## Organization Science

## Gender and Negative Network Ties: Exploring Difficult Work Relationships Within and Across Gender

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# Gender and Negative Network Ties: Exploring Difficult Work Relationships Within and Across Gender

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**Abstract.** This study applies a social network approach toward understanding gender and negative work relationships. Given that work is increasingly organized using diverse, informal work groups inside firms, we stand to benefit from better knowledge of whether and how negative interactions in the workplace may be gendered. Using rich network data collected inside two firms, this study examines the networks of professional managers citing a difficult work relationship (negative tie) revealing gender similarities and differences. Although women and men do not differ in their likelihood to cite a negative work tie, women are more likely (than men) to cite a woman as a negative tie. This propensity to cite a woman as difficult however is reduced among women who cite having more women in their social support networks at work compared with women citing fewer women for support. These effects remain robust to a host of controls and exploratory analyses that include analyzing the content of respondent explanations of the negative tie, formal rank differences between the respondent and target of the negative tie, and possible links to organizational commitment and subsequent employee exit. Overall, this study brings a fine-grained, relational perspective to the study of gendered negative work ties, contributing to scholarship on network disadvantage.

## Introduction

Gender inequality in the workplace is a well-documented topic (Catalyst 2010, McKinsey Report 2012) with considerable attention dedicated to promoting gender diversity inside organizations to address this persistent inequity (Chatman et al. 1998, Tajfel 1981, Tajfel and Turner 1986, Tsui et al. 1992). Yet, despite this emphasis, the diversity literature as a whole has been generally mixed with some pointing to advantages of a diverse workforce (Chatman et al. 1998, Chattopadhy et al. 2008, Goncalo et al. 2015, Joshi et al. 2006, Williams and Polman 2015) while others reveal challenges (Ancona and Caldwell 1992, Reagans et al. 2004) or even minimal impact (Pelled et al. 1999).

One possible reason behind the variance in outcomes is that scant research has honed in on the regular interactions between and within the sexes that occur on a daily basis inside firms and where such relationships may lead to conflict. In fact, we have limited knowledge on how men and women may differ in their difficult relationships at work or, how gender may weigh into negative interactions. This represents a potential shortcoming in the study of gender diversity as interpersonal work conflict has been cited as a prevalent source of tension leading to negative outcomes in organizations (Anderson and Pearson 1999, Bergmann and Volkema 1994, Bowling and Beehr 2006, Frone 2000). At the same time, the nature of work

has become increasingly reliant on informal interactions (Brass et al. 2004, Burt 2005, Powell 1990) and the use of diverse work teams to organize work in firms (Chatman and O'Reilly 2004, Chattopadhy et al. 2008, Goncalo et al. 2015, Kalev et al. 2006). Indeed, this has given rise to a growing scholarship on the study of negative relationship in the workplace (Grosser et al. 2010, Huitsing et al. 2012, Labianca and Brass 2006, Venkataramani et al. 2013). Yet, to date, this research has been less conclusive about the gendered aspects of negative work relationships offering a fruitful area to explore further. Gaining a perspective of gender not only among productive work ties but also the negative ones may shed light on whether and how negative relationships in the workplace may differ in ways that potentially contribute to persisting inferior workplace outcomes and experiences for women.

This paper sets out to address this apparent gap leveraging rich network data on professional managers citing a difficult relationship (negative tie) at work inside two distinct U.S. workplaces—a professional services firm and a facilities services contractor. The analysis reveals both gender similarities and differences. On the one hand, men and women are equally likely to cite a negative tie at work. Yet, women are still more likely (than men) to cite a negative tie with a woman coworker than they are to cite a negative tie with a man or, not name a negative tie at all. Consistent with

scholarship that women benefit from support ties with other women at work (Ibarra 1997, Shih 2006), however, this likelihood dampens for women with more female social support ties at work. A similar female social support effect is not observed when comparing within men respondents or, between the sexes. Exploratory content analysis of the respondent explanations of the negative ties further reveals no gender association (target or respondent) with using negative, emotional descriptions of the conflict. These effects remain robust to a host of controls for formal job characteristics, demographics, and measures of network structure. Overall, this study informs a growing scholarship on network disadvantage and gender diversity in the workplace by bringing a novel fine-grained, relational approach to the study of gender and work conflict.

## Theory
### Negative Ties and Gender

Both similarity-attraction theory (Chatman et al. 1998, Chatman and O'Reilly 2004, Tajfel and Turner 1986) and theory on homophily (Blau 1977, McPherson 1983) propose a strong influence of demographics and social similarity on workplace interactions in organizations, particularly by gender (Brashears 2008, Ibarra 1992, McPherson and Smith-Lovin 1987). Evidence of same-gender interaction preferences in firms abounds, especially between men (Chatman and O'Reilly 2004, Tsui et al. 1992). Network research has similarly highlighted gender as a factor in women's work networks (Brass 1985; Ibarra 1992, 1997; Moore 1990), where women emphasize connections with other women in their communications (Kleinbaum et al. 2013), the use of referral networks to identify and secure job opportunities (Belliveau 2005, Fernandez and Sosa 2005, Obukhova and Kleinbaum 2016), and when starting a business (Brush et al. 2006). Both choice and structural explanations underlie these same-sex affinities that emerge through a natural preference toward interacting with similar others, but also as a consequence of the structural access individuals have to specific interaction partners (Brashears 2008, Ibarra 1997). For example, faced with glass ceilings of limited advancement opportunities (Gorman and Kmec 2009, Reskin and Bielby 2005) or exclusion from resource-laden "old boys networks" (Belliveau 2005; Turco 2010, p. 901), women form work relationships with other women whom they not only have greater access (structural) but also prefer (choice) to interact with to share similar experiences and enlist support (Rudman and Goodwin 2004, Shih 2006). These same-gender relationships provide emotional support, mentorship, and advice channels for women (Gorman 2005, Ibarra 1992, Shih 2006) although come with distinct downsides such as weaker social capital (Brass 1985, Ibarra 1992, Moore 1990).

Notably same-gender interactions for women are also reinforced by men's interactions and preferences in the workplace. While men benefit from working with women (Chattopadhy et al. 2008, Williams and Polman 2015), the literature highlights the declining status men face as they do so (Bielby and Baron 1986, Fernandez et al. 2000, Petersen and Saporta 2004). In turn, men may choose to avoid increasingly female work groups and prefer interactions with other men who are likely to be associated with advancement opportunities and resources within a firm (Bertrand and Hallock 2001, Gorman and Kmec 2009). As this occurs, the structure inside the organization shifts to men dominating key roles, reinforcing a male-dominated set of work ties among men and restricted access for women.

While choice-based and structural accounts provide a theoretical expectation for same-sex work interactions for both men and women, it is unclear what this may mean for negative work interactions. What we do know about negative relationships comes from a diverse set of studies on interpersonal conflict in the workplace (e.g., Frone 2000, Schieman and Reid 2008, Thomas et al. 2005) coupled with social network scholarship on negative ties and their workplace consequences (Grosser et al. 2010, Huitsing et al. 2012, Labianca and Brass 2006, Labianca et al. 1998, Sparrowe et al. 2001). Few to date however have parsed this by gender, even though the significance of gender has been firmly noted in work networks (Belliveau 2005, Brass 1985, Moore 1990). Given the strong socialized and cultural expectations of gender in work settings (Heilman 2001, Ridgeway 2001), it is likely that gender may play a distinct role in understanding negative work interactions. But how?

Since men and women are constrained by different gender norms in organizations (Eagly and Karau 2002; Heilman 2001; Ridgeway 2001, 2014), it is likely that different baseline propensities for having negative interactions at work exist for men and women. Whereas women are expected to exude warmth and communality, men are expected to act individualistically and competitively (Eagly and Karau 2002, Elsesser and Lever 2011, Heilman and Okimoto 2007, Ridgeway 2001). Research has linked such status expectations to workplace behavior, outcomes, and rewards. For example, women are praised for consensus-driven work styles (Dumas and Stanko 2017, Helgesen 2011), while men are esteemed for demonstrating a ruthless, aggressive pursuit toward career advancement (Correll 2001, Gneezy et al. 2003, Ibarra 1997, Rudman and Goodwin 2004). Such gender expectations have been shown across a variety of labor market outcomes including hiring (Rivera 2015) and promotions (Srivastava et al. 2017). In fact, when women behave counter to these expectations, they suffer penalties

at work (Heilman 2001, Rudman et al. 2012). From a young age, women are socialized by these gender norms demonstrated through a downplaying of male competencies (e.g., mathematics) in place of more gender consistent ones (Correll 2001).

It is reasonable then to expect that these same social forces influence negative ties in the workplace for men and women. Namely, if women are socialized and rewarded for nurturing, consensus-driven behavior and men for individualistic, competitive actions, this may decrease women's likelihood of a negative relationship at work or at least cite having one. This is substantiated by the fact that negative ties produce asymmetric effects on outcomes compared with positive ones (Labianca et al. 1998, Pagel et al. 1987) and that involvement in negative ties at work has been linked to perceptions of employee performance (Grosser et al. 2010). Although men and women may be equally motivated toward positive impression management at work, men may be granted more leeway when this comes to involvement in negative interactions if aggressive behavior is seen as gender consistent and expected for men (Eagly and Karau 2002, Heilman et al. 2004, Ridgeway 2001). Accordingly, this leads to an initial baseline prediction of a negative association between respondent gender (woman) and citing a negative tie at work. Specifically, I predict the following:

**Hypothesis 1** (H1)**.** *Women are less likely than men to cite a negative work tie.*

### Gender Target of Negative Ties

Yet, even if women exhibit a lower propensity for citing negative ties, gender differences may still emerge for those that occur. One way this may be evident is in the gender target of the negative tie. For example, women may be more likely to cite negative ties with men contributing to strained relations across gender in organizations. Alternatively, women may be more prone to negative ties with other women who they see as primary competitors to their organizational advancement. It is also possible that negative ties are not gendered and distributed equally across men and women. Which of these emerges though has very different implications for understanding subsequent gendered outcomes in the workplace and so is important to explore even if women are less likely to cite negative work ties as a whole (H1).

Here, three distinct possibilities are explored: (1) women are more likely (then men) to cite a negative tie with another woman at work; (2) women are less likely (than men) to cite a negative tie with a woman at work; or, (3) women are equally likely (as men) to cite a negative tie with a woman. Of these, existing theory and evidence is most consistent with the first. As one of the most visible indicators of identity in organizations, gender serves as a common basis by which both men

and women socially compare and self-evaluate (Barnett et al. 2000, Festinger 1954, Ibarra 1997, Rudman and Goodwin 2004, Tajfel 1981). Social comparison often incites competition and conflict as individuals evaluate accomplishments and failures relative to perceived similar others (Tajfel 1981). For example, Pelled et al. (1999) found that diversity across less changeable categories (i.e., race, gender, age) generated emotional conflict, and similarity led to competitiveness and conflict. Likewise, network scholars have observed the most "heated" competitions between those holding structurally equivalent positions in a network (Burt 1997, Bothner et al. 2007).

Although both men and women engage in it, social comparison leading to competition may be particularly heightened for professional women motivated toward career advancement. High-achieving professional women face unique structural constraints in organizations where they have fewer same-gender peers as they rise in the firm hierarchy (Reskin and Bielby 2005, McKinsey Report 2012). This can be exacerbated in male-dominated firms where the available set of socially comparable successful women is limited (Ely 1994) raising the stakes for women to advance (Garcia and Tor 2009). At an extreme, such female–female competition has been cast as a "queen bee syndrome" where women actively thwart other women at work (Duguid 2011) endorsing gender stereotypes to secure their place in a male-dominated hierarchy (Derks et al. 2011, Staines et al. 1974; but see Heilman et al. 2004, Mavin 2008). In a series of experiments, Duguid (2011) and Duguid et al. (2012) demonstrated that token women working in a high prestige workgroup were less likely to select other women to join the workgroup. Research further depicts women as negatively biased and harsher in their assessments of women compared to evaluations of men (Ellemers et al. 2004). Some contend this female-female conflict is "overproblematized" (Sheppard and Aquino 2013, 2017; Sandberg and Grant 2016), yet the notion that negative same-sex interactions—especially among motivated, professional career women—perpetuates (Drexler 2013 or Mooney 2005) instilling a belief that despite socialized expectations of warmth (Ridgeway 2001, 2014), women are prone to conflict with one another in the workplace.

At the same time, there is also reason to expect that negative ties between women will be more likely because of the anticipated heavier career cost for women of having a negative work relationship with a man. That is, women will be more motivated to establish productive ties with men to advance in a firm (Brass 1985, Burt 1998, Ibarra 1997). Consistent with this, women have been observed to become increasingly more satisfied as they work with more men (Wharton and Baron 1987) and to benefit from their

associations with male colleagues who can validate them as legitimate candidates for promotion or other work benefits (Briscoe and Kellogg 2011, Burt 1998, Rivera 2015). Ultimately, the cost of a negative tie with a male coworker is substantially higher for women than men in most organizations and thus, would be less likely to occur.

Taken together, the collective theory and evidence coupled with strong lay beliefs on women behaving as "queen bees" is consistent with an expectation that women would be more likely (than men) to cite a negative work tie with another woman. While this does not preclude mixed-gender conflict from occurring in the workplace, it does suggest stronger countervailing forces of career incentives for women to not engage in conflict with male coworkers coupled with higher structural barriers that push women into competitions with other women for fewer coveted work opportunities. Accordingly, this leads to a second prediction:

**Hypothesis 2** (H2)**.** *Women are more likely* (*than men*) *to cite a negative work tie with a woman* (*compared with a man, or not naming a negative work tie*).

It is worth noting that predictions of gendered conflict originating from male employees would be consistent with this argument even though knowledge of workplace difficulties between men is limited. Studies describe men as preferring to work with and for other men (Chatman and O'Reilly 2004, Elsesser and Lever 2011) and happier when doing so (Wharton and Baron 1987). Relatively few studies have focused on the downsides of same-sex male work ties to know if a preference for working with and for other men comes with a heightened risk of negative interactions. As Sheppard and Aquino (2013, p. 56) lament, "studies have completely ignored workplace relations among men. The omission of males from same-sex conflict at work is puzzling given that competitiveness and aggression are stereotypically male traits." Nonetheless, given that competitiveness is gender consistent for men (Ridgeway 2001, 2014), it is unclear that aggressive, competitive interactions with each another would necessarily constitute a negative tie for a man per se, or rather simply be perceived as typical male work interaction.

Of course, diversity studies have noted a variety of challenges when men and women work together including reduced group cohesiveness (Reagans et al. 2004), decreased creativity and innovation (Ancona and Caldwell 1992), and greater unwillingness to express ideas in a group setting (Goncalo et al. 2015). Yet, these studies describe both men and women as experiencing these outcomes through joint measures of group performance. Experiments have also shown that men discount women as legitimate competitors in work settings (Berdahl et al. 2010, Gneezy et al.

2003, Lee and Brotheridge 2011, Rudman and Goodwin 2004), which would reduce the odds of work conflict with women initiated by men as well. In some organizational contexts, men also stand to benefit from working with women via reduced task uncertainty and increased interpersonal sensitivity (Chattopadhy et al. 2008, Williams and Polman 2015). Even in female-dominated work contexts where men represent the minority, men have been shown to value and gain from their token status (Barnett et al. 2000, Rovner 2015, Wharton and Baron 1987) also contributing to a lower chance for men to view women as a threat or cause for conflict.

In sum, theory and evidence on gender and negative ties from the male perspective are consistent with predictions that women are more likely (than men) to name a woman as a negative tie, lending additional support for H2.

### Gendered Social Support and Negative Ties

The arguments presented thus far paint a bleak picture of work conflict for women. On the one hand, socialized gender norms predicate a collaborative, communal working style for women that dampens a woman's odds of citing negative work interactions. On the other hand, structural constraints in organizations present women with a winnowing set of advancement opportunities leading women toward "zero sum" competition with one another heightening tensions between women in the workplace. Even if women exhibit a lower risk than men to cite negative ties at work (H1), their odds of these occurring with another woman are relatively higher (H2). Yet, these arguments hinge on a set of contradictory forces where women are socialized away from conflict but drawn back into it with each other by virtue of an unequal organization that incites same-sex competition to advance. This suggests that for women, competition outweighs socialization when it comes to influencing their negative work relationships.

Still, it is possible that not all women will follow this inevitable path toward same-gender conflict. Specifically, one way that this proclivity toward competition and conflict with one another may be offset is when women have networks rich in female social support at work. In Ibarra's (1997) study of gender and managerial networks, she observed that "high potential" female managers utilized ties for support at work with other women even though they were aware of the advantage of forming ties with men for instrumental purposes. Similarly Shih (2006) described how female engineers formed supportive ties with other women across firms in Silicon Valley to share perspectives about which firms in their field were more egalitarian and which were laden with "old boy's networks." For women, having other women as friends and confidantes in a firm may offer unique sources of support, which could be leveraged to counteract the risk of conflict with one

another. Having more women friends at work may raise women's awareness of gender inequality issues in a workplace, helping shift their perspective away from women as sources of competition. In turn, women able to foster strong female social support systems at work may benefit from a positive filter in interpreting negative work interactions compared with women lacking female support systems. Knowing that affective ties (friends, social support versus instrumental work ties) have been associated with gossip and information sharing in the workplace (Grosser et al. 2010) increases the chance that conversations on topics like feelings of inequality may happen in these networks.

For these reasons, I expect that the likelihood for women to cite a negative tie with another woman will decline among women with greater female affective ties (compared to women with fewer female affective ties). This leads to a last (within-gender) prediction for women:

**Hypothesis 3** (H3). *For women respondents, the likelihood to cite another woman as a negative work tie declines as their affective ties increase in women.*

It is possible of course that men may also benefit from having supportive ties with women, who can raise their awareness of gender inequities or share different perspectives. At best, this may decrease men's odds of conflict with female coworkers whose organizational behaviors they may now view differently. Yet, given that men and women exhibit greater uncertainty in their cross-gender interactions in other types of work discussions (Goncalo et al. 2015), there is little reason to expect women to be as forthcoming and share their inequality experiences with male friends and confidantes as they would with other women whom they may feel better able to empathize and appreciate their perspective. This may be exacerbated in male-dominated contexts where women may worry about jeopardizing crucial ties with male coworkers by revealing an issue possibly interpreted by men as "blaming." Further, while men have been shown to benefit through improved interpersonal sensitivity as they work with women (Goncalo et al. 2015, Williams and Polman 2015), there is no evidence that this is due to having more supportive ties with these women. Accordingly, I remain agnostic on a within-gender effect of gendered social support on men's negative ties with women in the workplace, but fortunately can test this through additional within and across gender tests of respondents. I next turn to the data and methods to examine these questions.

## Methods
### Data and Sample
Data come from two firms: a global management consulting and technology services company ("Consult")

and the Midwest region of a facilities services contractor ("Midwest"). Consult operates in over 30 countries with a significant U.S. presence providing management consulting and technology services for Fortune 500 companies. Midwest is a U.S.-based firm providing janitorial, parking, and engineering services to commercial properties. Both report revenues in the billions and employees in the tens of thousands. The companies provide an appropriate context for this research. First, the firms have enough similarities (large, decentralized, geographically based organizational models) to make them comparable, but also enough differences (organizational culture, hiring and promotion strategies, industries) to generalize across organizational contexts. Second, at the time of the study, both firms were comparably male-dominated with women representing less than one-third of the workforce and under-15% of the senior management. Finally, both samples consist of professional employees mitigating concerns that arise when testing across broad economic segments where lifestyles and career motivations may fundamentally differ and potentially affect subsequent work conflict.

At Consult, the sample consisted of one practice group across three regions in the United States and Canada producing a network of employees working in consulting, outsourcing, global management, sales and alliances, and technology services. The survey was sent in December 2007 by the head of the practice group at Consult via email with a link to a separate online tool to the entire 227 employees in the practice group. One hundred and fifty four (70%) accessed the survey. Conservatively adjusting for incomplete responses produced a final sample of 113 (50%) responses with a network spanning 446 employees. At Midwest, an identical survey was sent using the same method by the regional head to the janitorial service business located in its largest region. The employees surveyed were professional employees overseeing the business in various functions (e.g., finance, operations, accounting) located in 11 branch offices across 6 states. As network responses differ across rank (Burt et al. 1998, Merluzzi 2013), the survey targeted management not staff positions. This also ensured that the negative ties captured individuals in similar career tracks at each firm. The resulting target population consisted of 53 individuals of which 48 (91%) responded producing a sample of 46 (87%) complete responses across a network of 160 employees.

The online survey contained 11 questions, of which seven were name generators (Marsden 2005). The survey followed established methods (Burt 2005) asking respondents to name individuals they report to, discuss work with, would enlist for support of a business idea, would discuss the idea, spend free time with (friends), and would discuss a confidential issue

(trust). The specific question about negative ties asked, "Of the many employees with whom you have worked, who has been the most difficult or uncooperative to work with?" After leaving space for a single name, respondents were asked, "Why?" followed by a blank (150-word limit). The survey also asked respondents to describe a business improvement idea (150-word limit), rate their job satisfaction (five-point scale), and indicate the likelihood of remaining at the firm the next year and in five years (drop-down, 25% increments). Consistent with established methods, respondents were restricted in the number of names they could provide (Merluzzi and Burt 2013). Respondents generated a mean number of nine unique names in answering the survey, creating a network where individuals maintained nine ties in and out on average.

To check for sample representativeness, individual characteristics associated with responding to the survey were analyzed at each firm. At Consult, tenure was associated with responding ($p < 0.01$): on average, employees had just over four years of tenure versus three years for respondents. Neither age, gender, nor rank was significantly associated with responding. At Midwest, compensation was positively associated with responding ($p < 0.001$), unsurprising as the target was management-level employees. Women comprised 29% of the respondents at Consult and 26% of those at Midwest, consistent with the percentage of women working at each firm. No performance metric (salary, performance evaluation scores, or promotions) was associated with being named difficult and difficult coworkers were not more likely to be isolates in the networks at either firm.

Each firm provided human resource records with information about respondents and nonrespondents named in the network, including demographics, start and when relevant end dates of jobs, titles, and compensation. Adjusting for missing data, the final sample consisted of 145 respondents ($n = 101$ at Consult; $n = 44$ at Midwest) in the fully specified models.

**Constructing the Network.** Networks at each firm were created from the survey data including a network of work-related ties (instrumental) and a network of social support ties (affective) using Netdraw/UCINET software (Borgatti et al. 2002; v6.221). The work-related network consisted of ties on (1) work discussion, (2) reporting (supervisory), (3) discussion of business idea, and (4) support of business idea. The social support (affective) network consisted of ties of (1) friends and (2) discussions of confidential issues (for similar approaches see Brass et al. 2004, Sterling 2015).[1] In all cases, ties were left directed rather than symmetric, validated by finding that no tie type had a significantly large reciprocation percentage to warrant an assumption of symmetric data. Important to the research question, this ensured not to conflate gender characteristics

across ties or to presume negative ties were reciprocated. To connect the network surrounding nonrespondents, I adhered to established methods (Krackhardt and Porter 1985) that use respondent descriptions of the ties between alters including nonrespondents. For construct validity, I included a subset of ties in the work-related network when two or more respondents cited the work contact to occur "almost every day." This resulted in 67 additional ties at Consult and 87 additional at Midwest.

**Measures.** For H1, the dependent variable is *citing a negative tie*, which is an indicator variable equal to 1 if the respondent answered the question citing a difficult or uncooperative coworker, 0 otherwise (i.e., did not answer). For H2 and H3, the dependent variable consisted of an indicator variable for *named woman as negative tie* that equaled 1 if the employee cited a negative tie with a woman and 0 otherwise (i.e., cited a man as negative or, did not name anyone). One hundred and eight respondents (74%) answered the question naming a negative tie.[2] At Consult, 74 respondents (65%) cited 55 individuals as difficult. At Midwest, 34 respondents (74%) named 28 different difficult employees. The majority of negative ties were not reciprocated[3] or shared across employees, although one employee at Consult was named five times and another six and one Midwest employee was named twice and another three times. Of the negative ties, most occurred between men (47%)—unsurprising as the firms were male-dominated—with the rest evenly split between women and across gender.

The main explanatory variable for H1 and H2 is *respondent gender* (woman) and for H3 the *network gender composition* (% women cited as affective ties). This latter measure is calculated as the number of women cited by a respondent summed across their affective ties divided by the size of that respondent's affective network.[4] For example, if an individual cited four unique contacts as affective ties and one was a woman, the network gender composition (affective ties) would equal 0.25. On average, women at Consult cited over a third (39%, $n = 1.8$) of their affective ties as women, while men employees cited on average 24% ($n = 1$). At Midwest, women on average cited 51% ($n = 1.3$) of their affective network and men cited on average 15% ($n = 0.6$).

Demographic, job, human capital, and network measures are included as controls. Demographic controls include respondent *age* and race (*minority* (nonwhite)). Akin to Hirschman (1970) where voice is likely as *tenure at firm* increases, the number of months the respondent worked at the firm at the time of the survey is controlled. A measure of *job rank* based on job titles and respondent total compensation are included as differences in rewards may generate rivalries or influence job satisfaction leading to negative interactions.

Because of its skewed nature, the natural log of *total compensation* is used. To control for individual's satisfaction and commitment to the firm, a measure of self-reported *intention to remain at the firm in one year* (one to five measure) is included. All but three respondents answered this. To capture immediate intentions (and one-year and five-year responses were correlated, 0.70), the one-year timeframe was used. Respondents also rated job satisfaction but because of low variance (range: 4–5; mean = 4.1 at both firms across gender) and that inclusion did not change results, it was not a control. To account for inherent differences across firms and industries, an indicator of whether the individual *worked at Consult* (versus Midwest) was included.

Network measures including size, density, and in degree centrality calculated based on an ego network using Netdraw/UCINET software (Borgatti et al. 2002) were included. *Network size* captures the number of contacts in an individual's network allowing researchers to differentiate between individuals with only a few contacts from those with many. A size variable is used that counts the number of unique alters across an individual's total work-related and affective networks.[5] Size did not significantly vary between men or women in their networks. Density, which captures the average level of connection among a respondent's contacts, is the number of ties in the network normalized by the number of possible ties (Borgatti et al. 2002). High density indicates a strong level of connection (clique) and low density indicates connecting across disconnected contacts in a network (brokerage). Network research finds an advantage from dense networks in contexts where emotional support or reputation is important in achieving organizational outcomes and disadvantage when innovation or creativity is critical (Burt 2005, Podolny and Baron 1997). As larger networks of lower density are associated with career advantages such as compensation, job satisfaction, retention, and faster promotions (Burt 2005), *network density* is included as a control.[6] I also include a measure of informal power using *in degree centrality*[7] a common measure for "connectedness," power, or status in a network that counts citations inward from other members of the network (Borgatti et al. 2002, Freeman 1979). At both firms the mean citations inward among respondents were just over 3, range of 0–19 (Consult) and 0–18 (Midwest).[8]

Finally, I include a control for the *network gender composition* (% of women cited) and *network gender composition as work related* (% of women cited). The first measure tallies the number of women cited in the survey responses divided by the size of the individual's network. The second is similar to network gender composition of affective network but for work-related ties.[9] These measures capture a respondent's propensity to cite women more generally at work and allow the ability to test the effect of respondent gender (H1, H2) and network gender composition of affective ties (H3) given a respondent's tendency to interact with women in the workplace and on work-related matters.

Descriptive and correlation data for the respondents at each firm are reported in Table 1.

**Method.** As the dependent variables are dichotomous, a probit model is used to test the odds of citing a negative tie (H1) and a negative tie with a woman (H2, H3).[10] Specifically, I predict the relationship between respondent gender and the odds of citing a negative tie (H1) and citing a woman as a negative tie (H2). I then predict the relationship within female respondents (and also for comparison, within male respondents and between gender of respondents) of the network gender composition (affective ties) and the odds of citing a woman as negative tie (H3). All models use the "probit" command (STATA v.13) controlling for demographic, human capital, job, and network covariates.

## Results

I begin analyzing whether women respondents are less likely than men respondents to cite a negative tie at work (H1). Model 1 (Table 2) shows an unexpected positive although not statistically significant effect ($z = 1.58$) of women respondents (compared with male) on citing a negative tie (compared with leaving the question blank) failing to support H1. Of the controls, three measures are significantly associated with citing a negative tie: job rank ($p < 0.05$), compensation ($p < 0.05$), and network density ($p < 0.05$). Higher rank may afford a sense of freedom or protection in answering the question on negative work ties or, higher-ranking jobs simply may lead to greater risk of conflict at work. It is unclear why lower compensation is associated with citing a negative tie. As less dense networks are associated with career advantage (Burt 1992), the association between density and citing a negative tie suggests that along with this advantage comes the cost of difficult work relationships. Overall though, H1 is not supported: respondent gender is not statistically associated with citing negative ties at work at these firms.

H2 next predicts a positive association in citing women as negative tie (compared to citing a man or, not citing anyone) for women respondents (compared to men). Model 1 (Table 3) tests this and shows a positive statistically significant association ($p < 0.05$) for women (compared with men) on citing a woman as negative tie.[11] Other significant controls include respondent age ($p < 0.05$) and compensation ($p < 0.05$). For comparative purposes, the same models (not shown, but available) were analyzed for men (compared with women) on citing a negative tie with a man (compared to citing

**Table 1.** Descriptive Statistics and Correlations (by Firm)

### Midwest

| | Mean | SD | Min | Max | V1 | V2 | V3 | V4 | V5 | V6 | V7 | V8 | V9 | V10 | V11 | V12 | V13 | V14 | V15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| V1 Respondent gender (woman) | 0.27 | 0.45 | 0 | 1 | 1 | | | | | | | | | | | | | | |
| V2 Age | 48.3 | 9.21 | 29 | 63 | −0.38* | 1 | | | | | | | | | | | | | |
| V3 Tenure at firm (months) | 114 | 78 | 4 | 493 | −0.15 | 0.34* | 1 | | | | | | | | | | | | |
| V4 Job rank | −2.9 | 0.8 | −4 | −1 | −0.40* | 0.06 | 0.01 | 1 | | | | | | | | | | | |
| V5 Ln(total compensation) | 11.4 | 0.40 | 10.8 | 12.56 | −0.34* | 0.27 | 0.18 | 0.54* | 1 | | | | | | | | | | |
| V6 Intention to remain at firm in one year | 4.91 | 0.29 | 4 | 5 | 0.02 | 0.16 | −0.03 | 0.03 | 0.17 | 1 | | | | | | | | | |
| V7 Network density (work ties) | 0.39 | 0.22 | 0 | 1 | 0.28 | 0.09 | 0.03 | −0.49* | −0.28 | 0.18 | 1 | | | | | | | | |
| V8 Network in degree centrality (work ties) | 6.5 | 5.5 | 0 | 25 | −0.32* | 0.27 | 0.29 | 0.43* | 0.76* | 0.00 | −0.13 | 1 | | | | | | | |
| V9 Network size | 8.4 | 2.7 | 2 | 15 | −0.09 | 0.05 | 0.18 | 0.05 | 0.61* | 0.02 | −0.37* | 0.56* | 1 | | | | | | |
| V10 Network gender composition (% of women cited) | 0.29 | 0.16 | 0 | 0.67 | 0.36* | −0.28 | 0.06 | −0.24 | −0.21 | 0.01 | 0.41* | −0.18 | −0.26 | 1 | | | | | |
| V11 % women cited as work-related (instrumental ties) | 0.3 | 0.2 | 0 | 0.6 | 0.23 | −0.18 | 0.09 | −0.28 | −0.15 | −0.15 | 0.38* | −0.10 | −0.15 | 0.91* | 1 | | | | |
| V12 % women cited as friends/trust (affective ties) | 0.25 | 0.29 | 0 | 1 | 0.56* | −0.18 | 0.06 | −0.09 | −0.20 | 0.07 | 0.07 | −0.23 | −0.15 | 0.48* | 0.32* | 1 | | | |
| V13 Use of negative, emotional, personal dislike in explanation | 0.53 | 0.51 | 0 | 1 | 0.03 | −0.07 | 0.21 | 0.06 | 0.06 | 0.20 | 0.12 | 0.15 | 0.21 | −0.06 | −0.18 | 0.08 | 1 | | |
| V14 Cite a negative tie | 0.73 | 0.45 | 0 | 1 | 0.03 | −0.18 | 0.00 | 0.40* | 0.01 | −0.19 | −0.22 | 0.18 | −0.10 | −0.05 | −0.09 | −0.02 | 0.37* | 1 | |
| V15 Cite woman as negative tie | 0.23 | 0.42 | 0 | 1 | 0.16 | 0.08 | −0.03 | −0.12 | −0.18 | −0.39* | 0.07 | −0.01 | −0.02 | 0.15 | 0.33* | −0.10 | 0.09 | 0.33* | 1 |

### Consult

| | Mean | SD | Min | Max | V1 | V2 | V3 | V4 | V5 | V6 | V7 | V8 | V9 | V10 | V11 | V12 | V13 | V14 | V15 | V16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| V1 Respondent gender (woman) | 0.30 | 0.46 | 0 | 1 | 1 | | | | | | | | | | | | | | | |
| V2 Minority (nonwhite) | 0.23 | 0.42 | 0 | 1 | 0.04 | 1 | | | | | | | | | | | | | | |
| V3 Age | 35 | 7.4 | 23 | 65 | −0.22* | −0.23* | 1 | | | | | | | | | | | | | |
| V4 Tenure at firm (months) | 31.1 | 33 | 5 | 134 | 0.11 | −0.21* | 0.23* | 1 | | | | | | | | | | | | |
| V5 Job rank | 3.64 | 1.14 | 2 | 7 | −0.15 | −0.30* | 0.59* | 0.30* | 1 | | | | | | | | | | | |
| V6 Ln(total compensation) | 11.7 | 0.39 | 10.9 | 13.00 | −0.24* | −0.24* | 0.58* | 0.24* | 0.93* | 1 | | | | | | | | | | |
| V7 Intention to remain at firm in one year | 4.04 | 1 | 1 | 5 | 0.02 | 0.07 | 0.00 | −0.06 | −0.16 | −0.08 | 1 | | | | | | | | | |
| V8 Network density (work ties) | 0.2 | 0.2 | 0 | 1 | −0.10 | −0.02 | −0.02 | −0.12 | −0.02 | −0.04 | −0.17 | 1 | | | | | | | | |
| V9 Network in degree centrality (work ties) | 4.1 | 5.5 | 0 | 32 | −0.08 | −0.20* | 0.22* | 0.34* | 0.54* | 0.57* | −0.03 | 0.16 | 1 | | | | | | | |
| V10 Network size | 8.63 | 2.94 | 1 | 18 | 0.07 | −0.05 | 0.05 | 0.21* | 0.17 | 0.19* | −0.03 | −0.32* | 0.37* | 1 | | | | | | |
| V11 Network gender composition (% of women cited) | 0.30 | 0.20 | 0 | 1 | 0.26* | 0.03 | −0.21* | 0.16 | −0.15 | −0.16 | 0.07 | −0.03 | −0.01 | 0.08 | 1 | | | | | |
| V12 % women cited as work-related (instrumental ties) | 0.29 | 0.20 | 0 | 1 | 0.24* | 0.02 | −0.20* | 0.20* | −0.14 | −0.16 | 0.09 | −0.08 | 0.01 | 0.07 | 0.96* | 1 | | | | |
| V13 % women cited as friends/trust (affective ties) | 0.29 | 0.26 | 0 | 1 | 0.25* | −0.11 | −0.12 | 0.14 | −0.21* | −0.23* | 0.11 | 0.03 | −0.06 | 0.12 | 0.62* | 0.53* | 1 | | | |
| V14 Use of negative, emotional, personal dislike in explanation | 0.44 | 0.5 | 0 | 1 | 0.08 | −0.03 | 0.05 | 0.32* | −0.04 | −0.01 | 0.10 | −0.03 | 0.08 | 0.19 | 0.12 | 0.13 | 0.22 | 1 | | |
| V15 Cite a negative tie | 0.65 | 0.48 | 0 | 1 | 0.19* | −0.23* | 0.12 | 0.04 | 0.09 | 0.09 | −0.07 | −0.12 | 0.07 | 0.13 | 0.15 | 0.16 | 0.03 | 0.45* | 1 | |
| V16 Cite woman as negative tie | 0.2 | 0.43 | 0 | 1 | 0.23* | −0.06 | 0.16 | 0.29* | 0.13 | 0.09 | 0.00 | −0.09 | 0.15 | 0.18 | 0.09 | 0.18 | 0.09 | 0.14 | 0.37* | 1 |

* $p < 0.05$

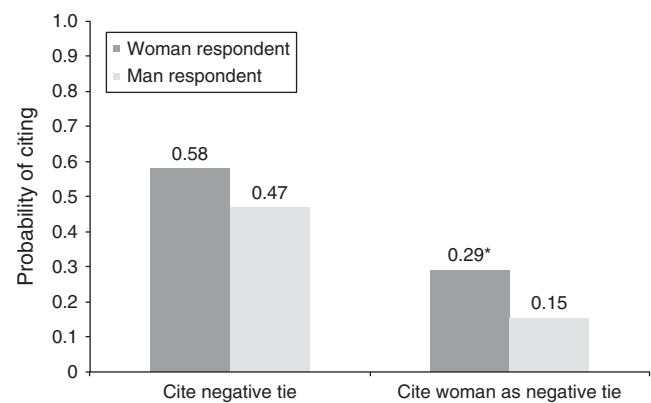**Table 2.** Probit Model Predicting the Effects of Covariates on Odds of Citing a Negative Tie

| | Model 1 | |
|---|---|---|
| | Beta | SE |
| Respondent characteristics | | |
| *Gender* (woman) | 0.47 | 0.30 |
| *Minority* (nonwhite) | −0.54 | 0.34 |
| *Age* | 0.01 | 0.02 |
| Respondent job characteristics | | |
| *Tenure at firm* (months) | 0.00 | 0.00 |
| *Job rank* | 0.43 | 0.22* |
| Ln(*total compensation*) | −1.42 | 0.68* |
| *Intention to remain at firm in one year* | −0.08 | 0.14 |
| *Works at Consult* | −2.58 | 1.40† |
| Respondent network characteristics | | |
| *Network density* (work ties) | −1.38 | 0.71* |
| *Network in degree centrality* (work ties) | 0.05 | 0.03 |
| *Network size* | −0.02 | 0.05 |
| *Network gender composition* (% of women cited) | 0.94 | 0.71 |
| Constant | 18.07 | 7.92* |
| Observations | | 145 |
| Log likelihood | | −76.78 |
| Pseudo *R*-squared | | 0.12 |

** 0.01, * 0.05, † 0.10.

**Figure 1.** Marginal Probabilities of Citing a Negative Tie (Left Bars) and a Negative Tie with a Woman (Right Bars) for Hypothetical Woman (Dark Bars) and Man (Light Bars) Respondent at Consult (*Tables* 2, 3)



*Note.* Women respondents statistically differed from men respondents.

*Citing woman coworker as difficult ($p < 0.05$).

(compared to citing a man or not answering). The network gender composition effect is now statistically significant too, but just for work-related ties ($p < 0.01$). The effect of network gender composition of affective ties is negative but fails to reach significance ($p = 0.24$). Of the controls, older age ($p < 0.05$), higher rank ($p < 0.10$), and lower compensation ($p < 0.05$) remain from Model 1.

As all respondents cite a greater percentage of women in their work-related ties, the odds of citing a woman as a negative tie increase. For women, this is above an already positive baseline of citing another woman as negative tie. Interacting the gender network composition (instrumental, affective) with respondent gender does not statistically improve model fit ($\chi^2 = 1.95, p = 0.38$) and the same effects of respondent gender ($p < 0.05$) and gender network composition of instrumental ties ($p < 0.05$) remain. Thus, compared to men, women are more likely to cite a negative tie with another woman and these odds increase for both men and women as they cite more women as a percentage of their work-related ties.

To directly test H3, Model 3 analyzes the gender composition network measures (instrumental, affective) within gender (for women respondents). H3 finds support with a negative, statistically significant effect ($p < 0.05$) of increasingly female affective networks on citing another woman as negative for women respondents. In other words, women who cite more women as a percentage of their support networks at work are less likely to cite negative ties with a woman (as compared with women with lower percentage of women in their support networks). Notably, this effect is only significant for women's affective network gender composition. The network gender composition of work-related ties (from Model 2) is not significant ($z = 0.75$)

a woman or, not citing anyone). Men were not statistically more likely than women ($z = 0.30$) to cite a man as negative tie (compared to citing a woman or, not citing anyone). Thus, a propensity for same-gender negative ties only held for women.

Figure 1 visualizes the results, by depicting marginal probabilities generated for citing a negative tie (versus not) and a negative tie with a woman (versus with a man or not naming anyone) using mean levels of control variables for a hypothetical woman (darker bars) and man (lighter bars) working at Consult (Midwest not shown, but consistent). As Figure 1 shows, men and women do not differ in citing a negative tie (leftmost bars) with women showing a slightly higher (but not statistically different) probability of 0.58 versus 0.47 for men (H1). The right bars show the statistically different effect (H2) of citing a negative tie with a woman where women respondents have a marginal probability of 0.29 compared with 0.15 for men.[12]

I next turn to H3 that predicts a negative within-gender effect for women of their gender composition (affective ties) on the odds of citing a negative tie with another woman. Before directly testing H3, I first test the effect of splitting the gender composition of network ties by instrumental and affective networks across all the respondents to observe the between-gender effect (Table 3, Model 2). Splitting into work and affective networks improves model fit ($\chi^2 = 7.37, p < 0.01$) and shows a consistent positive main effect for women respondents ($p < 0.05$) on citing a woman as negative

**Table 3.** Probit Model Predicting the Effects of Covariates on Odds of Citing a Negative Tie with a Woman

| | All respondents | | All respondents | | Women respondents only | | Men respondents only | |
| | Model 1 | | Model 2 | | Model 3 | | Model 4 | |
| | Beta | SE | Beta | SE | Beta | SE | Beta | SE |
|---|---|---|---|---|---|---|---|---|
| Respondent characteristics | | | | | | | | |
| *Gender* (woman) | 0.62 | 0.28* | 0.64 | 0.30* | | | | |
| *Minority* (nonwhite) | 0.05 | 0.37 | −0.08 | 0.39 | 0.70 | 0.73 | −0.50 | 0.59 |
| *Age* | 0.04 | 0.02* | 0.05 | 0.02* | 0.06 | 0.04 | 0.05 | 0.02* |
| Respondent job characteristics | | | | | | | | |
| *Tenure at firm* (months) | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.01† | 0.00 | 0.00 |
| *Job rank* | 0.37 | 0.23† | 0.44 | 0.24† | 1.02 | 0.71 | 0.38 | 0.28 |
| Ln(*total compensation*) | −1.56 | 0.70* | −1.73 | 0.72* | −3.27 | 1.74† | −1.53 | 0.87† |
| *Intention to remain at firm in one year* | 0.00 | 0.15 | −0.02 | 0.15 | −0.51 | 0.39 | 0.06 | 0.18 |
| *Works at Consult* | −1.20 | 1.43 | −1.52 | 1.47 | −4.21 | 4.17 | −1.11 | 1.82 |
| Respondent network characteristics | | | | | | | | |
| *Network density* (work ties) | −0.01 | 0.73 | 0.08 | 0.77 | 2.95 | 2.14 | −0.36 | 1.03 |
| *Network in degree centrality* (work ties) | 0.04 | 0.03 | 0.03 | 0.03 | −0.18 | 0.11† | 0.05 | 0.04 |
| *Network size* | 0.06 | 0.05 | 0.08 | 0.05 | 0.36 | 0.16* | 0.05 | 0.07 |
| *Network gender composition* (% of women cited) | 0.58 | 0.72 | | | | | | |
| % women cited as work-related (instrumental ties) | | | 2.23 | 0.80** | 1.38 | 1.85 | 2.33 | 1.15* |
| % women cited as friends/trust (affective ties) | | | −0.65 | 0.55 | −2.75 | 1.25* | −0.26 | 0.86 |
| Constant | 14.77 | 8.03† | 16.11 | 8.26* | 34.72 | 19.89† | 13.70 | 9.98 |
| Observations | 145 | | 145 | | 41 | | 104 | |
| Log likelihood | −71.16 | | −67.48 | | −17.57 | | −42.49 | |
| Pseudo *R*-squared | 0.12 | | 0.17 | | 0.36 | | 0.17 | |

** 0.01, * 0.05, † 0.10.

when comparing within female respondents. Of the controls, longer tenure ($p < 0.10$), lower compensation ($p < 0.05$), less network centrality ($p < 0.10$), and greater network size ($p < 0.05$) are also significant. Taken together, the results show that a negative tie with another woman at work is more likely among women who have been at the firm longer, earn lower compensation, are less cited by their colleagues but cite many others themselves and consistent with H3, cite having fewer women coworkers as social support.

To complete the comparison, Model 4 presents the same analysis within male respondents. Recall that Model 1 showed that men are less likely than women to name a woman as negative (compared to citing a man or not answering). Model 4 shows a directionally consistent (negative, like Models 2 and 3) but not statistically significant effect among men who cite more women as affective ties, but also a positive association among men who cite more women in their work ties ($p < 0.05$) consistent with the between-gender results (Model 2). Of the controls, older ($p < 0.05$), less compensated ($p < 0.10$) men are more likely to cite a negative tie with a woman at work.

Although not directly hypothesized, all models were also analyzed changing the dependent variable to citing a negative tie with a man (compared to a woman or not naming anyone). No network gender composi-

tion effects were statistically significant in the between-gender analyses or, within-gender analyses for women. Citing more women as a percentage of work-related or, affective ties were both not statistically associated with women's odds of naming a man as a negative tie compared to other women or, compared with men. However, for the within-gender analysis among men, a positive statistically significant effect ($p < 0.05$) for citing women as affective ties was associated with citing a negative tie with a man (compared to a woman or not naming anyone). While beyond the scope of the arguments in H3, this may offer some evidence that for men, having more women as friends and confidantes also is associated with negative ties—in this case, same-sex negative ties between men.

To ease in interpretation of the results for H3, Figure 2 depicts marginal probabilities of citing a negative tie with a woman for a hypothetical woman (top graph) and man (bottom) respondent (at Consult only, Midwest had consistent results) with mean characteristics (age, tenure, etc.) using Models 3 and 4 (Table 3). For each Figure, I vary the network gender composition (affective ties solid line; instrumental ties dashed line) using the mean plus and minus one standard deviation in percentage of women to show how the odds change as a function of increasing and decreasing the

**Figure 2.** Marginal Probability of Women (Top Graph) and Men (Bottom Graph) Respondents Citing a Woman as Negative Tie by Network Gender Composition (% Women) (Table 3, Models 3, 4 at Consult)
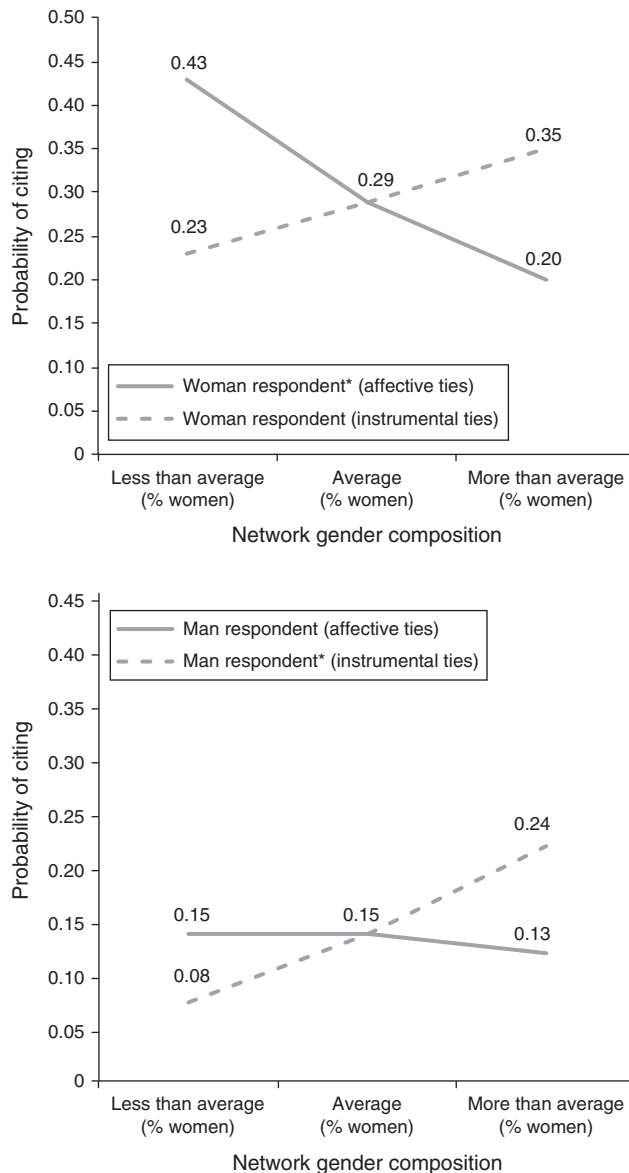


*Indicates statistically significant effect ($p < 0.05$).

network gender composition for each network within respondent gender.

As Figure 2 top graph shows, comparing within women, those women with the mean percentage of female affective ties have 0.29 marginal probability of citing a negative tie with a woman. As their network gender composition (affective ties) decreases by one standard deviation (i.e., they have less women in support networks), this probability rises to 0.43. As the gender composition increases by one standard deviation (i.e., they cite more women in support networks) the probability declines to 0.20 (solid line). Compara-

tively, as the network gender composition (instrumental ties) moves from left to right the probability of citing a woman as negative tie rises although not significantly so (from 0.23 to 0.29 to 0.35, dashed line).

The bottom graph shows the same comparison for a hypothetical man respondent (Model 4). As the network gender composition (% women, affective ties) for men varies, the probability of citing a woman remains flat (from 0.15 to 0.15 to 0.13, solid line). However, the statistical difference emerges when comparing a man respondent's probability of citing a negative tie with a woman as his network gender composition (% of women, instrumental ties) rises (from 0.08 to 0.15 to 0.24, dashed line).

In sum, H2 and H3 find support while H1 does not. Men and women do not differ in their likelihood to cite a negative tie at work (H1). Still, women respondents are more likely than men to cite a negative tie with a woman (than cite a man or, not name anyone) (H2). For women respondents, this probability declines for those women who cite more women for social support at work (H3). A reduced likelihood of citing a woman as negative tie from increasingly female affective ties did not emerge in either the within-gender comparisons for men or the between-gender comparisons across respondents.

## Alternative Explanations and Checks

While identifying the precise mechanism is beyond the scope of this research design, I conducted exploratory analysis of alternative explanations discussed in the diversity and conflict literature that might further inform the set of results. Specifically, I investigated explanations related to qualitative differences in the conflict, formal power differences between respondent and target, and an employee's organizational commitment and subsequent exit from the two firms.

I first considered whether the negative ties for men and women qualitatively differed in meaningful ways. For example, it is possible that conflict with or by women is related to more negative, emotional conflicts in the workplace, which produce a more "toxic" impact to a firm when they occur. To examine this, I reviewed the content respondents provided in their explanation (i.e., text answer to "why" after naming the negative tie) and created a measure of the *use of negative, emotional language*. Negative, emotional language was coded through two methods. First, I employed a software program, Linguistic Inquiry and Word Count (LIWC) 2007 v1.09 (Pennebaker et al. 2007) that uses a dictionary function to rate the degree of negative emotion and anger in the text (see Srivastava et al. 2017 for similar approach). Second, as the software evaluates on words rather than context, I supplemented this with three raters evaluating the text. The three raters consisted of an individual familiar with the industries but

not a current employee, an individual with no direct experience with the firms or industries, and the author. All raters were presented with the 108 explanations blinded of identifying information on the respondent or the difficult employee such as gender (i.e., replaced he or she, etc. with "the employee"). The three raters produced a significant ($p < 0.001$) kappa statistic (0.7) considered "substantial agreement" (Viera and Garrett 2005). The LIWC rating of responses had a skewed distribution with a mean of 2.8, median of 0, range 0 to 41.2. From this, I created an indicator variable *use of negative, emotional language* equal to "1" when LIWC rated the response as containing negative emotion and anger and at least two out of three raters agreed the explanation contained "personal dislike" (46% of the explanations).[13] Because of missing data, the final sample consisted of 34 responses by women and 73 provided by men ($n = 107$).

Tests revealed no statistically significant difference in the use of negative, emotional language by respondent gender (men: mean = 0.50, SD = 0.51; women: mean = 0.45, SD = 0.50, $t = -0.46$) or in citing a woman as a negative tie (mean = 0.54, SD = 0.08) or, not (mean = 0.43, SD = 0.06, $t = -1.08$). I then regressed respondent gender and the network gender composition for both networks (same control variables) on the use of negative, emotional language in the explanation for all respondents (Model 1, Table 4). Model 1 shows no statistically significant effect for respondent gender, but both network gender composition measures are statistically associated with the use of negative, emotional language. Respondent networks with fewer women cited as percentage of work-related ties ($p < 0.05$) but more women cited as percentage of affective ties ($p < 0.01$) were associated with the use of negative, emotional language in the explanation. Interacting the network gender composition measures with respondent gender did not improve model fit ($p = 0.42$) nor change these results (network gender composition measures remained $p < 0.05$). I also conducted the same analysis within women and again within men respondents and the network gender composition measures from Model 1 remained directionally consistent.[14]

Of the controls, longer tenure is statistically associated ($p < 0.01$) with negative language as is having a larger network ($p < 0.05$). The tenure effect is consistent with Hirschman (1970) that employees are more likely to speak up (possibly with less of a filter for negativity) over time, although it runs counter to expectations that negative group interactions tend to decrease in magnitude over tenure (Duguid et al. 2012, p. 393). It is not clear what network size reflects other than having more ties may embolden an individual to discuss ties more negatively or simply have this type of negative relationship. No other measure is significantly associated with negativity in the explanation.

**Table 4.** Probit Model Predicting the Effects of Covariates on Odds of Using Negative, Emotional Language in Respondent Explanation of Negative Tie

| | All respondents | |
|---|---|---|
| | Model 1 | |
| | Beta | SE |
| Respondent characteristics | | |
| *Gender* (woman) | −0.04 | 0.33 |
| *Minority* (nonwhite) | 0.31 | 0.46 |
| *Age* | 0.00 | 0.02 |
| Respondent job characteristics | | |
| *Tenure at firm* (months) | 0.01 | 0.00** |
| *Job rank* | 0.11 | 0.24 |
| Ln(*total compensation*) | −0.31 | 0.71 |
| *Intention to remain at firm in one year* | 0.24 | 0.17 |
| *Works at Consult* | −0.02 | 1.49 |
| Respondent network characteristics | | |
| *Network density* (work ties) | 1.16 | 0.84 |
| *Network in degree centrality* (work ties) | −0.01 | 0.03 |
| *Network size* | 0.15 | 0.07* |
| *Network gender composition* (% of women cited) | | |
| % women cited as work-related (instrumental ties) | −1.97 | 1.02* |
| % women cited as friends/trust (affective ties) | 1.98 | 0.75** |
| Constant | 0.35 | 8.15 |
| Observations | 107 | |
| Log likelihood | −62.12 | |
| Pseudo *R*-squared | 0.16 | |

** 0.01, * 0.05, † 0.10.

Overall, while gender of the respondent was not associated with the content of the explanation, citing specific gendered networks of fewer women as work ties but more women as affective ties was. While the causal direction is unclear—whether having this particular gender composition elicits a more negative emotional response to difficult relationships or having a more negative, emotional reaction to conflict at work leads one to build this network—respondents with these networks described their negative ties qualitatively differently. Relating this to the earlier finding (Table 3), this suggests that while female-filled support networks for women are associated with reduced conflict with another woman, the negative ties that remain (for these women but also among men with more women cited as social support) represent the more negative, emotionally charged conflicts in firms. Notably, I do not find evidence of this same negativity associated with naming a woman more generally or, that men and women differ in a proclivity for constant negativity.

As a next step, I examined rank differences[15] between respondent and target of negative ties to test if men or women differ in their targets in the formal hierarchy. In separate analyses (not shown/available), I tested

gender of the respondent and network gender composition measures (same controls) on the odds of citing a negative tie with a senior-ranked, same-ranked, and junior-ranked coworker. Across the models, I observed no statistically significant effect for respondent gender except that women were more likely (than men) to cite a same-ranked coworker ($p < 0.10$) as negative. Only one rank difference emerged with network gender composition: women with more women as a percentage of their support ties were more likely (than men) to cite a negative tie with a senior ranked coworker ($p < 0.10$). Notably, I find no evidence of distinct female-female power differences consistent with the "queen bee syndrome," akin to findings that the syndrome is overproblematized (Sheppard and Aquino 2013, Sandberg and Grant 2016).

Lastly, I investigated whether gender or network gender composition was associated with subsequent respondent organizational exit or intentions to exit as a way to explore a possible differential impact of gendered conflict on organizations. To analyze this, I created a measure of organizational exit from data provided by both firms of all exits (voluntary and nonvoluntary not specifically identified) during the data collection period (representing under a year). At Consult, 17% ($n = 77$) left the company during this time and 7% left at Midwest ($n = 11$). Because of the small number of exits, I supplemented this with measures of intentions to remain at the firm in one and in five years. I found no association with gender, citing a woman as negative, or with network gender composition on either exits or intentions to exit. The only statistically significant association with actual exit was lower intention to remain in the firm in one year ($p < 0.05$) and the use of negative, emotional language ($p < 0.10$). Lower job rank ($p < 0.001$) and higher compensation ($p < 0.10$) were associated with intentions of remaining at the firm. Overall I did not observe evidence related to near-term exit or intentions to exit and gendered negative ties.

## Discussion and Conclusion

This paper was motivated by the observation that while gender diversity and inequality are well-documented topics in management, sociology, and labor economics, few have looked closely at the gendered negative relationships within a workplace using a network perspective. Deepening our knowledge of the networks around those involved in negative ties at work, particularly within and across gender, could highlight where tensions may arise between and within the sexes that might contribute to subsequent unequal outcomes for men and women. Understanding the relational side of conflict also bears practical importance as companies increasingly organize using

diverse teams, heightening the reliance on informal ties between and within gender to get work accomplished.

Toward this end, this paper proposed that exploring gender and negative work ties inside firms offers a unique approach to the study of interpersonal conflict in today's professional workplace. Using network data from two large firms operating in distinct industries in the United States, both similarities and differences emerged. Men and women were equally likely to cite a negative work tie. Yet, women were more likely (than men) to cite a negative tie with a woman (compared with citing a man or, not citing anyone). The same was not observed between men. Negative ties between women at work however were further explained by considering the gender composition of a woman's social support network. Here for women, the likelihood of same-sex conflict was dampened for women with more female social support ties at work compared with women with less female social support. Consistent with prior network studies on gender differences, I find the pertinence of multiplex tie types for women at work (Ibarra 1992, 1997). What is new is that for women, having more female social support at work provides an added benefit: reduced conflict with each other. Notably, citing women as social support did not produce a similar effect within men respondents or when comparing between the sexes.

Through a series of analyses, I was able to test for other observable differences associated with the results to explore possible mechanisms such as differences in the qualitative explanations of the negative ties, in the rank of those involved in the negative tie, and in subsequent organizational exit and intentions to exit. Contrary to characterizations of women as more emotional or hostile (Cowan et al. 1998) or men as aggressive and competitive (Berdahl et al. 2010, Gneezy et al. 2003, Lee and Brotheridge 2011, Rudman and Goodwin 2004), this analysis revealed no association between gender and the propensity for negative, emotionally laden descriptions of the work conflict. Nonetheless, across both men and women respondents, citing networks with fewer women as a percentage of work ties, but more as a percentage of affective ties was associated with the more negatively described conflicts. While I could not disentangle whether such network compositions enabled this type of venting or emerged as a consequence of the negative interaction, the linkage between the two indicates where potential "hot spots" where more unhealthy conflict may be occurring in a firm.

In addition to contextualizing the negative ties, I was able to examine if differences in formal power were inherent to a particular type of gendered work conflict. This revealed more nuance to female negative relationships where women were more likely than men to cite difficulties with employees of the same rank in

the firm. At the same time, I observed no association between a particular gendered conflict and the actual or stated intentions for near-term organizational exit. Accordingly, it did not appear that any gendered conflict was more or less influential on subsequent exit or retention at either firm.

While this study paves initial inroads for explorations of conflict, gender diversity, and network studies by integrating these perspectives, there are important aspects to note that future research should address. First, this analysis is based on two firms generalizable to the degree that these firms are typical. I purposefully selected firms similar enough to be comparable but distinct enough to be generalizable. The fact that the work and physical location of the project teams and management at Consult and Midwest were spread across multiple industries and client environments give merit to this claim. To the extent that the results are unique to large or U.S. firms, makes replication of results in other contexts essential. Both firms were male-dominated, making it necessary to also examine this question in other gender composed workplaces. Given that different outcomes have been observed with women's work relationships with other women at sex-integrated firms (Ely 1994), future research should replicate this analysis in other contexts, although finding such settings may be relatively difficult and idiosyncratic in other aspects.

In making these arguments, I assumed that answering a question on the survey correlated with actual interactions at work and that naming a difficult coworker represents work conflict perceived by that respondent. In creating the network, I was careful to select ties where actual interaction occurred—not including ties where individuals had no direct or infrequent contact. Yet it is possible that individuals felt more comfortable discussing conflict on a confidential network survey than what they acted upon at work. Knowing that variance existed in who answered the questions suggested that these sentiments reflected held opinions and behaviors, not new realizations at the time of the survey. Akin to research that has shown that individuals frequently discuss conflict with coworkers (Bergmann and Volkema 1994), many written explanations also referenced conversations with others, corroborating this assumption. Through the controls, I was careful to account for individual heterogeneity underlying the negative ties. For instance, in separate analysis of Consult (not shown/available), I tested having received a promotion since entry on the likelihood to answer the question and found no statistical effect indicating that I was not selecting on the most unhappy, problematic respondents but typical employees. However, designing data collection strategies that can capture interactions differently such as email data

or more directly control for personality types could further strengthen future analysis on this topic.

As with prior network studies, causal claims are difficult to assert with cross-sectional data (Borgatti and Foster 2003). It is not clear whether the gender composition of the network comes before or after one already has a negative tie. With this said, the process is likely iterative rather than cause and effect where individuals are drawn into relationships because of a need to discuss with others and the networks provide this. In turn, interaction with the difficult coworker influences whom individuals choose to build ties affecting the surrounding network structure. Knowing that network research has found personality characteristics associated with certain informal ties at work (Mehra et al. 2001) but also that individuals can replicate network patterns in the future (Janicik and Larrick 2005) warrants the need for continued research that can better control for different causal ambiguities. To the extent that an individual's network composition is informative at a point in time and relatively stable this study offers a unique approach to analyzing this question and a clear association between the two.

Overall, by highlighting similarities and differences that exist in men and women's negative ties inside two firms, this paper contributes to research on gender diversity as well as a growing body of social network scholarship on negative ties. The fact that most firms encourage informal relationships among their employees—and pay particular attention to gender diversity in hiring (Rivera 2015)—makes this a finding worthy of managerial consideration, particularly when a significant organizational advantage comes from the human and social capital of a firm. Knowing that unique gendered network characteristics such as the gender compositions of an employee's social support at work were associated with negative ties may also help organizational leaders better anticipate potential trouble spots within their firms where such gendered conflict may erupt.

## Acknowledgments

## Endnotes

[1] Quadratic Analysis Procedure (QAP) correlation comparing each matrix further substantiated this. Trust ties significantly correlated

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with supervisor and work discussion at both firms, but more strongly with friend ties. To be comparable with prior network studies, I joined "trust" and "friendship" ties to form social support networks at both firms. Negative ties were not significantly correlated ($p < 0.05$) with any other matrix (supervisor, friend, support idea, discuss idea, trust) except for work discussion (0.03 at Midwest; 0.12 at Consult). Negative ties were not statistically correlated with the joined "work-related" network (corr = −0.002) or, friends/trust network (corr = −0.001) at Midwest; moderately with the joined work-related network (corr = 0.023) and social support network (corr = 0.025) at Consult. This further validated that negative ties reflected work conflict rather than another type of conflict (i.e., bullying or violence outside of work), but were distinct from other regular work ties supporting the analysis at an individual level. I thank an anonymous reviewer for helpful suggestions on this.

[2] Notably, 112 provided responses but 4 respondents (2 at each firm) provided responses that could not be tied directly to an individual (e.g., used initials or cited an entire department). To be conservative and consistent, these four respondents were dropped from the analysis although models remained robust with or without their inclusion.

[3] It is unclear whether the unreciprocated nature of the negative ties indicates that only one individual perceived the tie as negative or, whether the same individual did not come first to mind on both sides of the negative relationship. Because of sample size, I was unable to disentangle this other than noting the nature of the data although this becomes an interesting question for future research.

[4] This is based on similar methods used by Ibarra (1992) and Ely (1994). It differs from Ibarra (1992), who normalizes the measure based on the number possible to cite. I did not have this information but even if I did, it would vary greatly in consulting depending on a particular project and utilization rate of the firm at a given time. However, I did run results using a standardized $z$-score of the gender composition akin to Chattopadhy et al. (2008) measure of sex dissimilarity and found no change in results (not shown/available). I report using the simpler measure.

[5] I ran all models using this and out degree, a measure of ties out from ego (correlated at 0.83) and found no significant differences so use this simpler total count measure.

[6] Another common measure is network constraint (Burt 1992). The two are often correlated (here 0.71 at Consult; 0.61 at Midwest). Results did not change using constraint so models use the simpler density measure.

[7] Another measure is eigenvector (Bonacich 1987), often correlated (here 0.64 at Consult; 0.78 at Midwest). As results did not vary, models use the simpler in degree centrality measure.

[8] Men and women did not statistically differ in centrality in work-related network ($t = 0.85$) or affective network ($t = −1.01$) at Consult although they did at Midwest in work network (men: mean = 7.21, SD = 5.89; women: mean = 3.67, SD = 2.46, $t = 2.01$) and in affective network (men: mean = 2.26, SD = 2.09; women: mean = 1.08, SD = 1.08, $t = 1.86$), making controls for firm-level differences important.

[9] Negative ties were not included in either network gender composition measure or in other network measures as they were infrequent. At Midwest, $n = 16$ negative were cited for work discussion (4% of the total work discussion); at Consult, $n = 27$ (3% of total work discussion). At both firms, $n = 2$ were also cited as supervisors (4% of supervisor ties at Midwest, 3% at Consult); $n = 3$ as friends or, trust (2% of friend/trust ties at Midwest; 1% at Consult); and, $n = 0$ for discussion/support of business idea.

[10] Akaike information criteria (Akaike 1974, Burnham and Anderson 2004) confirmed that a probit specification modeled the data substantially better than a Poisson regression across all models.

[11] The results remain robust ($p < 0.05$) when using number of women instead of percentage for gender composition. In separate analysis, I included an interaction between gender of the respondent and network gender composition to test whether the network gender composition was different for male and female respondents. The interaction was not significant and the model did not improve in fit.

[12] Marginal probabilities for citing a man (compared to citing a woman or, not citing anyone) for women and for men were 0.29 and 0.32, respectively. Marginal probabilities for leaving the question blank (compared to citing a woman or, man as negative) for women and men were 0.42 and 0.53, respectively. In neither case were men and women statistically different from one another in these likelihoods (i.e., to name a man, to not name anyone).

[13] In other tests I created a standardized $z$-score for the degree of negativity using the raters and the software and varied the number of standard deviations from the mean for the LIWC score and the results remained unchanged.

[14] Because of small sample size, the effects within women did not reach statistical significance for women (−4.14, $p = 0.16$ for instrumental ties; 3.05, $p = 0.14$ for affective ties) but did for men (−2.43, $p = 0.06$, 2.19, $p = 0.03$).

[15] I also tested other specifications of differences, such as in age or tenure, other network measures. No result proved significant between gender.

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