The Leadership Quarterly xxx (xxxx) xxx–xxx

Contents lists available at ScienceDirect

The Leadership Quarterly

journal homepage: www.elsevier.com/locate/leaqua

The queen bee: A myth? The effect of top-level female leadership on subordinate females

Paulo Roberto Arvate[a,*], Gisele Walczak Galilea[b], Isabela Todescat[c]

[a] São Paulo School of Business Administration and Center of Studies on Microeconomic Applied, Getulio Vargas Foundation, Rua Itapeva, 474, 01332-010 São Paulo, SP, Brazil
[b] São Paulo School of Business Administration, Getulio Vargas Foundation and Institute of Education and Research, INSPER, Brazil
[c] São Paulo School of Business Administration, Getulio Vargas Foundation, Brazil

ABSTRACT

We investigate the effect of female leadership on gender differences in public and private organizations. Female leadership was constructed using a quasi-experiment involving mayoral elections, and our research used a sample of 8.3 million organizations distributed over 5600 Brazilian municipalities. Our main results show that when municipalities in which a woman was elected leader (treatment group) are compared with municipalities in which a male was elected leader (control group) there was an increase in the number of top and middle managers in public organizations. Two aspects contribute to the results: time and command/role model. The time effect is important because our results are obtained with reelected women – in their second term – and the command/role model (the queen bee phenomenon is either small, or non-existent) is important because of the institutional characteristics of public organizations: female leaders (mayor) have much asymmetrical power and decision-making discretion, i.e., she chooses the top managers. These top managers then choose middle managers influenced by female leadership (a role model). We obtained no results for private organizations. Our work contributes to the literature on leadership by addressing some specific issues: an empirical investigation with a causal effect between the variables (regression-discontinuity design – a non-parametric estimation), the importance of role models, and how the observed effects are time-dependent. Insofar as public organizations are concerned, the evidence from our large-scale study suggests that the queen bee phenomenon may be a myth; instead, of keeping subordinate women at bay, our results show that women leaders who are afforded much managerial discretion behave in a benevolent manner toward subordinate women. The term "Regal Leader" instead of "Queen Bee" is thus a more appropriate characterization of women in top positions of power.

Introduction

"There is a special place in hell for women who don't help each other!" These words, which were spoken by Former Secretary of State Madeleine Albright urging other women to support Hillary's candidacy in the last USA presidential election, had a great repercussion in the world's press (including the *New York Times*, *The Guardian*, and *TIME* magazine). Once the election had been set and following this premonition, would a portion of American women have their place in hell guaranteed (and another portion take their place in heaven)? Thankfully, between the heaven and hell of the declarations, there is an empirical purgatory trying to understand *if* and under *what conditions* women support each other in different areas of society (such as in politics, business, government).

Our work is an empirical investigation that seeks to shed some light on what is apparently a well-established effect, the QUEEN BEE phenomenon – QBP (Derks, Ellemers, Van Laar, & De Groot, 2011; Derks, Laar, Ellemers, & Raghoe, 2015; Derks, Van Laar, Ellemers, & De Groot, 2011; Faniko, Ellemers, & Derks, 2016). Our investigation focuses on women in leadership; with our empirical strategy, we have strong control over the environment for estimating the causal effect of a woman in power on other females. Up to this point, the literature on leadership has not decisively addressed the issue of endogeneity bias (Antonakis, Bendahan, Jacquart, & Lalive, 2010). In the presence of this bias, which bedevils much of the observational and correlational research on which the validity of the QBP phenomenon rests, it is impossible to know what the causal relation is between a woman in a position of power and gender-oriented outcomes.

To identify the effect of female leadership independent of the endogeneity bias due to reverse causality and omitted variables, we use

* Corresponding author.
E-mail address: paulo.arvate@fgv.br (P.R. Arvate).

https://doi.org/10.1016/j.leaqua.2018.03.002
Received 28 July 2017; Received in revised form 8 March 2018; Accepted 13 March 2018

the procedure established by Lee (2001); Lee and Card (2008); and Lee, Moretti, and Butler (2004). Basically, we study the effect of a female mayor chosen in a gender race–where a man is in first place and a woman in second place, or vice-versa–by a very small margin of votes. If this margin is close to zero, this type of election mimics an experiment because the final result under these conditions is almost random. Mayors are visible and uncontestable leaders with much asymmetrical power (Rucker, Dubois, & Galinsky, 2010; Sturm & Antonakis, 2015) and decision-making discretion (Finkelstein & Hambrick, 1990; Finkelstein & Peteraf, 2007; Hambrick & Finkelstein, 1987); that is, they have the means to asymmetrically enforce their will (preferences) over others, and mayors can significantly shape an organization. In adopting this causal identification procedure, we can compare the difference in outcomes in municipalities that have a female leader (i.e., treatment group) vis-à-vis municipalities with a male leader (i.e., control group).

A female leader, such as a mayor, permits us to observe gender differences in heterogeneous environments on municipalities because she may both impose her choice by command and influence on preferences lower down the ranks in public organizations; and her influence on other women in private organizations.

However, as the existing literature on top-level female leadership suggests, women heading up organizations may provoke the so-called QBP. The QBP is a situation in which women who succeed in male-dominated settings play a negative role in the advancement of their female subordinates (Derks et al., 2011).

In contrast to what the QBP may suggest, we add to the leadership literature the importance of influence through "the role model (RM) effect". Hoyt (2005) and Hoyt and Blascovich (2007) report that women may react to the tendency of thinking that only men are suitable for management roles by demonstrating greater confidence and performing better. There must be a factor, however, that provokes this reaction. In line with social cognitive theory (Bandura, 1977, 1986, 1992, 1999, 2005), we believe that the existence of female leaders may increase women's self-esteem and encourage them to enter historically male-dominated environments. Thus, an elected female leader may influence and work as a RM who triggers a positive dynamic within public and private organizations, which reduces gender-related differences. There is a tradition in political science and economics literature showing that the RM effect has an influence on other women (Atkeson, 2003; Beaman, Chattopadhyay, Duflo, Pande, & Topalova, 2008; Carroll, 1994; Hansen, 1997; Schlozman, Burns, & Verba, 1994). The results of our investigation allow us to infer what occurs in organizations when female leaders are quasi-randomly appointed.

We conduct our research in Brazil because, to our knowledge, there are no other empirical studies with a database as large as the one we use; also, despite the effort involved in conducting our study, it is entirely replicable. Brazil has approximately 5600 municipalities averaging 20,000 inhabitants each, which ensures an investigation having sufficient data points and statistical power to detect any effects. Mayors hold an important political position in Brazil (Miguel, 2003). To verify the changes that occur in organizations following the appointment of a female leader, we consult a database containing the individual information of workers in approximately 8.3 million registered firms (private and public organizations) at the municipal level. The proportion of women in the labor market is higher (59%) in Brazil than in other developed countries, such as France (52%) and the United Kingdom (57%).

The purpose of our study is to observe changes in gender results at different positions in public and private organizations: top managers, middle managers, and lower positions. Public organizations have *command:* in other words, a mayor may choose the top-managers. Furthermore, as leader she can *influence* women in lower positions in her own organization for leadership, such as, for instance, for the position of middle manager. We also study the effect of female leadership in terms of *influence* in private organizations, because the female leader does not have direct authority over private organizations.

It would be ideal to observe what occurs within organizations in "each position" (e.g., CEO, middle managers) from the highest to the lowest levels, but we do not have this type of information. As it is reasonable to believe that an investigation into different earnings levels reflects the organizational hierarchies, we use this fact to establish what the top, middle managers, and lower positions are. Higher salaries mean a top management position, middle salaries mean a middle management position, and lower salaries mean lower positions in the hierarchy.

Briefly, our results suggest that the QBP may be a myth. We find that there is a pro-female *causal effect* of female leadership in public organizations: in other words, we find a larger number of women than men in both top and middle management positions. We find no robust evidence to show that this result extends to lower positions. We interpret the first result (at the top level) as *command* and the second result as the RM effect reflecting a female leader's influence. Thus, QBP is either non-existent, or less than the *command* and RM effect.

In public organizations, the top manager can be chosen directly by the mayor and indirectly by the same mayor by way of political agreement with different levels of government (state and federal government) if the public organization is in a municipality but is not owned by the municipal government (e.g., patronage). Middle managers depend on the internal dynamic of organizations: top managers choose middle managers and are "influenced" by the mayor as leader (via RM) in their choice for these positions. Therefore, we expand our understanding of the process of change by investigating different pathways to gender-related outcomes (Fischer, Dietz, & Antonakis, 2017).

The most robust effect favorable to women occurs when the same woman is reelected, that is, she serves two consecutive terms in office. The time effect as to how long it takes for leaders to assert their choices is also an issue that is not well investigated in leadership literature (see Antonakis, Day, & Schyns, 2012; Fischer et al., 2017). Delayed effects exist because the choice of leaders, the implementation of new preference proposals and the change in women's preferences in organizations caused by "the RM effect" (mainly, the results at the intermediate level in public organizations) all take time. In fact, as indicated by the eponymous title of the article by Shamir (2011) "Leadership takes time."

Contrary to what we find in public organizations, our results show that there is no observed improvement for women in private organizations. The choice of top managers in private organizations is different from those in public organizations. Our non-result for private organizations can be related to the work by Bertrand, Black, Jensen, and Lleras-Muney (2014). In Bertrand's work, the change proposed by Norwegian legislation (2003) relating to newly-appointed female board members is the only change observed. We cannot correlate the private result with QBP because we do not observe the emergence of female leaders in organizations. Thus, there is no positive effect in private firms, which makes sense, at least in the short to medium term, given that majors do not have much command and there is no RM effect on gender-related outcomes in private organizations.

Our work is organized as follows. We present a review of the related literature on both QBP, RM, and our main hypothesis in Section 0. In Section 0, we present the institutional background, dataset and empirical strategy of our study. In Section 0, we report our results. Finally, in Section 0, we summarize our findings and discuss their implications.

Theoretical overview and hypothesis

The Queen Bee Phenomenon in Business

Much of the research on female leadership is based on assumptions of sisterhood and solidarity between women (see Mavin, 2006; Mavin, 2008). Women consider other women to be their natural allies. However, the expectation that women will align themselves with other