "Goal to increase women in management *without* women's quota"
1 = Yes	35	Group "Goal to increase women in management *with* women's quota"
Goal communication	145	
0 = No	58	Group "No goal communication"
1 = Yes	87	Group "Goal communication"
Legal obligation	537	
0 = No	498	
1 = Yes	39	
Industry	537	
Processing industry	169	
Metal and electrical industry, automotive sector	161	
Commerce, traffic, and communication	81	
Company-related services and financial services	69	
IT, communication and other services	57	
Organization size	537	
0–49 employees	17	
50–99 employees	143	
100–249 employees	202	
250–499 employees	97	
500 or more	78	
Employee level ($N_{total} = 4152$)		
Perceived existence of women's quota	2270	
0 = No	1492	
1 = Yes	778	
Gender	2270	
0 = Men	1561	
1 = Women	709	
Work engagement	2270	
Age	2270	

(Continues)

TABLE 1 | (Continued)

	N
Employment mode	2270
Blue-collar workers	739
White-collar workers	1531
Leadership position	2270
0 = No	1542
1 = Yes	728

Note: N = number of cases without missing values.

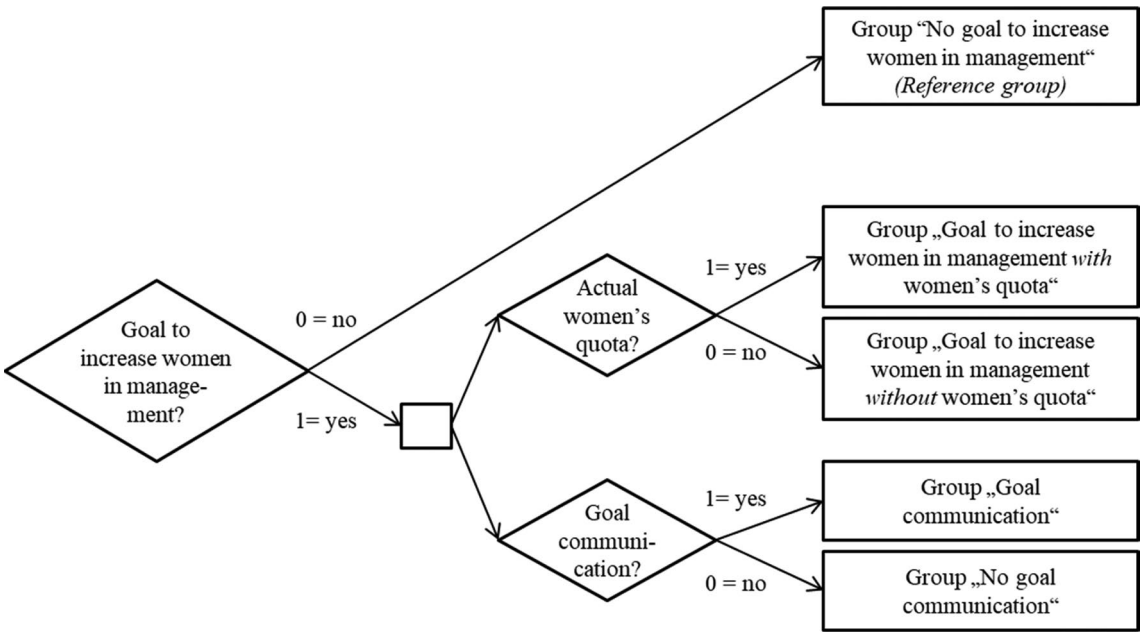

FIGURE 2 | Visualization of the groups for variables actual women's quota and goal communication.

3.3 | Measures

We used the original items from the LPP to measure our variables, reversing some scale points so that higher values indicate greater agreement. We first describe the variables at the organizational level, which were reported by senior HR managers. All items for these variables were part of the employer survey.

Actual women's quota: We measured the existence of a women's quota at the organizational level using a dichotomous item: "Have you set a quantitative goal for the proportion of women in management positions, which you want to achieve?" (0 = "no", 1 = "yes"). Organizations that affirmed this question formed the group "Goal to increase women in management *with* women's quota" ($N = 35$). As a reference group, we used organizations that reported no goal to increase the proportion of women in management ($N = 392$). The questionnaire also allowed organizations to indicate a goal to increase women in management without implementing a formal quota; these organizations were included as a separate group, labeled "Goal to increase women in management *without* women's quota" ($N = 110$). Figure 2 provides for a visualization of these groups.

Legal obligation: We used a single-item measure to assess whether an organization was subject to the German law on the proportion of women in management positions. The item asked "Does the recently published [law on the proportion of women, FüPoG I] apply to your establishment?", a requirement that applies only to publicly listed firms meeting co-determination thresholds. The measure was dichotomous (0 = "no", 1 = "yes").

Next, we describe the variables at the employee-level, which were reported by individual employees. All items for these variables were part of the employee survey.

Perceived existence of a women's quota: Employees' perceptions of whether their organization had a women's quota or not were measured using the single-item measure: "Has your company set a quantitative target for the proportion of women in management positions?" This descriptive measure (see Van Beurden et al. 2021) was dichotomous (0 = "no", 1 = "yes").

Gender: Employees' gender was measured with a dichotomous variable, where 0 indicated "men" and 1 indicated "women".

Work engagement: Work engagement was measured with the nine-item Utrecht Work Engagement Scale (UWES-9;

Schaufeli et al. 2006). Employees read nine statements and were asked to indicate how often they felt that way for each of the statements, based on a five-point Likert scale (1 = "never" to 5 = "daily"). Examples of the statements include "At my work, I feel bursting with energy", "I am enthusiastic about my job", and "I feel happy when I am working intensely". The scale demonstrated high internal consistency (Cronbach's $\alpha = 0.91$).

Control variables: We included control variables that we expected to influence the actual existence of a women's quota, employees' perceptions of it, and their work engagement. At the employer level, we controlled for *goal communication* using the item: "Has the goal to increase the proportion of women in management positions been communicated to the employees?" (0 = "no", 1 = "yes"). Organizations that affirmed this question formed the group "Goal communication" ($N = 87$). This item was only applicable to organizations that had previously indicated having such a goal. The remaining organizations were categorized into two groups: those with the goal but without communication to employees ($N = 58$), and those without a goal to increase the proportion of women in management ($N = 392$). This latter group, organizations without a goal to increase the proportion of women in management, is the same reference group used for measuring the existence of an actual women's quota (see Figure 2).

We also controlled for *industry* (dummies for "processing industry", "metal and electrical industry, automotive sector", "commerce, traffic, and communication", "company-related services, financial services", "IT, communication and other services") and *size* (1 = "0–49 employees", 2 = "50–99 employees", 3 = "100–249 employees", 4 = "250–499 employees", 5 = "500 or more employees"). These variables may affect both the likelihood that an organization implements a women's quota and how transparent it is toward employees, which in turn could shape employees' perceptions of the quota.

At the employee level, we controlled for *age* (in 2016, in years), *employment mode* (1 = "blue-collar workers", 2 = "white-collar workers"), and *leader position* (0 = "no", 1 = "yes"). These variables may affect how well employees are aware of organizational policies, including the existence of a women's quota. Age has been shown to influence work engagement (e.g., Alfes et al. 2020). Employment mode and leader position may shape employees' exposure to organizational information and involvement in decision-making, which in turn can influence both their perception of the quota and their level of work engagement.

3.4 | Analyses

Due to the nested structure of the data, we used two-stage multilevel models with employee-level observations at level 1 and organization-level observations at level 2. To test H1, we used mixed-effects logistic regression models. To test H2–H4, we used mixed-effects linear regression models. All statistical analyses were conducted using the software R for statistical computing (R Core Team 2026). The multi-level package (Bliese 2016) contains the respective functions to compute multi-level analyses. The R code is available on request.

4 | Results

Descriptive statistics and zero-order correlations of the main variables are presented in Tables 1 and 2. Two findings are worth highlighting. First, the correlation between the actual existence of a women's quota and employees' perceptions of such a quota is positive but modest ($r = 0.21$, $p < 0.001$), suggesting that organizational policies and employee perceptions are not strongly aligned. Second, there is a strong positive correlation between the existence of a quota and a legal obligation to adopt one ($r = 0.64$, $p < 0.001$), indicating that organizations generally comply with legal obligations. A cross-tabulation of the actual women's quota existence and legal obligation is provided in Table 3.

Building on these descriptive findings, and prior to testing H1, we examined the extent to which employees' perceptions of women's quotas correspond to organizational realities. We computed a confusion matrix (Fawcett 2006) comparing employees' perceptions of the existence of a women's quota with its actual existence in their organization (Table 4). Overall, 68.0% of respondents (1544 out of 2270) correctly perceived whether a quota existed, corresponding to an error rate of 32.0%. Specifically, 70.0% of respondents (1342 out of 1918) in organizations without a quota accurately reported its absence (true negatives, i.e., what we define as awareness of non-existence), and 57.4% of respondents (202 out of 352) in organizations with a quota accurately recognized its existence (true positives, i.e., awareness of existence). At the same time, 42.6% (150 out of 352) of respondents in quota organizations failed to recognize the quota (false negative, i.e., false perception of non-existence), and 30.0% (576 out of 1918) of respondents in non-quota organizations mistakenly believed a quota existed (false positives, i.e., false perception of existence). These descriptive patterns provide important context for the hypothesis tests that follow.

To test H1, we examined factors related to employees' perceived existence of a women's quota. A one-way ANOVA reveals significant differences in perceived existence of a women's quota between organizations (F (536, 1733) = 1.94, $p < 0.001$). Around 18.1% of the total variance in perceived existence of a women's quota is between-group variance (ICC1 = 0.181). Results for H1 are presented in Table 5. H1 states that the positive relationship between an actual women's quota and the likelihood of perceiving one is moderated by employees' gender, such that the relationship is stronger for women compared to men. As expected, the log-odds ratios differ significantly with gender ($b = 0.75$, $p = 0.024$). H1 is thus supported. Figure 3 further visualizes the strengthening disordinal interaction pattern (Gardner et al. 2017).

To test H2–H4, we examined factors related to employees' work engagement. There are significant differences in work engagement between organizations (F (536, 1733) = 1.27, $p < 0.001$). Around 5.9% of the total variance of work engagement is between-group variance (ICC1 = 0.059). Results for H2–H4 are shown in Table 6. According to H2, perceptions of the existence of a women's quota positively relate to work engagement. There is a significant positive relationship between the perceived existence of a women's quota and work engagement ($b = 0.30$, $p < 0.001$). Thus, H2 is supported.

TABLE 2 | Zero-order correlations.

		Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Goal to increase women in management[a]	0.41	0.49	0	1	—												
2	Goal to increase women in management *without* women's quota[a]	0.25	0.43	0	1	0.70	—											
3	Goal to increase women in management *with* women's quota[a]	0.16	0.36	0	1	0.52	−0.25	—										
4	Legal obligation[a]	0.16	0.36	0	1	0.38	−0.11	0.64	—									
5	Perceived existence of a women's quota[a]	0.34	0.47	0	1	0.19	0.05	0.21	0.26	—								
6	Gender[b]	0.31	0.46	0	1	0.01	0.07	−0.08	−0.08	−0.07	—							
7	Work engagement	3.70	0.81	1	5	0.04	0.03	0.01	0.02	0.15	−0.03	—						
8	No goal communication[a]	0.16	0.37	0	1	0.52	0.55	0.05	−0.02	−0.03	−0.03	0.01	—					
9	Goal communication[a]	0.25	0.43	0	1	0.69	0.33	0.55	0.44	0.25	0.03	0.03	−0.25	—				
10	Organization size[c]	3.86	1.12	1	5	0.36	0.14	0.32	0.36	0.23	−0.10	0.00	0.20	0.25	—			
11	Age	48.25	9.99	21	67	0.00	−0.02	0.01	−0.01	−0.02	−0.01	0.09	0.00	−0.01	−0.07	—		
12	Leadership position[a]	0.32	0.47	0	1	−0.05	−0.02	−0.04	−0.01	−0.03	−0.18	0.18	−0.04	−0.02	−0.03	0.06	—	
13	Employment mode[d]	1.67	0.47	1	2	0.09	0.05	0.07	0.08	−0.06	0.19	0.05	0.04	0.08	0.09	−0.08	0.12	—

Note: $p < 0.001$ for $|r| \geq 0.06$; $p < 0.05$ for $0.04 \leq |r| < 0.06$; $p > 0.05$ for $|r| < 0.04$.

[a]0 = "No", 1 = "Yes".

[b]0 = "Men", 1 = "Women".

[c]Measured in categories: 0–49, 50–99, 100–249, 250–499, 500 or more employees.

[d]1 = "Blue-collar workers", 2 = "White-collar workers".

H3 proposes a moderation effect of gender on the relationship between the perceived existence of a women's quota and work engagement, such that the relationship is stronger for women compared to men. We do not find a significant difference between women and men ($b = -0.01$, $p = 0.895$), so H3 is not supported. In H4, we propose that the relationship between the perceived existence of a women's quota and work engagement is moderated by legal obligation. Consistent with this, we find a significant moderation between employees' perceptions of the existence of a women's quota and an organization's legal obligation ($b = -0.28$, $p = 0.003$), indicating that the positive relationship is weaker under legal obligations. Additional pairwise comparisons show that, in organizations with a legal obligation, work engagement does not differ between employees who do not perceive a quota and those who do (men: mean difference = −0.066, $p = 0.884$; women: mean difference = −0.056, $p = 0.953$). In contrast, in organizations without a legal obligation, work engagement is significantly lower among employees who do not perceive a quota compared to those who do (men: mean difference = −0.351, $p < 0.001$; women: mean difference = −0.341, $p < 0.001$). Thus, H4 is supported. Results are visualized in Figure 4.

TABLE 3 | Cross-tabulation with number of organizations in cells.

	Legal obligation	
	0 = No	**1 = Yes**
No goal to increase women in management	370–390[a]	0–20[a]
Goal to increase women in management *without* women's quota	90–110[a]	0–20[a]
Goal to increase women in management *with* women's quota	0–20[a]	0–20[a]

Note: Gray cells represent cases where the existence of a women's quota is aligned with the legal obligation.
[a]Values based on fewer than 20 cases have been anonymized in accordance with the data access rules of the IAB Research Data Centre (Mackeben et al. 2018a).

4.1 | Robustness Checks and Post Hoc Analyses

We performed two checks to examine the robustness of our findings. First, because some organizations in the sample have fewer than five employee respondents, we repeated the analyses after excluding these cases (Maas and Hox 2005; Scherbaum and Ferreter 2009). This procedure resulted in the removal of 302 organizations with fewer than five respondents. The reduced sample comprised 1734 employees nested within 235 organizations. The analyses reveal no meaningful or substantive differences compared to the results reported in Tables 5 and 6, supporting the robustness of our findings. Second, we examined whether the results differed across the three sub-dimensions of work engagement: vigor, dedication, and absorption. The substantive conclusions remain unchanged across all three sub-dimensions (see Supporting Information A).

We then conducted post hoc analyses to further contextualize the descriptive patterns underlying H1 regarding the relationship between employees' perceptions of a women's quota and the actual existence of such a quota. Although one would generally expect employees' perceptions to align with organizational reality, this relationship is positive but does not reach significance ($b = 0.53$, $p = 0.076$, Table 5). Descriptive analyses also reveal notable gaps in awareness. To better understand the sources of these misperception, we examined whether gender differences in perception errors varied between false negatives and false positives. We computed confusion matrices disaggregated by gender (Table 7). These show that men have higher error rates in both directions: 44.5% of men failed to recognize existing quotas (false negatives) compared to 36.3% of women, and 32.4% of men incorrectly perceived a quota where none existed (false positives) versus 25.1% of women. In short, men are more prone to misperceiving quotas overall.

Building on this, we were further interested to see whether goal communication reduces these errors across groups. We computed confusion matrices disaggregated by both gender and goal communication (see Supporting Information B). We find that false negative rates decrease for both men (approx. 34% vs.

TABLE 4 | Confusion matrix with number of employee respondents in cells.

	Perceived existence of a women's quota				
	0 = No		**1 = Yes**		**Σ**
No goal to increase women in management	986	Awareness of non-existence True negative rate 70.0% = (986 + 356)/1918	358	False perception of existence False positive rate 30.0% = (358 + 218)/1918	1918
Goal to increase women in management *without* women's quota	356		218		
Goal to increase women in management *with* women's quota	150	False perception of non-existence False negative rate 42.6%	202	Awareness of existence True positive rate 57.4%	352
	Accuracy: 1544 correct cases/2270 total cases = 68.0%				

Note: Gray cells represent correct cases (i.e., true negatives and true positives).

TABLE 5 | Mixed-effects logistic regression for H1.

	DV: Perceived existence of a women's quota											
Predictors	***b***	**SE**	***p***	***b***	**SE**	***p***	***b***	**SE**	***p***	***b***	**SE**	***p***
Intercept	−2.39	0.38	< 0.001	−2.28	0.38	< 0.001	−2.22	0.38	< 0.001	−2.20	0.38	< 0.001
Age	0.00	0.01	0.600	0.00	0.01	0.568	0.00	0.01	0.557	0.00	0.01	0.573
Employment mode[a]	−0.57	0.12	< 0.001	−0.52	0.12	< 0.001	−0.53	0.12	< 0.001	−0.53	0.12	< 0.001
Leadership position[b]	−0.07	0.11	0.514	−0.13	0.12	0.248	−0.12	0.12	0.293	−0.13	0.12	0.276
Metal and electrical industry[c]	−0.20	0.17	0.243	−0.22	0.17	0.190	−0.21	0.17	0.201	−0.22	0.17	0.195
Commerce, traffic and communication industry[c]	0.40	0.23	0.085	0.40	0.23	0.084	0.41	0.23	0.076	0.42	0.23	0.072
Company-related services and financial services industry[c]	0.44	0.23	0.059	0.47	0.23	0.042	0.50	0.23	0.034	0.50	0.23	0.032
IT, communication and other services industry[c]	0.08	0.25	0.765	0.18	0.26	0.489	0.21	0.26	0.414	0.23	0.26	0.372
Organization size[d]	0.47	0.07	< 0.001	0.47	0.07	< 0.001	0.45	0.07	< 0.001	0.45	0.07	< 0.001
Goal communication[e]	0.93	0.17	< 0.001	0.93	0.17	< 0.001	0.64	0.24	0.006	0.64	0.23	0.006
No goal communication[e,g]	0.20	0.20	0.318	0.19	0.20	0.345						
Goal to increase women in management *with* women's quota[e]							0.53	0.30	0.076	0.34	0.31	0.273
Goal to increase women in management *without* women's quota[e]							0.15	0.20	0.450	0.16	0.20	0.435
Gender[f]				−0.30	0.12	0.015	−0.29	0.12	0.019	−0.41	0.14	0.002
Goal to increase women in management *with* women's quota × gender										**0.75**	**0.33**	**0.024**
Number of observations			2270			2270			2270			2270
Number of groups			537			537			537			537
SD (intercept)			0.78			0.76			0.76			0.76
AIC			2631.60			2627.80			2627.50			2624.30
BIC			2700.40			2702.20			2707.70			2710.20
logLik			−1303.82			−1300.89			−1299.73			−1297.15

Note: Values presented in bold are those relevant for the hypothesis tests.
[a]1 = "Blue-collar workers", 2 = "White-collar workers".
[b]0 = "No", 1 = "Yes".
[c]Dummy variable (comparison group: processing industry).
[d]Measured in categories: 0–49, 50–99, 100–249, 250–499, 500 or more employees.
[e]Dummy variable (comparison group: no goal to increase women in management).
[f]0 = "Men", 1 = "Women".
[g]Including all four dummies creates linear dependence, so the "No goal communication" group is omitted (see Figure 2).

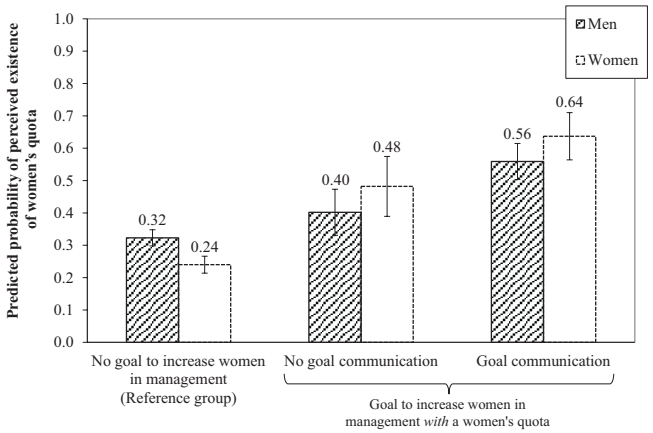

FIGURE 3 | Moderation effect of gender on the relationship between actual women's quota and perceived existence of women's quota.

approx. 80%) and women (approx. 31% vs. approx. 70%) when a goal is communicated. Men still had more false negatives overall but also showed a larger relative improvement with goal communication, reducing the gender gap in false negatives. Surprisingly, false positive rates increase slightly under goal communication for both men (approx. 32% vs. approx. 30%) and women (approx. 25% vs. approx. 22%). While men continue to have more false positives overall, women experience a slightly larger relative increase, leaving the gender difference in false positives largely unchanged.

These results suggest that goal communication improves employees' awareness of women's quotas by reducing false negatives (i.e., failing to notice a quota that actually exists), especially among men. However, it also increases false positives (i.e., perceiving a quota when none exists), especially among women. In other words, goal communication helps reduce gender differences in false perceptions of non-existence of quotas but does not reduce gender differences in false perceptions of existence. This indicates that while related signals can correct some misperceptions, other misperceptions persist and may stem from deeper interpretive biases, particularly among women who are more attuned to diversity signals.

5 | Discussion

Our results highlight the central role of employees' perceptions of the existence of a women's quota in understanding its impact. In the awareness stage, we observe that the actual existence of a quota is related to whether employees perceive one, but the relationship is weaker than expected: only 68.0% of respondents correctly identified whether their organization had a women's quota in place. Women were generally more accurate than men both in recognizing existing quotas and in correctly identifying when none were present. Second, perceiving the existence of a women's quota is related to higher work engagement. Interestingly, we find no significant gender differences in this relationship, suggesting that the quota's signaling value affects men and women similarly. Furthermore, the positive relationship between perceiving a quota and work engagement is stronger when the quota is not legally obligated, indicating that the signal is more impactful when it appears to reflect the organization's commitment. Under legal obligation, this relationship is almost entirely leveled out (Figure 4).

5.1 | Theoretical Implications

Prior research on women's quotas has primarily focused on macro-level outcomes and their implications for top management (e.g., Adams and Ferreira 2009; Ahern and Dittmar 2012; Bertrand et al. 2019; Eckbo et al. 2022; Mazzotta and Ferraro 2020). We extend this literature by shifting attention to how quotas are perceived and interpreted by the general workforce. Responding to recent calls to distinguish between the awareness and interpretation stages of signaling (Ross et al. 2025), we empirically examine these stages separately and show that they are shaped by different moderators. Whereas awareness appears to be driven by personal relevance and attentional focus, reactions hinge more strongly on how employees interpret the quota's meaning as a signal of organizational values and priorities. This distinction is especially relevant for diversity policies, whose effects often depend as much on perception and interpretation as on structural change. Policies like women's quotas frequently carry strong signaling value by communicating values of gender equality and long-term commitment, even when their structural consequences are limited or difficult to observe.

First, building on the distinction between awareness and interpretation in signaling processes, our findings draw attention to signal awareness as a critical but often-overlooked step in the signaling process (Drover et al. 2018; Ross et al. 2025). We make an important empirical contribution by explicitly examining the often-implicit assumption that employees are generally aware of whether a women's quota exists in their organization. Although signaling theory emphasizes that signals must first be noticed before they can shape interpretation or behavior (Connelly et al. 2011; Ross et al. 2025), diversity research rarely assesses whether this precondition is actually met. Our findings indicate that this cannot be taken for granted. Using descriptive analyses and confusion matrices (e.g., Table 4), we show that awareness of women's quotas is incomplete: while most employees correctly perceive the (non-)existence of a quota, a substantial share fails to recognize its existence when it is present (42.6% false negatives), and others mistakenly perceive a quota where none exists (30.0% false positives). These findings indicate that even formal and explicit policies can remain ambiguous in practice.

Because awareness is required for a quota to function as a signal, both false negatives and false positives represent points of information loss at the earliest stage of the signaling process. We find that these misperceptions are not random but differ systematically between women and men: women show higher awareness, whereas men show higher rates of misperception. This indicates that signal perception depends not only on the existence of a policy but also on the extent to which its content engages the personal relevance and attentional focus of different signal receivers.

TABLE 6 | Mixed-effects linear regression for H2–H4.

	DV: Work engagement											
Predictors	***b***	**SE**	***p***	***b***	**SE**	***p***	***b***	**SE**	***p***	***b***	**SE**	***p***
Intercept	3.22	0.11	< 0.001	3.22	0.11	< 0.001	3.20	0.11	< 0.001	3.19	0.11	< 0.001
Age	0.01	0.00	< 0.001	0.01	0.00	< 0.001	0.01	0.00	< 0.001	0.01	0.00	< 0.001
Employment mode[a]	0.07	0.04	0.063	0.07	0.04	0.054	0.10	0.04	0.007	0.10	0.04	0.006
Leadership position[b]	0.29	0.04	< 0.001	0.28	0.04	< 0.001	0.29	0.04	< 0.001	0.29	0.04	< 0.001
Metal and electrical industry[c]	0.05	0.05	0.274	0.05	0.05	0.290	0.06	0.05	0.225	0.06	0.05	0.163
Commerce, traffic and communication industry[c]	−0.08	0.07	0.222	−0.08	0.07	0.227	−0.10	0.07	0.130	−0.10	0.07	0.127
Company-related services and financial services industry[c]	0.02	0.07	0.772	0.02	0.07	0.743	−0.02	0.07	0.821	−0.01	0.07	0.826
IT, communication and other services industry[c]	0.08	0.07	0.280	0.08	0.07	0.244	0.07	0.07	0.314	0.06	0.07	0.366
Organization size[d]	−0.01	0.02	0.750	−0.01	0.02	0.720	−0.03	0.02	0.059	−0.04	0.02	0.054
Perceived existence of women's quota[b]							**0.30**	**0.04**	**< 0.001**	0.35	0.05	< 0.001
Gender[e]				−0.02	0.04	0.585	−0.01	0.04	0.863	0.00	0.05	0.942
Legal obligation (LO)[b]							−0.02	0.06	0.691	0.13	0.08	0.100
Perceived women's quota × gender										**−0.01**	**0.08**	**0.895**
Perceived women's quota × LO										**−0.28**	**0.10**	**0.003**
Number of observations			2270			2270			2270			2270
Number of groups			537			537			537			537
SD (intercept)			0.15			0.15			0.16			0.16
SD (observation)			0.78			0.78			0.77			0.77
AIC			5444.80			5451.10			5398.90			5400.40
BIC			5507.70			5519.80			5479.00			5492.00
logLik			−2711.38			−2713.55			−2685.44			−2684.22

Note: Results from models including only one moderator at a time yield no meaningful differences. Both moderators are included in the same model to allow for simultaneous estimation of moderation effects (Montoya 2019). Values presented in bold are those relevant for the hypothesis tests.

[a]1 = "Blue-collar workers", 2 = "White-collar workers".

[b]0 = "No", 1 = "Yes".

[c]Dummy variable (comparison group: processing industry).

[d]Measured in categories: 0–49, 50–99, 100–249, 250–499, 500 or more employees.

[e]0 = "Men", 1 = "Women".

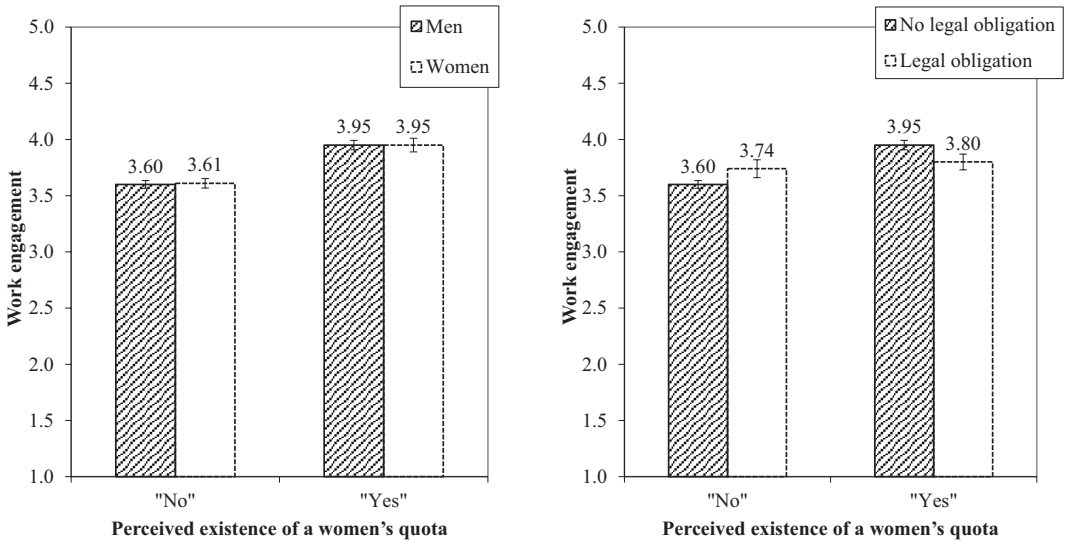

FIGURE 4 | Moderation effect of gender (left) with legal obligation held constant at 0. Moderation effect of legal obligation (right) with gender held constant at 0. Additional graphs with legal obligation held constant at 1 and with gender held constant at 1, respectively, show that moderation effects remain unchanged (see Supporting Information C).

TABLE 7 | Confusion matrices by gender with number of employee respondents in cells.

	Perceived existence of a women's quota				
(a) Men	**0 = No**		**1 = Yes**		**Σ**
No goal to increase women in management	656	True negative rate 67.6%	272	False positive rate 32.4%	1289
Goal to increase women in management *without* women's quota	215		146		
Goal to increase women in management *with* women's quota	121	False negative rate 44.5%	151	True positive rate 55.5%	272
	Accuracy: 1022 correct cases/1561 total cases = 65.5%				
	Perceived existence of a women's quota				
(b) Women	**0 = No**		**1 = Yes**		**Σ**
No goal to increase women in management	330	True negative rate 74.9%	86	False positive rate 25.1%	629
Goal to increase women in management *without* women's quota	141		72		
Goal to increase women in management *with* women's quota	29	False negative rate 36.3%	51	True positive rate 63.8%	80
	Accuracy: 522 correct cases/709 total cases = 73.6%				

Note: Gray cells represent correct cases (i.e., true negatives and true positives).

Extending this perception-sensitive view, our post hoc analyses show that adjacent organizational cues further shape awareness. Goal communication improves the recognition of existing quotas and seems to increase their salience particularly for individuals who rely more on bottom-up attention processes (Drover et al. 2018; Ross et al. 2025). At the same time, goal communication also increases false perceptions where no quota exists. This pattern illustrates that related signals are interpreted through audience-specific filters shaped by both personal relevance and the surrounding signal environment. Such dynamics align with Connelly et al.'s (2025) notion of organizational "signal systems," in which employees integrate multiple cues into their sensemaking. Our findings help explain why diversity policies can elicit varied and sometimes inconsistent perceptions across the workforce.

Taken together, this first contribution advances signaling research by showing that awareness of women's quotas cannot be assumed, that misperceptions systematically differ by gender, and that organizational goal communication can both reduce and create perceptual errors. These findings extend HRM research on gaps between intended and perceived policies (e.g., Arthur et al. 2016; Liao et al. 2009) and provide a signaling-based explanation for how such gaps emerge at the earliest stage of the signaling process. Signal misperception matters because it undermines alignment between organizational goals and

employee behavior. Employees who are unaware of a policy cannot support it, while those who mistakenly believe it exists may form unrealistic expectations or act inconsistently with organizational objectives. More broadly, our findings underscore the importance of a perception-sensitive view of signaling, in which employee awareness is a nontrivial precondition for downstream effects.

Our second contribution conceptualizes women's quotas as signals whose effects extend beyond anticipated direct effects (e.g., changes in promotion probabilities). Rather than viewing quotas solely as instrumental policies, where employees respond based on potential career benefits or losses, we highlight their symbolic meaning. We observe increases in work engagement across employees, regardless of whether they directly benefit from the quota or not. This pattern supports a symbolic interpretation, suggesting that employees respond not only to instrumental implications but also to what the quota signals about organizational values and priorities. By distinguishing between signal awareness and signal interpretation, we showed that while awareness is shaped by personal relevance, reactions depend more on how the quota is interpreted as a signal of organizational values and priorities. In this sense, the symbolic signaling value of women's quotas may be more consequential for work engagement than their anticipated direct effects. This insight likely generalizes to other domains where formal policies carry symbolic meaning and signal intent, such as ethics or sustainability.

Consistent with this interpretation, we find no gender differences in reactions to perceived quotas: men also respond positively when quotas are perceived to exist. If quotas operated primarily through instrumental effects, stronger positive reactions would be expected among women than men. Instead, the positive responses observed across genders point to the importance of symbolic meaning. These findings align with prior research suggesting that reactions to diversity policies often vary more within than between gender groups (Martins and Parsons 2007) and may reflect a broader sociocultural shift in contexts such as Germany, where support for initiatives to promote gender equality is increasing (Fernández and Valiente 2021; Möhring and Teney 2024). Overall, our findings challenge concerns that diversity initiatives provoke negative reactions among non-beneficiaries (e.g., Lowery et al. 2006; Windscheid et al. 2017). Although some men may perceive quotas as introducing competitive constraints, they may simultaneously interpret them as signals of fair and progressive organizational values. Negative reactions among non-beneficiaries are therefore not inevitable but depend on how policies are interpreted and linked to organizational values, underscoring the broader importance of symbolic signaling.

Third, we show that legal obligations weaken the signaling effect of quotas. Our study reveals that legal obligations, which lie beyond the organization's control, can substantially shape how employees interpret and react to policies like women's quotas. When quotas are legally obligated, employees are less likely to see them as signals of organizational commitment. From a signaling perspective, legal obligation weakens the perceived link between the signal (i.e., the women's quota) and the unobservable construct (i.e., organizational commitment to gender equality). By examining organizations with and without legal obligations, we refine signaling theory by showing how external pressures influence the signaling value of policies. This also critiques HRM research, which often underestimates the role of external motives (see review in Hewett 2021). By demonstrating that legal obligations can weaken the signaling value of women's quotas, our study calls for a reevaluation of what defines a "strong" HR system. Internal coherence and consistency (Bowen and Ostroff 2004; Ostroff and Bowen 2016) are necessary but not sufficient. A strong HR system must also be assessed based on how employees perceive the motives behind its policies, especially when implementing politically sensitive policies like women's quotas.

5.2 | Practical Implications

Our findings underscore that organizations should not assume diversity policies are received as intended; instead, perception must be treated as an empirical question. Despite formal policies such as women's quotas, employees are often unaware of their existence. This highlights the need for intentional communication strategies that increase employees' awareness of diversity signals and for regularly assessing awareness through surveys or feedback mechanisms. Without such efforts, organizations risk misfiring their intended signals and undermining the policy's effectiveness.

Communication strategies should be aligned with their intended purpose: when the goal is to clarify access to career opportunities (i.e., anticipated direct effects), targeted communication toward intended beneficiaries may be most effective. When the aim is to signal broader organizational values, such as gender equality or progress, communication should reach the entire workforce to foster engagement and support, including among non-beneficiaries. Balancing targeted communication with broad signaling enables organizations to pursue both practical and signaling goals.

We also demonstrate that the effectiveness of a women's quota depends on whether employees see it as reflecting the organization's commitment to gender equality. Although legally obligated and non-obligated quotas are formally identical in design, employees interpret them differently, and these interpretations shape their reactions and the quota's impact. Legal compliance alone is therefore insufficient: legally obligated quotas may be seen as less indicative of the organization's underlying commitment and yield weaker positive effects. Organizations should therefore treat legal obligations as an important contextual factor when evaluating the effectiveness of a quota, as weaker effects may reflect compliance-driven interpretations by employees rather than limitations of the quota as a policy tool.

5.3 | Limitations and Future Research

Our study has several limitations that open up valuable directions for future research. First, we do not capture whether organizations actively pursue the quotas they adopt. Under

Germany's Leadership Positions Act (FüPoG I), organizations could set low or even zero quotas without sanctions, creating the possibility of symbolic or "cheap talk" quotas that may go unnoticed by employees or fail to elicit positive responses. While such cases cannot be entirely ruled out, we believe this concern is mitigated in our sample. Organizations with quotas were required to explicitly state their intention to increase the proportion of women in management roles, and the LPP study's institutional relevance, respondent profile, and rigorous data quality controls during data collection (including structured personal interviews and post-survey validation) give us confidence that the quotas largely reflect credible efforts rather than superficial gestures.

Future research could examine how organizational follow-through or sustained implementation affect employee perceptions and reactions over time (Connelly et al. 2025). Longitudinal and experimental studies could explore how signals and signaling effects evolve across different phases of quota implementation, especially when legally obligated quotas are first introduced or when complemented by additional initiatives.

Second, both perceived quota existence and work engagement were measured via employee self-reports, raising concerns about common method variance. This could inflate or deflate the observed effects for H2. However, prior research (Evans 1985; Siemsen et al. 2010) shows that moderation effects, such as those in H3 and H4, are unlikely to be artifacts of common method variance. If anything, common method variance decreases the reliabilities of the measures and deflates moderation effects. Any moderation observed in such designs is likely conservative, offering stronger evidence for a true effect.

Furthermore, while the conceptual model could be framed as a moderated mediation, we were unable to find a method that accommodates both our analytical requirements (2-1-1 multilevel moderated mediation with a categorical mediator) and the data access rules of the IAB Research Data Centre (Mackeben et al. 2018a). Moreover, a potential indirect effect would depend on a non-significant a-path ($b = 0.53$, $p = 0.076$, Table 5), making a meaningful mediation effect improbable. Therefore, the conclusions regarding the signaling effects of women's quotas remain valid.

Building on this, future research could explore additional factors that influence employees' awareness and reactions, such as their diversity values (Ross et al. 2025), prior experiences with (in)equality, perceived organizational support, fairness perceptions, or identity threat. Given our broad, multi-organizational sample, we prioritized breadth over depth. Future qualitative or experimental research could build on our findings to explore the cognitive and emotional processes behind employees' (mis)perceptions and reactions.

Third, our analysis focuses on legal obligation as a contextual cue without capturing the full range of motives that may drive quota adoption. Legal obligation does not rule out internal intentions to promote diversity and inclusion, nor does its absence guarantee that organizations act with sincere commitment. Some organizations may pursue meaningful change alongside compliance, while others may engage in symbolic window-dressing. Although using legal obligation simplifies the complexity of organizational motives, we view it as a useful starting point for examining how contextual cues shape employee interpretations and for motivating future research on attributed intentions.

In line with this, future studies could investigate whether our findings generalize to other forms of legal obligation, such as regulations on remote work, workplace health, or occupational safety. Also, while legal obligations constrain organizational discretion, other types of institutional pressures such as normative (e.g., sustainability norms) or mimetic (e.g., competitive isomorphism) pressures may allow for more strategic signaling (Lewis et al. 2019). More broadly, studies could examine how combinations of external pressures and organizational intentions shape employee interpretations, the signaling value of women's quotas, and overall policy effectiveness, including strategies to promote value-driven interpretations even under mandated quotas. It could also be interesting to extend beyond internal stakeholders to consider how quotas influence perceptions among external groups, such as customers or investors.

Fourth, our study focuses on a single signal in isolation, whereas employees typically encounter signal sets, that is, multiple concurrent signals that shape meaning (Connelly et al. 2025; Drover et al. 2018). Quotas accompanied by mentoring, inclusive training, or leadership development may be perceived as more credible, while isolated quotas without complementary initiatives or even competing signals can be seen as tokenistic or insincere. Prior work in signaling (e.g., Drover et al. 2018; Meier-Barthold et al. 2023) emphasizes the importance of signal consistency and contextual cues. Future research could examine how signals reinforce or undermine one another and when signal sets produce coherence versus confusion.

Such investigations could also explore how signals affect multiple outcomes. While we focused on work engagement due to its central role in driving performance (Bailey et al. 2017), the same signals may influence other outcomes in different ways. For example, women's quotas may increase work engagement for both women and men, but they may particularly increase psychological safety or career self-efficacy among women, with little or no effect for men. Looking at multiple outcomes can provide a richer understanding of how policies like women's quotas shape employee attitudes and behaviors.

Fifth, future research should investigate perceptions at the collective level. We observed moderate within-organization agreement regarding the (non-)existence of quotas (ICC1 = 18.1%), suggesting that shared understanding varies across organizations. Convergence in perceptions may support a coherent equality climate, whereas divergence may signal inconsistent communication or implementation. Future studies could explore how such (dis)agreement shapes organizational climate, employees' alignment with diversity goals, and the role of line managers in shaping local interpretations.

Sixth, our study is situated in the German context. Cross-national research indicates that support for quotas varies across institutional and cultural settings, as does the gender gap in support (Möhring and Teney 2020). Consequently, our findings may not fully generalize to countries with different norms regarding gender equality or state intervention. Our

findings should therefore be generalized with caution, and future cross-national studies are needed to explore contextual variation.

6 | Conclusion

Our study highlights a critical but often-overlooked reality: the effects of formal policies like women's quotas depend not only on their existence but also on how employees perceive and react to them. Using a signaling perspective, we show that women's quotas influence employee responses through employees' awareness of the policy and their interpretation of the organization's intention. Ultimately, promoting gender equality requires not just structural change but also careful attention to the signaling effects of these policies.

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The authors have nothing to report.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from Research Data Centre (FDZ) of the German Federal Employment Agency (BA) at the Institute for Employment Research (IAB). Restrictions apply to the availability of these data, which were used under license for this study. Data are available from https://fdz.iab.de/en/ with the permission of the IAB.

Endnotes

[1] Co-determination in Germany is regulated by the Co-Determination Act Bundesgesetzblatt Jahrgang (1976) Teil I Nr. 51, 1153ff, which requires that companies with more than 2000 employees allocate half of the seats on their supervisory boards to employee representatives elected by the workforce.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section. **Table S1a:** Results for H2–H4 using the vigor dimension of work engagement. **Table S1b:** Results for H2–H4 using the dedication dimension of work engagement. **Table S1c:** Results for H2–H4 using the absorption dimension of work engagement. **Table S2:** Confusion matrices by gender and goal communication with number of employee respondents in cells. **Figure S1:** Moderation effect of gender (left) with legal obligation held constant at 1. Moderation effect of legal obligation (right) with gender held constant at 1.