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Are benefits of female leaders for female workers dependent on similarity in work-life characteristics?

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Abstract

It is commonly believed that increasing the number of female leaders in corporate organizations will positively influence gender equality in the workplace. However, there are mixed findings whether women's higher representation in boards of corporations reduces gender inequality. I investigate how the work and family characteristics of female leaders and female workers, as well as the similarity between these characteristics, influence female leaders' impact on the gender wage gap. Yearly panel analyses with organization and year fixed effects are conducted on linked employer-employee register microdata of 19699 Dutch companies during the period of 2006-2018. I examine the effects of changes in the gender composition of corporate boards and the employment- and parenthood status of female board members on female workers' careers. For all analyses, the effects of both directorate board members and the CEO are investigated. The findings show that female employees' careers benefit from female leaders, but this benefit depends on 1) the position of female leaders and their work-family characteristics, 2) the work-family characteristics of workers, as well as 3) similarity between female leader and worker work-family characteristics.

*Keywords***:** Female leaders, gender wage gap, work-life characteristics

1. Introduction

While the share of women in powerful positions has increased in the last decades, they remain clearly underrepresented in corporate company boards around the world (Eurostat, 2021). In the Netherlands, only 15 percent of the board positions in the 5000 biggest companies was occupied by women in 2019 (Jongen et al., 2019). Besides the gender gap in interest for such positions, processes of bias in hiring and promotion procedures (i.e. gender stereotypes and homophily) are identified to be an important cause of inequality in career advancement of male and female workers, and subsequently women's underrepresentation in management (Eagly, 1994; Perrault, 2015; Van Hek & Abendroth, 2019).

A common belief is that increasing the number of women in powerful positions could thump these biases and subsequently improve women's career opportunities. For example, gender quotas are increasingly implemented by national governments, with the expectation that these policies not only provide women a better chance to attain board positions, but that increasing the share of women in boards will enhance gender equality in the workplace more broadly.

However, there are mixed findings whether women's higher representation in boards of corporations reduces gender inequality in organizations. Whereas some studies have found a positive influence of female board members on their female employees' careers (e.g. Arvate et al.,2018; Kurtulus & Tomaskovic-Devey, 2011; Skaggs et al., 2012; Stainback et al., 2016), others found no such effect (e.g. Bertrand et al., 2019; Van Hek & Abendroth, 2019) and some studies even point to adverse effects (e.g. Ellemers et al., 2004; Elliot & Smith, 2004; Faniko et al., 2020; Maume, 2011).

The absence of a benefit of female leaders over male leaders on gender equality is explained by literature adhering to "Queen Bee" theory, which suggests that women in higher positions distance themselves from their female subordinates and associations with femininity in general, as they adjust to the masculine culture of the board (Ely, 1995; Ridgeway, 2001; Staines et al., 1974). Consequently, queen bees are likely to legitimize gender inequality and be susceptible to gender stereotypes themselves (Derks et al., 2011a; Faniko et al., 2020).

Although Queen Bee theory provides a plausible explanation for adverse gender equality outcomes of female managers, it concerns only gender as characteristic and omits other relevant work

and family factors that impact the chance to get promotion, such as full-time commitment to the organization or having children. These characteristics are not only independently relevant, they may interact with the gender of worker and manager in influencing women's promotion opportunities. There is currently little known about their potential role in the impact of female leadership on gender equality in the workplace. I theorize that they are firstly important for their consequences for *homophily*: if female leaders are more similar to junior women in work-family choices, such similarity can reduce distancing (Faniko et al. 2017), improving informal relations and chances of promotion (Huffman & Torres, 2002). Secondly, work and family characteristics are also socially meaningful, gendered categories and relevant for *stereotyping*: female directors whose work and family characteristics associate with negative female stereotypes (e.g. part-time work aligns with the female stereotype of having lower career ambitions) may be more likely to reduce gender biases and subsequently engender positive effects for their female workers, than female directors whose characteristics do not align with these stereotypes.

In explaining differences in gender equality outcomes of female board members in earlier research, the role of worker characteristics has thus far been overlooked. This study fills this gap by investigating how gender and the work and family characteristics of organizational leaders impact the gender wage gap. Specifically, I answer the following research questions: *Are Dutch female board members more likely to decrease wage inequality between male and female workers than male board members? And do career-related characteristics of female employees and board members, as well as the similarity between these characteristics, influence the (potential) benefit of female board members over male board members?*

The current study aims to investigate these questions using data from the Netherlands. The Dutch organizational context provides an interesting case, as the Netherlands is a unique country when it comes to female labor market participation; with around 75 percent of employed women working part-time, they by far have the highest female part-time employment rate of all countries in the world (The World Bank, 2021). Part-time employment in the Netherlands is largely voluntary due to the Wet Aanpassing Arbeidsduur (Adjustment of Working Hours Act) which has created an environment that permits wide access to part-time employment by allowing workers to scale back their employment

hours. Although this applies for everyone, part-time employment in the Netherlands is highly gendered. Women often reduce their work hours to take on caring responsibilities, which is encouraged normatively, by fairly traditional gender role attitudes that are generally adhered by the Dutch society (Perez et al., 2018; Portegijs & Van den Brakel, 2016), as well as institutionally, by family policies that promote a one-and-a-half-income earners model (McKinsey Global Institute, 2018).

To answer the research questions, microdata from the Dutch Central Bureau of Statistics (CBS) will be used to investigate wage inequality in the Dutch companies with gender variation in their boards between 2006 and 2018.

2. Theoretical background

2.1 Agents of change theory

The highest organizational levels are often dominated by men and characterized by a culture of hegemonic masculinity. Hegemonic masculinity refers to the practice of perpetuating male dominance by praising stereotypical masculine traits and behaviors, while devaluing traits and behaviors that do not align with this masculine ideal (Connell, 1995; Connell & Messerschmidt, 2005). It thereby contributes to the subordination of women, and affects application and promotion procedures in corporate organizations, leading women to often hit a "glass ceiling" when aiming for positions in the highest organizational levels (Stainback et al., 2010).

Two contradicting theoretical expectations exist about how female leaders influence such process of gender inequality in the workplace (Cohen & Huffman, 2007). Female leaders are expected to either act as "agents of change" or "cogs in the machine". The *agents-of-change hypothesis* argues that female leaders serve as change agents in combatting gender inequality, by improving women's career opportunities through two different mechanisms:

First, female leaders are expected to be more aware of gender stereotypes that inhibit women's opportunities for advancement, possibly due to shared personal experiences (Maume, 2011). Women are often perceived as having lower career commitment and competence than men (Cuddy et al., 2004; Heilman, 2001). Leaders' awareness of such stereotypes is suggested to combat possible discriminatory behavior resulting from them (e.g. Bezrukova et al., 2012; Huffman & Cohen, 2007).

Hence, female leaders are expected to be less likely to adhere to gender stereotypes, and subsequently discriminate against women as compared to their male counterparts.

Second, because of homophily, people's tendency to prefer individuals with similar demographic characteristics (Tsui & O'reilly, 1989), female leaders are expected to promote their female workers' careers more than male leaders. Having the same gender is found to influence both managers' perceptions of their subordinates' competence (Castilla, 2011), as well as potential informal relationships that are formed between them, which are in turn both known to affect promotional opportunities (Gabaldon et al., 2015; Huffman & Torres, 2002). Moreover, people tend to be more comfortable with -and more likely to trust- individuals who are similar to them (Kanter, 1977). As a result, male-dominated boards are found to benefit male candidates in director selection processes (Burke, 2000). Increasing the share of female leaders may therefore alter this advantage, and subsequently benefit the advancement opportunities of female workers.

Thus, the change-agent-perspective argues that, as a consequence of awareness of gender stereotypes and homophily, female leaders improve the careers of female workers. On the basis of these two mechanisms, I formulate the following hypothesis:

> *Hypothesis 1a: A higher proportion of female board members leads to lower career wage inequality between male and female employees.*

2.2 Queen Bee theory

According to the cogs-in-the-machine hypothesis, female leaders do not promote careers of female workers more than male leaders. Van Hek and Abendorth (2019) distinguished a weak and a strong version of this hypothesis. The strong version of the hypothesis argues that women are not motivated to better- and might even disadvantage- other women's careers, which is similar to the so-called "*Queen Bee theory*" (Cohen & Huffman, 2007; Staines et al., 1974; Van Hek & Abendroth, 2019). In contrast to the agents-of-change perspective, Queen Bee theory claims that female leaders act as queen bees who adjust to the masculine culture of the higher organizational levels in order to *get* or *keep* their managerial position (Kanter, 1977; Staines et al., 1974). Queen bees do not improve

gender equality but are more likely to become "cogs in the machine" who perpetuate the current gender hierarchy (Derks et al., 2015). There are two reasons:

First, female leaders are argued to be susceptible to gender stereotypes themselves. Consequently, they may be as susceptible as male leaders of making the same gendered assumptions in assessing their female employees' competence. Derks et al. (2011a) find support for this assertion, showing that female leaders perceive their female subordinates as less ambitious and committed to their careers compared to themselves, but such negative comparison was not apparent for their male subordinates.

Second, female leaders are argued to distance themselves from other women in their firm, and instead tend to identify with the masculine culture of corporate boards. They are found to often describe themselves as much more masculine than their female subordinates, and as having equal or sometimes even more masculine traits than their male counterparts (Derks et al., 2011b; Ellemers et al., 2004; Lückerath-Rovers et al., 2013). Indeed, women in high-authority positions are generally found to perceive themselves as very different than other women (Derks et al., 2011b; Stroebe et al., 2009). As queen bees seem to distance themselves from other women in their firm, which undermines potential homophily benefits, they are not expected to promote women's careers more than male leaders.

Susceptibility to gender stereotypes and a lack of identification with women in general suggest that increasing the number of women in managerial positions will not improve career opportunities for female employees. This leads to the following hypothesis:

Hypothesis 1b: A higher proportion of female board members does not lead to lower career wage inequality between male and female employees.

2.3 Masculine and feminine work-life types

Both the *agents-of-change theory* (e.g. Arvate et al.,2018; Kurtulus & Tomaskovic-Devey, 2011; Skaggs et al., 2012; Stainback et al., 2016) and the *Queen Bee theory* (e.g. Bertrand et al., 2019; Ellemers et al., 2004; Elliot & Smith, 2004; Faniko et al., 2020; Maume, 2011; Van Hek & Abendroth, 2019) are supported by numerous studies. In light of these mixed outcomes, which mechanisms are at

play in practice likely depends on alternative factors. The two perspectives on female leadership both identify two individual-level mechanisms predicting the influence of female leaders on junior women's careers: female leaders' *susceptibility to gender stereotypes* and *identification with their female employees*. I argue that the way these mechanisms operate - positive, negative, or no influence on their female subordinates careers- depends on the work and family characteristics of female employees and leaders, as well as on the similarity of these characteristics.

Work and family characteristics have long been gender-related connotations, with men and women generally dividing their responsibilities differently. Signs of a traditional role division are still visible; whereas men on average spend more hours in paid labor than women, women spend more hours in unpaid work, which for the most part entails the care of their children (OECD, 2022; Portegijs et al., 2008; Van Thor et al., 2018). Therefore, these characteristics can either be viewed as *masculine*, reflecting the work-life type of a typical male worker (i.e. full-time commitment and no family responsibilities), or *feminine*, reflecting the work-life type of a typical female worker (i.e. part-time commitment and motherhood). I hypothesize that the benefit of female leaders on female employees is dependent on whether they adhere to a feminine or a masculine work-life type and on the similarity of their work-life types.

2.4 Work-life types and the influence of female leaders on the careers of female workers

The two different perspectives of female leadership both consider gender stereotypes to be relevant in female leaders' influence on women's careers. Whereas the agents-of-change theory expects that female leaders' potential awareness of -and personal experience with- gender stereotypes will reduce discrimination against women, Queen Bee theory argues that female leaders are prone to stereotyping women themselves.

Gender stereotypes that disadvantage women's careers often relate to women's lower perceived career commitment (Cuddy et al., 2004; Heilman, 2001). As the feminine work-life type is relatively more family-oriented, and the masculine work-life type more career-oriented, workers adhering to a feminine worker type are more likely to be discriminated on the basis of these stereotypes. For example, mothers are generally perceived to have lower career commitment than women without children (Cuddy et al., 2004). As a result, women with a feminine work-life type are

more likely to have experienced career drawbacks resulting from gender stereotypes, and subsequently, to be more aware of them, than women with a masculine work-life type. In turn, this is expected to lower the likelihood of adherence to gender stereotypes, as well as subsequent discriminatory behavior (e.g. Bezrukova et al., 2012; Huffman & Cohen, 2007). Therefore, I formulate the following hypothesis:

> *Hypothesis 2: Female leaders who adhere to a feminine work-life type are more likely to lower career wage inequality between male and female employees than female leaders who adhere to a masculine work-life type.*

At the same time, if female leaders are more aware of gender stereotypes than male leaders, this would disproportionally benefit female employees adhering to a feminine work-life type compared to female employees adhering to a masculine work-life type, for the same reason: part-time working women and mothers are expected to experience more discrimination based on gender stereotypes. This leads to the following hypothesis:

> *Hypothesis 3a: Female leaders are more likely to increase the hourly wage of female employees who adhere to a feminine work-life type than female employees who adhere to a masculine work-life type.*

Both perspectives about female leadership also emphasize the role of homophily in female leaders' impact on gender equality. Whereas the agents-of-change theory argues that female leaders benefit female employees more than male leaders due to benefits of gender homophily, Queen Bee theory addresses female leaders' lack of identification with women in general, which may undermine potential homophily benefits.

However, homophily is not limited to similarity in gender; other ascriptive characteristics, such as race, but also cultural characteristics, such as experiences or interests, are found to be relevant in interpersonal attraction and the evaluation of merit (Dimaggio, 1987; Lamont & Molnar, 2002; Wimmer & Lewis, 2010). For the majority of adults, work and family represent the two most central domains in their lives, which are inherent to the societal roles they fulfill. In turn, these roles serve as

badges of social group membership, on which individuals define their social identities (Tajfel & Turner, 1979). Work and family characteristics are therefore expected to be important for cultural matching and subsequent homophily processes. Rivera (2012) found that homophily benefits in hiring practices are stronger for cultural characteristics than for ascriptive characteristics alone, and even more important than applicants' assessed productivity. In her research she focused particularly on similarity in lifestyle markers, such as experiences and leisure activities. Work hours and parenthood are not only directly related to leisure time, they also indirectly influence activities and interests. It can therefore be expected that similarity in work-life characteristics positively influences career outcomes. I formulate the following hypothesis:

> *Hypothesis 4: Female leaders are more likely to increase the hourly wage of female employees who adhere to the same work-life type as them.*

Since high organizational positions often require full-time commitment to the organization, female leaders are more likely to adhere to a masculine work-life type than a feminine work-life type. Homophily benefits of female leaders are therefore expected to be higher for employees adhering to a masculine work life-type, compared to employees who adhere to a feminine work-life type. This contradicts the expectation that female leaders will particularly benefit part-time employees because of female leaders' potential awareness of stereotypes, and leads to the following contradicting hypothesis:

> *Hypothesis 3b: Female leaders are more likely to increase the hourly wage of female employees who adhere to a masculine work-life type than female employees who adhere to a feminine work-life type.*

2.5 Cogs in the machine (weak version)

Besides to the strong version of the cogs-in-the-machine hypothesis, that is similar to the Queen Bee theory in its expectation that female leaders are not motivated to improve gender equality, the weak version of this hypothesis suggests that female leaders are motivated to improve gender equality outcomes, but lack the power to do so (Van Hek & Abendroth, 2019). Female leaders are

assumed to lack the ability to change workplace outcomes and subsequently gender equality indicators, either because women often occupy leadership positions with less power (e.g. Acker, 2006; Dobbin, 2009), or because of bureaucratic procedures limiting their opportunities to exert influence (e.g. Charles & Grusky, 2004; Cohen & Huffman, 2007; Maume, 2011). To investigate this, a distinction will be made in the analyses between the proportion of women in company boards and the gender of the CEO.

3. Method

3.1 Data description

I use linked employer-employee register microdata from the Social Statistics Database (SSB) of the Dutch Central Bureau of Statistics (CBS) on the full population of Dutch organizations, organizational leaders, and employees. Information on organizational leadership comes from compulsory Chamber of Commerce registrations. Information on hourly wages and working hours is obtained from yearly tax registers, and gender, age, and parenthood are from municipal registers. All Dutch organizations with a minimum of 50 employees in 2018, which had variation in the gender composition of their boards and employees between 2006 to 2018, were selected, resulting in a sample size of 19699 companies. Information of employees was aggregated at group level for computational reasons; data processing and analyses were done with the statistical program R, which has difficulty handling macro data files of this magnitude. The aggregated data was combined with information of company boards to create a panel design on the level of organizations.

3.2 Variables and operationalization

For the independent variables on the level of employees, four groups were created by a combination of their gender, with the options male (0) or female (1), and employment status, with the options full-time (0), representing an employee who works 35 hours or more, and part-time (1), representing an employee who works less than 35 hours. This is in line with the distinction for employment status used by the CBS (CBS, 2021). It was unfortunately not possible to include information about employee's parenthood status. Hence, only their employment status is used as indicator of their work-life type.

The outcome variable career wage inequality was measured by employees' average hourly wage per group. Yet, a change in the average wage of a certain group of employees can be the cause of two things; it can either be a result of promotions made by particular members of that group or of outgoing workers who either have a lower or a higher hourly salary compared to their groups' average. Changes in the independent variables that lead to an income advantage of one group over another group, reflected by an increase in promotions made by members of that group, may simultaneously lead to relatively more resignation or dismissal of members belonging to the disadvantaged group. As interchange of workers occurs more in lower organizational income ranks than in high income ranks (Brown et al., 2008), these members are more likely to have a lower income than their groups' average, subsequently increasing the average hourly wage of that group and decreasing appeared wage differences. Although in most cases empty positions are filled rather quickly, it is possible that the regression estimates presented in this paper still slightly downplay the actual effects.

As salary is known to have a skewed distribution, a log-version of the variable is used for the regression analyses.

On the company level, the effect of board members' gender on salary differences is measured by two independent variables; the gender ratio of the board, representing the proportion of women in a company's board, and whether the CEO is a man (0) or a woman (1), were used for the analyses. To study the role of work-life characteristics, I measured whether a company has no part-time working women in their board (0) or whether they have at least one (1), and if a company has no women in their board who has a child (0) or if they have at least one (1). Furthermore, I measured whether a company does not have a part-time working female CEO (0) or if they do (1), and whether they do not have a female CEO with a (0) or if they do (1). The CEO of a company is defined by the board member with the highest hourly wage.

In the Netherlands, large companies have a two-tier board, in which executive board member and non-executive board members are separated. In those companies, the executive board members are in charge of day-to-day management and are controlled by an independent supervisory board. In the three main analyses, board members are either executive or non-executive board members, but an

additional analysis is conducted only for companies with a two-tier board to investigate whether differences exist in the effects of executive board members versus supervisory board members.

Lastly, employees' average age per group defined by gender and employment status, the percentage of female employees working for a company, the total number of employees and the size of the company's board are included as control variables, with the last two variables log-transformed because of their skewed distribution.

3.3 Analysis plan

All hypotheses will be tested with fixed effects panel regression analyses. This type of analysis utilizes the within-organization variation, enabling to investigate the change within each organization and controlling for the time-invariant characteristics. To test hypotheses 1a and 1b, the effect of a change in the proportion of women in a company's board and a change in the gender of the CEO on wage inequality between male and female employee groups in estimated (Table 4, model 1 and 3). The same analysis is conducted for companies with an executive and a supervisory board to investigate if the effects of board members are dependent on the board position they occupy (Appendix, Table 7, model 1). The effects of a change in the proportion of female board members and CEO's gender are also analyzed separately for part-time and full-time employees to test hypothesis 3a and 3b (Table 4, model 2 and 4). To test hypothesis 2, two separate analyses are conducted: one that estimates the effect of a change in the employment-and motherhood status of female board members on wage inequality between male and female employees (Table 5, model 1 and 2), and one that estimates the effect of a change in the employment-and motherhood status of a female CEO on wage inequality between male and female employees (Table 5, model 3 and 4). To test hypothesis 4, the effect of a change in the employment status of female board members on wage inequality between part-time and full-time working female employees is estimated (Table 6, model 1), with again a separate analysis for the effect of a change in the employment-and motherhood status of a female CEO (Table 6, model 2).

4. Results

4.1 Descriptive statistics

Table 1 shows averages of the continuous variables for the whole sample (N=19699 companies). The average hourly wage of the employees working for these companies between 2006

and 2018 was 16.61 euro (SD=5.73). For male employees, this was 19.62 in 2017 and 20.06 in 2018, for female employees 18.24 and 18.67, respectively. The average age of employees between 2006 and 2018 was 38.70 (SD=6.04). The average number of employees the companies consisted of was 288.63, but with large outliers by big companies (SD=1794.11). Around 41 percent of employees on average is female (SD=0.28). Most boards consisted of only one or a few board members, with a mean of 1.5 (SD=0.92). The average proportion of women in boards was 0.16 (SD = 0.31).

Table 2 shows descriptive statistics of the dichotomous board composition variables in 2018 (N=9800 companies). In 2018, women occupied 2606 corporate board positions (20%). Of these women, 540 (21%) worked part-time and 2077 (80%) had at least one child. Furthermore, for 1835 companies, the CEO was a woman (19%). Of those, 268 women worked part-time (15%) and 1413 (77%) had at least one child.

Table 1
Averages of the continuous variables (years 2006-2018)

Variables	***Mean***	***SD***
Hourly wage	16.61	5.73
Age	38.70	6.04
Number of employees	288.63	1794.11
Percentage female	0.41	0.28
Board size	1.50	0.92
Proportion female board	0.16	0.31

Table 2
Descriptive statistics of board compositions (year 2018)

Variables	***N***	***% of total***
Female board members	2606	20
Part-time female board members	540	21
Motherhood female board members	2077	80
Female CEO	1835	19
Part-time female CEO's	268	15
Motherhood female CEO's	1413	77

Figure 1 shows the development of board compositions. The mean proportion of female board members increased linearly from 0.11 in 2006 to 0.20 in 2018. The percentage of companies with a female CEO increased in a linear fashion from 10 percent to 19 percent. The percentage of companies with at least one woman in their board increased as well, from 14 percent in 2006 to 27 percent in 2018. Of companies with at least one woman in their board, the percentage of female board members working part-time increased gradually from 18 percent in 2006 to 30 percent in 2015, but then decreased again to 21 percent in 2018. The percentage of female CEO's working part-time was exactly the same in 2006 and 2018 (15%) and did not deviate much in between that time period. Both the

percentage of female board members and female CEO's with at least one child increased slightly, for female board members their percentage increased from 73 to 80 percent and for female CEO's from 71 to 77 percent.

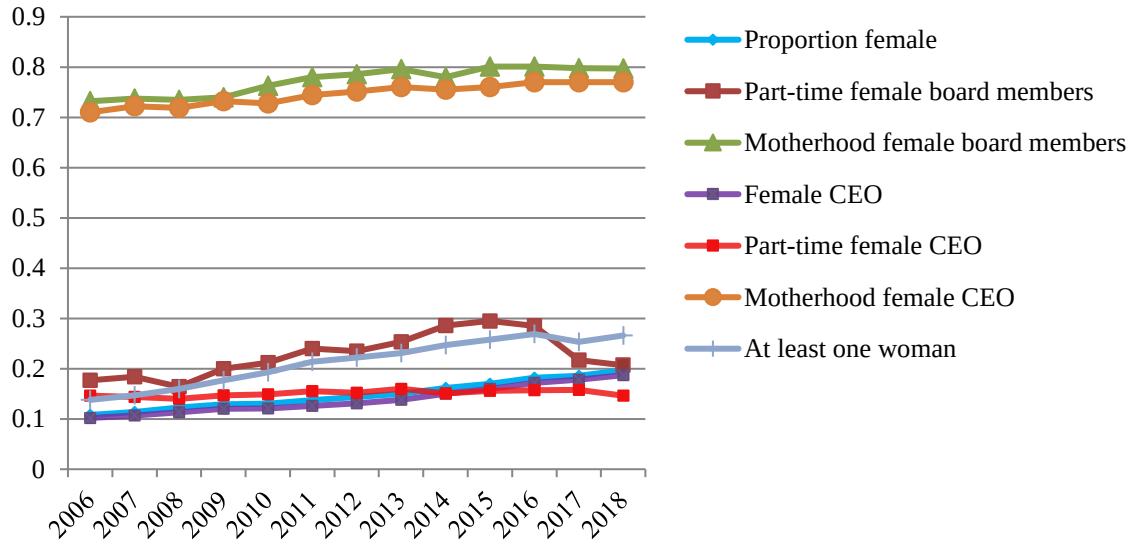

Figure 1: Longitudinal statistics of board compositions

4.2 Bivariate relations

Table 3 shows correlations between all variables. Correlations between hourly wage, part-time, female and age are estimated with individual level data. As expected, hourly wage is negatively correlated with working part-time and being female, indicating that women have a lower hourly wage than men and that part-time workers have a lower hourly wage than full-time workers. A negative correlation exists between age and part-time, suggesting that younger workers are more likely to work part-time. Furthermore, both the proportion of female board members and female CEO are positively correlated with the percentage of female employees of that company. This indicates that companies with more female employees are more likely to appoint women in their boards, or the other way around; companies with more female board members are more likely to hire female employees.

Table 3

Associations between all the variables

	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1.Hourly wage	-0.30	-0.07	0.54	-0.03	<0.01	-0.04	-0.04	-0.05	-0.04	0.10	-0.01	0.14
2.Part-time	-	0.35	-0.18	0.06	0.09	0.03	0.05	0.08	0.05	<-0.01	0.01	-0.01
3.Female		-	-0.03	0.08	<-0.01	<-0.01	0.08	0.04	0.08	-0.02	0.29	0.01
4.Age			-	-0.04	0.04	-0.04	-0.04	-0.04	-0.05	0.06	-0.06	0.08
5.Proportion female board				-	-0.18	-0.03	0.89	0.32	0.76	0.03	0.37	0.07
6.Part-time female board					-	0.11	-0.15	0.59	-0.07	-0.03	-0.01	0.26
7. Motherhood female board						-	-0.03	0.06	0.51	-0.02	0.05	0.08
8.Female CEO							-	0.37	0.85	0.01	0.34	0.02
9.Part-time female CEO								-	0.35	-0.05	0.10	0.01
10.Motherhod female CEO									-	<-0.01	0.29	0.01
11.Number of employees										-	0.23	0.30
12.Percentage female											-	0.12
13.Board size												-

4.3 Testing the hypotheses

4.3.1 The effect of female board members and female CEO's on wage inequality between male and female employees

Based on contrasting theoretical mechanisms, it was hypothesized that female board members are either more likely to decrease gender wage inequality than male board members or not more likely. To test these contradicting hypotheses, a fixed effects regression analysis was conducted. The different models of this analysis are shown in table 4 on page 20.

Model 1 in table 4 shows the effect of the proportion of female leaders on wage inequality between male and female employees, controlled for the company's number of employees, the percentage of female employees, the age of employees, the employment status of employees and the size of the company's board. In model 2, the three-way interaction between employee's gender, their employment status and the proportion of female board members is added to the model, to analyze the effect of female board members on wage differences between male and female employees separately

for full-time and part-time workers. In model 3, the gender of the CEO and the interaction between CEO's gender and employee's gender and employment status are estimated, and in model 4, the three-way interaction between CEO's gender, employees' gender and employees' employment status is added again.

Model 1 shows that female employees have a lower hourly wage than male employees (B=-0.075, z=-40.83, p<0.001). The interaction term between employees' gender and the proportion of female board members, on the other hand, is positive (B=0.011. z=0.005, p=0.028). This means that an increase in representation of women is associated with a decrease in the difference between men and women's hourly wage, thereby suggesting that female leaders reduce wage inequality between men and women. This findings supports hypothesis 1a.

In model 2, this effect is calculated for full-time and part-time workers separately. As shown by a positive coefficient of the interaction between gender and the proportion of female board members, having more female board members is associated with a decrease in salary differences between male and female employees working full-time, suggesting a positive influence of female board members on full-time working female employees' wage (B=0.023, z=4.591, p<0.001). However, the coefficient of the three-way interaction is negative (B=-0.028, z=-4.03, p<0.001), which means that the positive effect of female representation on wage inequality is smaller for part-time working men and women, than for full-time working men and women. This indicates that female leaders are more likely to benefit the careers of full-time working women than part-time working women, which contradicts hypothesis 3a and supports hypothesis 3b. The three-way interaction coefficient is larger than the coefficient of the effect for full-time workers, which means that more female representation even leads to a slight increase in salary differences of part-time working men and women. This effect is, however, small and its significance is unknown. The estimates of this regression are visualized in figure 2.

Model 3 shows that the interaction term between employees' gender and CEO gender is negative and close to being significant (B=-0.012, z=-1.949, p=0.051). This indicates that the difference between men and women's salary appears to increase when a female CEO replaces the

position of a male CEO, thus supporting hypothesis 1b. Although the effect is only borderline significant, it suggests that female CEO's are adverse for female employees' careers.

Model 4 shows the effect of a female CEO on gender wage inequality separately for full-time and part-time workers. Salary differences between full-time working men and women do not appear to be influenced by the gender of their CEO (B=-0.006, z=-0.76, p=0.446). This effect does not differ significantly from the negative effect of CEO's gender on salary differences between part-time working men and women (B=-0.011, z=-1.030, p=0.301). Therefore, it does not support hypothesis 3a or 3b. It should be noted, however, that differences may not be detected due to a lack of power of this analysis. Hence, this result must be interpreted within limitations. The estimates are visualized in figure 3.

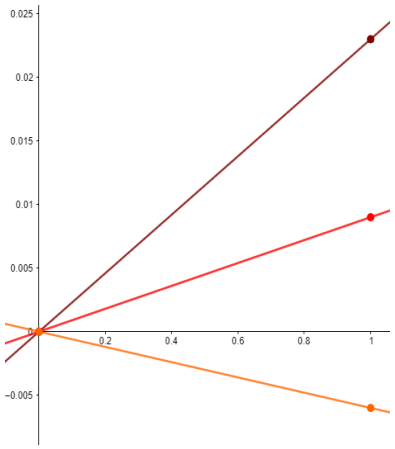

Figure 2: Effect of female board members on gender wage gap

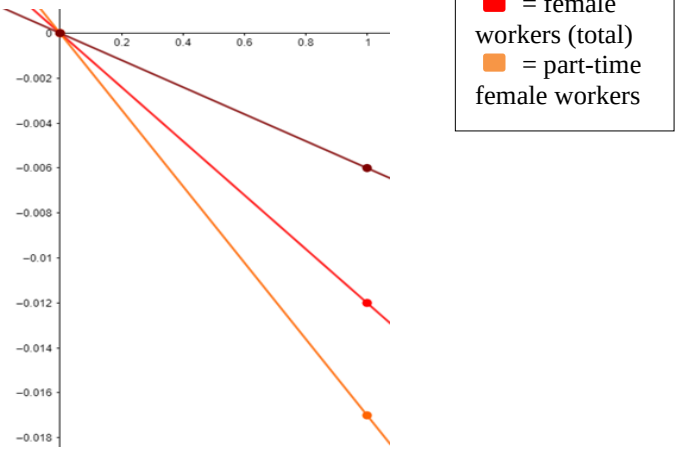

Figure 3: Effect of female CEO's on gender wage gap

A higher representation of female board members is associated with lower wage inequality between male and female employees. Therefore, it seems that female board members are more likely to promote their female employees careers than male board members, thus supporting hypothesis 1a. However, further analyses showed that this advantage only applies for full-time women, thereby supporting hypothesis 3b. Moreover, positive effects for full-time working women are mainly realized by female board members occupying lower-ranked board positions and not by the female CEO's. On the contrary, for female CEO's, even a borderline significant negative effect was found for women in general, pointing to adverse effects of female CEO's on their female workers' careers. These findings

are in line with Queen Bee theory and support hypothesis 1b. Thus, it can be concluded that female board members seem to have a positive effect on wage inequality, but only for full-time working women. Female CEO's, on the hand, appear to behave as Queen Bee who do not show any benefit in terms of gender equality over male CEO's.

An additional analysis was conducted that includes only large companies with both an executive and a supervisory board (see Appendix Table 7, model 1). Table 7 shows a positive effect of female board members only when they occupy a position in the supervisory board, but not for executive positions. While most companies only have a single board, it is difficult to draw conclusions about the role of executive and supervisory functions. What can be concluded from these results, is that, although they are expected to affect outcomes on the level of the employees only indirectly via their influence on the executive board, women occupying positions in the supervisory board appear to play an important role in combatting gender inequality outcomes in their firms.

Table 4

OLS Fixed Regression Coefficients Predicting Hourly Wage by the Proportion of Female Board Members and CEO's gender

	Model 1		**Model 2**		**Model 3**		**Model 4**	
	B (SE)	p	*B* (SE)	p	*B* (SE)	p	*B* (SE)	p
Number of employees	-0.034 (0.003)	<0.001	-0.034 (0.003)	<0.001	-0.034 (0.003)	<0.001	-0.034 (0.003)	<0.001
Percentage female	-0.210 (0.038)	<0.001	-0.210 (0.038)	<0.001	-0.210 (0.038)	<0.001	-0.210 (0.038)	<0.001
Percentage female^2	0.208 (0.041)	<0.001	0.208 (0.041)	<0.001	0.208 (0.041)	<0.001	0.208 (0.041)	<0.001
Age	0.079 (0.001)	<0.001	0.078 (0.001)	<0.001	0.079 (0.001)	<0.001	0.079 (<0.001)	<0.001
Age^2	-0.001 (<0.001)	<0.001	-0.001 (<0.001)	<0.001	-0.001 (<0.001)	<0.001	-0.001 (<0.001)	<0.001
Part-time	-0.143 (0.003)	<0.001	-0.145 (0.003)	<0.001	-0.145 (0.003)	<0.001	-0.145 (0.003)	<0.001
Female	-0.075 (0.002)	<0.001	-0.077 (0.002)	<0.001	-0.077 (0.002)	<0.001	-0.077 (0.002)	<0.001
Board size	0.002 (0.002)	0.145	0.002 (0.002)	0.145	0.002 (0.002)	0.129	0.002 (0.002)	0.129
Proportion female board	-0.008 (0.005)	0.104	-0.016 (0.005)	0.004	-0.017 (0.007)	0.014	-0.015 (0.007)	0.047
Part-time * female	0.065 (0.003)	<0.001	0.070 (0.003)	<0.001	0.070 (0.003)	<0.001	0.070 (0.003)	<0.001
Women * proportion female board	***0.009 (0.004)***	***0.021***	***0.023 (0.005)***	***<0.001***	***0.035 (0.008)***	***<0.001***	***0.029 (0.009)***	***<0.001***
Part-time * proportion female board	0.011 (0.005)	0.028	0.025 (0.006)	<0.001	0.011 (0.010)	0.267	0.005 (0.012)	0.639
Part-time * female * proportion female board			***-0.028 (0.007)***	***<0.001***	***-0.028 (0.007)***	***<0.001***	***-0.017 (0.012)***	***0.173***
Female CEO					0.002 (0.006)	0.679	-0.001 (0.006)	0.926
Female * female CEO					***-0.012 (0.006)***	***0.051***	***-0.006 (0.008)***	***0.446***
Part-time* female CEO					0.014 (0.0082)	0.082	0.020 (0.010)	0.056
Part-time * female * female CEO							***-0.011 (0.011)***	***0.301***
N(observations)	483250		483250		483250		483250	
N (companies)	19699		19699		19699		19699	
Log-likelihood	1936.23		1956.17		1965.46		1966.28	
Adjusted R^2	0.680		0.680		0.680		0.680	

4.3.2 The effect of the work-life type of female board members and female CEO' on wage inequality between male and female employees

Benefits of female leaders were expected to be found mainly among female employees working for female board members who adhere to a feminine work-life type (i.e. who work part-time and have children). This is tested with a fixed regression analysis, of which the outcomes are displayed in table 5. Model 1 and 2 in table 5 show the effect of a change in the work-life type of (at least one) female board member on salary inequality between male and female employees. Model 3 and 4 show the effect of a change in the work-life type of a female CEO on gender wage inequality.

In model 1, it is shown that the interaction term between female board employment status and gender is positive, but not significant (B<0.001, z=0.006, p=0.981). In model 2, the effect of having a female board member with children was added to the model, as well as the interaction of this effect with gender. It shows that having children does not influence the effect of female board members on salary inequality between male and female employees (B=0.002, z=0.314, p=0.754). Thus, having at least one female board member with children or who works part-time appears to have little influence on wage inequality between male and female employees. This finding does not support hypothesis 2b.

Model 3 shows the interaction effect of having a female CEO who works part-time on wage inequality between male and female employees. Surprisingly, a negative interaction was found between having a part-time working female CEO and gender, meaning that differences between male and female employees' salaries were larger, although not significantly, in times when their firm had a part-time working female CEO compared to when they did not (B=-0.018, z=-1.870, p=0.062). When controlling for having a female CEO with children, as shown in model 4, this effect increases and becomes significant (B=-0.024, z=-2.479, p=0.013). In contrast, the interaction between having a female CEO with at least one child and gender shows a positive significant effect (B=0.009, z=2.064, p=0.039). So, differences in hourly wage between male and female employees decrease if the female CEO of a company has at least one child compared to when she is childless, which supports hypothesis 2.

Having at least one female board member adhering to a feminine work- life type by either working part-time or having a child appears to have little to no influence on wage inequality between

men and women. This finding does not support the hypothesis that female leaders adhering to a feminine work-life type are more likely to promote female employee's careers. However, for female CEO's with at least one child, wage differences between male and female employees are found to decrease significantly, which does support hypothesis 2. In contrast, having a part-time working female CEO shows the opposite effect, with wage differences increasing when the female CEO of that company works part-time instead of full-time. It can therefore be concluded that the effect of female board members work-life type on wage inequality between men and women depends on the position of the female board member and on which characteristic is examined. Moreover, as part-time working female CEO's are found to have a negative effect on female subordinates' careers, it appears that either part-time working female CEO's are not less likely to be susceptible to gender stereotypes, or alternative mechanisms are at play for part-time working female leaders. An explanation for this finding will be discussed in the discussion section.

Table 5

OLS Fixed Regression Coefficients Predicting Hourly Wage by Motherhood and Employment Hours of Female Board Members and Female CEO's

	Model 1		**Model 2**		**Model 3**		**Model 4**	
	B (SE)	p	*B* (SE)	p	*B* (SE)	p	*B* (SE)	p
Number of employees	-0.020 (0.007)	0.008	-0.020 (0.007)	0.009	-0.035 (0.003)	<0.001	-0.035 (0.003)	<0.001
Percentage female	-0.146 (0.101)	0.146	-0.147 (0.100)	0.144	-0.211 (0.038)	<0.001	-0.211 (0.037)	<0.001
Percentage female^2	0.153 (0.087)	0.079	0.153 (0.087)	0.079	0.209 (0.041)	<0.001	0.208 (0.041)	<0.001
Age	0.079 (0.002)	<0.001	0.079 (0.002)	<0.001	0.079 (0.001)	<0.001	0.079 (0.001)	<0.001
Age^2	-0.001 (<0.001)	<0.001	-0.001 (<0.001)	<0.001	-0.001 (<0.001)	<0.001	-0.001 (<0.001)	<0.001
Part-time	-0.134 (0.005)	<0.001	-0.134 (0.005)	<0.001	-0.142 (0.002)	<0.001	-0.142 (0.002)	<0.001
Female	-0.061 (0.004)	<0.001	-0.063 (0.006)	<0.001	-0.074 (0.002)	<0.001	-0.075 (0.002)	<0.001
Board size	0.007 (0.004)	0.097	0.008 (0.004)	0.063	0.002 (0.002)	0.118	0.002 (0.002)	0.119
Proportion female board	0.019 (0.011)	0.080	0.021 (0.011)	0.054	-0.002 (0.005)	0.733	-0.002 (0.005)	0.709
Part-time * Female	0.058 (0.005)	<0.001	0.058 (0.005)	<0.001	0.066 (0.003)	<0.001	0.066 (0.003)	<0.001
Part-time female board	-0.005 (0.005)	0.291	-0.005 (0.005)	0.307				
Part-time female board * female	***<0.001 (0.006)***	***0.981***	***<-0.001 (0.006)***	***0.992***				
Motherhood female board			-0.008 (0.008)	0.329				
Motherhood female board * female			***0.002 (0.006)***	***0.754***				
Female CEO					0.005 (0.004)	0.215	0.008 (0.006)	0.183
Part-time female CEO					0.003 (0.008)	0.661	0.007 (0.008)	0.388
Part-time female CEO * female					***-0.018 (0.009)***	***0.062***	***-0.024 (0.010)***	***0.013***
Motherhood female CEO							-0.009 (0.007)	0.199
Motherhood female CEO * female							***0.009 (0.004)***	***0.039***
N (observations)	104725		104725		483250		483250	
N (companies)	5443		5443		10699		10699	
Log-likelihood	7241.67		7242.97		1923.24		1930.26	
Adjusted R^2	0.723		0.723		0.680		0.680	

4.3.3 The effect of similarity in the work/life type on female employees' hourly wage

It was expected that the effect of female board members or CEO's on female employees' hourly wage is dependent on the similarity in work/life type between the female employees and their female board member or CEO. In model 1 in table 6, the effect of the employment hours of female board members on wage inequality between part-time and full-time working female employees is estimated. Model 2 shows the effect of the employment hours of female CEO's on wage inequality between full-time and part-time female women.

Model 1 shows that working part-time has a negative effect on hourly wage (B=-0.063, z=-0.011, p<0.001). The employment status of female board members is also negative, meaning that female employees have a lower hourly wage if there is a woman in their board who works part-time (B=-0.017, z=-2.905, p=0.004). The interaction term between these variables is, however, positive (B=0.026, z=0.008, p=0.001). Thus, if companies switch from having no part-time working woman in their board to having at least one, the difference in wage between part-time working women and full-time working women in these companies decreases. This means that part-time working board members are more likely to promote the careers of part-time working women than full-time working women, thereby supporting hypothesis 4.

Model 2 shows that, similar to the effect of one part-time working female being present in the board, having a part-time working female CEO has a negative effect on female employees' hourly wage (B=-0.028, z=-2.814, p=0.005). The interaction term between the employment status of female employees and having a part-time working female CEO is positive (B=0.028, z=2.042, p=0.041). This indicates that when firms switch from having a full-time working female CEO to having a part-time working female CEO, the difference in hourly wage between part-time and full-time working women decreases and vice versa: switching from a part-time working female CEO to a full-time working CEO generally leads to an increase in salary differences between part-time and full-time working women.

In line with hypothesis 4, both a part-time working female board member and a part-time working female CEO were found to decrease the hourly wage between part-time and full-time working women. Thus, it can be concluded that the benefit for female employees of having a female

member in their company's board depends on the similarity in work-life type between them and their female leader.

Table 6

OLS Fixed Regression Coefficients Predicting Hourly Wage by Employment Hours of Female Board Members and Female CEO's

	Model 1		**Model 2**	
	B (SE)	p	*B* (SE)	p
Number of employees	-0.019 (0.007)	0.004	-0.019 (0.007)	0.004
Percentage female	-0.295 (0.116)	0.011	-0.293 (0.116)	0.011
Percentage female^2	0.150 (0.103)	0.147	0.147 (0.103)	0.152
Age	0.090 (0.004)	<0.001	0.090 (0.004)	<0.001
Age^2	-0.001 (<0.001)	<0.001	-0.001 (<0.001)	<0.001
Part-time	-0.063 (0.011)	<0.001	-0.071 (0.005)	<0.001
Proportion female board	0.009 (0.010)	0.364	0.002 (0.008)	0.840
Motherhood female board	0.001 (0.007)	0.850		
Part-time female board	-0.017 (0.006)	0.004		
Part-time * Part-time female board	***0.026 (0.008)***	***0.001***		
Female CEO			0.007 (0.006)	0.200
Part-time * female CEO			***-0.008 (0.007)***	***0.272***
Part-time female CEO			-0.028 (0.01)	0.005
Part-time * Part-time female CEO			***0.028 (0.014)***	***0.041***
N (observations)	53083		53083	
N (companies)	5424		5424	
Log-likelihood	14631.26		14646.28	
Adjusted R^2	0.758		0.758	

* Only companies with at least one woman in their board and female employees are included in the analyses

5. Conclusion and discussion

The aim of this paper was to better understand the impact of female leaders on wage inequality between men and women by examining the role of the work and family characteristics of them and their female employees, as well as the similarity between these characteristics. It was hypothesized that due to processes of stereotyping and homophily, female board members either have a positive influence or no influence on gender wage inequality. The effects of female board members were suggested to differ for full-time and part-time working women, with contradicting hypotheses about which group is most benefitted by female leaders. Moreover, it was expected that female board

members with ‘feminine’ work/life characteristics (i.e. who work part-time and have children) are more likely to benefit their female employees than those with ‘masculine’ work/life characteristics (i.e. full-time commitment and no children). Finally, benefits of female board members for female employees were hypothesized to be greater if they have similar work-life characteristics.

I found that female board members overall have a positive influence on gender wage inequality. However, in further analyses it became apparent that that these benefits apply only for full-time working women. Moreover, contrary to what is suggested by the weak version of the cogs in the machine hypothesis on female leadership, which states that female board members are motivated to promote other women’s careers but lack the power to do so (Van Hek & Abendroth, 2019), I only found an advantage of female board members occupying lower-ranked board positions and not of female CEO’s. Indeed, findings in this paper are even pointing to an adverse effect of female CEO’s on women in general, and on part-time working women in particular. Thus, it seems that Dutch female CEO’s generally tend to behave as queen bees who do not benefit their female subordinates careers, in contrast to other female board members who at least support the careers of full-time working women. These findings are in line with earlier research by Skaggs et al. (2012), who found that having more women in corporate boards leads to more female representation at the managerial level, but having more female executives does not. These findings suggest that queen bees are most likely to be found in the highest positions of power, and that the likelihood of their presence decreases in lower management positions.

Work/life characteristics of female board members were only found to be relevant for female CEO’s in their influence on wage inequality between male and female employees, and not for other female board members. Female CEO’s with children appear to be more likely to benefit their female employees compared to CEO’s without children. Contrary to what was expected, female CEO’s who work part-time are less likely to support women than female CEO’s working full-time. As this directly contradicts the stereotype mechanism, alternative explanations must be taken into consideration. According to Hoyt and Murphy (2016) careers of female leaders themselves are harmed by stereotypes as well, also after they have attained high-authority positions. They argue that female leaders often experience “stereotype threat”, which refers to the threat of a disadvantage in how they are treated by

others due to negative stereotypes about their group. One consequence of stereotype threat, is that individuals distances themselves from the devalued group or from the characteristics that are linked to the negative stereotype (Pronin et al., 2004). As part-time work is strongly related to negative stereotypes about female workers, female leaders who work part-time likely experience more stereotype threat than female leaders working full-time, which may cause them to disidentify with women in general and subsequently lower their motivation to support their female subordinates' careers.

Lastly, it was found that both female board members and CEO's are more likely to benefit female employees who work similar hours as them. Thus, in combination with the other findings presented in this paper, it can be concluded that homophily in gender alone is not enough for female leaders to benefit their female subordinates' careers, since similarity in their work-life characteristics plays a crucial role. These findings fill a gap in research on the benefit of female leadership on gender equality by providing a better understanding of when female leaders are motivated to support other women's careers, and a possible explanation for contradicting results of earlier studies.

With around 75 percent of the female workers working part-time, it can be concluded that the vast majority of the Dutch female workers does not seem to have benefitted from female representation in their management in the last two decades. This raises the question whether the mandatory gender quota, such as introduced in the Netherlands in 2021, will actually have a general positive influence on gender equality in the workplace, or only perpetuate career inequalities between part-time and full-time working women. In a country with such a high female part-time employment rate, other initiatives to combat gender inequality, such as minimizing the difference in duration of maternity- and paternity leave to promote a more equal division of unpaid labor, may be more effective than gender quotas.

Most of the work-life characteristics included in this study are not fixed categories, such as typically the case for gender, but are likely to change over time (e.g. many individuals change their work hours at some point in their lives). It is unclear if and how this switching of group membership influences the effects of female board members on gender equality. Processes of homophily and stereotyping may differ for individuals who previously belonged to the other group. For example, the

mechanisms may be weaker for full-time working female leaders who have also worked part-time for a period in their life, compared to female leaders who have worked full-time their whole career. Future studies can investigate the role of interchange of group-membership in relation to work-life characteristics and benefits of female leadership.

A limitation of this study is that the two mechanisms argued to underlie the influence of (similarity in) work-life characteristics in the effect of female leaders on gender equality outcomes are not measured directly. Therefore, we cannot be certain about their influence in this process or distinguish their separate effects. Social psychological research is necessary to better understand their role in the influence of female leaders on the careers of their female subordinates. Moreover, for workers, only the influence of their employment hours in relation to benefits of female leadership is investigated. The findings of this study for female leaders suggest that this may differ from effects of motherhood. The role of motherhood in relation to female leaders' impact on gender equality, as well as other potentially relevant worker characteristics, are therefore interesting topics for follow-up research.

In sum, what has become clear in this study is that benefits of female leadership are dependent on the work and life characteristics of female leaders and employees and on the similarity between them. This means that outcomes of female leadership are directly dependent on how these characteristics are distributed in the studied population and subsequently, on the context in which they are studied.

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Appendix

1. Effects of executive and non-executive female directors on gender wage inequality

Table 7 shows the effect of the gender ratio of executive and supervisory boards on wage differences between male and female employees. The variable gender shows a significant negative effect, meaning that women have a lower hourly wage than men (B=-0.001, z=-14.118, p<0.001). The variable proportion female executive board shows a small non-significant negative effect (B=-0.001, z=-0.097, p=0.923). Thus, an increase in the proportion of female executives does not seem to be associated with a the average hourly salary of their employees. The interaction between gender and the proportion of female executives shows a very small and non-significant negative effect (B=-0.002, z=-0.165, p=0.869). This indicates that, contrary to what was found for the total sample of companies including both executive and non-executive board members, female executive board members do not appear to influence wage inequality between full-time working men and women. Although the effect of having more female executives on salary differences between part-time working men and women appears to be more positive, this effect does not differ significantly from that of full-time workers.

The variable proportion female supervisory board also shows a negative effect (B=-0.035, z=-3.311, p<0.001), indicating that an increase in the share of women in a supervisory board is associated with a decrease in the average hourly salary of the employees. The interaction term between gender and the proportion of women in the supervisory board shows a positive significant effect (B=0.040, z=3.374, p<0.001). This means that an increase in the proportion of women in a company's supervisory board has a positive effect on gender wage inequality.

Due to a mistake, the model inconsistently only shows the effect of female executive board members separately for full-time and part-time workers, and the effect of female non-executives for women in general. Therefore, extra analyses are conducted later to complement these findings. For executive board members, it was found that a higher ratio of female executives also does not improve wage inequality between men and women in general. For supervisory board members, a positive but non-significant effect was found for full-time workers and the difference of this effect and the effect for part-time workers was found to be borderline significant, with part-time workers experiencing

more benefits of female non-executives. However, the power of this analysis may be too small to detect these differences.

In sum, in companies with both an executive and a supervisory board, a positive effect of female board members is only found for women occupying a position in the supervisory board.

Table 7

*OLS Fixed Regression Coefficients Predicting Hourly Wage by the Proportion of Executive Female Board Members and Supervisory Female Board Members**

	Model 1	
	B (SE)	p
Number of employees	-0.061 (0.014)	<0.001
Percentage female	-0.010 (0.260)	0.971
Percentage female^2	0.073 (0.237)	0.759
Age	0.098 (0.005)	<0.001
Age^2	-0.001 (<0.001)	<0.001
Part-time	-0.133 (0.009)	<0.001
Female	-0.054 (0.007)	<0.001
Part-time * female	0.055 (0.009)	<0.001
Executive board size	0.010 (0.006)	0.083
Proportion female executive board	-0.001 (0.012)	0.923
Female * proportion female executive board	***-0.002 (0.013)***	***0.869***
Part-time * proportion female executive board	-0.004 (0.018)	0.812
Part-time * female * proportion female executive board	***0.027 (0.018)***	***0.143***
Proportion female supervisory board	-0.035 (0.010)	<0.001
Supervisory board size	0.002 (0.004)	0.601
Female * proportion female supervisory board	***0.040 (0.012)***	***<0.001***
N (observations)	36057	
N (companies)	2115	
Log-likelihood	3895.34	
Adjusted R^2	0.667	

* The effect of proportion female executive board is also negative (and non-significant) for women in general.