

# DOES GENDER BIAS REMAIN IN CROWDFUNDING? INVESTIGATING THE IMPACT OF VERTICAL SUCCESS BIAS

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## ABSTRACT

Recent research identifies crowdfunding as the “place” for women, stating that women have better access to resources via crowdfunding than through other funding mechanisms. Although crowdfunding provides support for women in reaching their goal (allowing them to become entrepreneurs), we suggest that women still face a significant vertical success bias in that men receive substantially more funding beyond their goal. We consider two contingency effects that increase the bias against women because of how they impact role congruity sanctions: industry of the venture and the COVID-19 crisis. Using Kickstarter data on 8,527 successful campaigns, we find a substantial bias in crowdfunding that limits women’s success.

## INTRODUCTION

*“The understanding and acceptance that seed crowdfunding is now a well-established environment through which women can thrive, unrestricted by any embedded bias ...can be used more widely across the globe”* (PwC, 2017: 1).

Women entrepreneurs seeking funding for their ventures are likely to encounter two pernicious forms of sex segregation: horizontal and vertical sex segregation. Horizontal sex segregation occurs when the distribution of men and women across industries is skewed such that one gender is overly prevalent in a particular profession (Charles & Grusky, 2004). For example, women are less likely than men to become doctors, engineers and lawyers, while men are less likely than women to become teachers, nurses, and hairdressers. While horizontal sex segregation results in fewer women entering a profession, vertical sex segregation results in a glass ceiling that limits the ability of women to succeed compared to men within a given occupation in that it limits the resources and status they can acquire (Blau & Winkler, 2018; England, 2010). Within entrepreneurship, horizontal sex segregation results in fewer women entering entrepreneurship than men (Ahl, 2006; Jennings & Brush, 2013), while vertical sex segregation restricts the ability of those women who become entrepreneurs to gather the additional resources so critical to helping them grow their business (Gompers & Lerner, 2004).

Women who do not conform with socially constructed norms and attempt to enter entrepreneurship (i.e., try and overcome horizontal sex segregation) are typically sanctioned (Eagly & Karau, 2002; Eagly & Szesny, 2019) such that female entrepreneurs seeking funding for their venture are at a disadvantage compared to male entrepreneurs (for an expanded discussion, see Jennings & Brush, 2013). For example, women-owned businesses often have more stringent credit approval and loan conditions than male-owned businesses (Cozarenc & Szafarz, 2018), limiting their ability to access critical financial resources (Brush, Carter, Gatewood, Greene, & Hart, 2003). These impediments to financial capital can also discourage women from pursuing larger and more growth-oriented businesses that can ultimately reduce their profit potential (Carter & Rosa, 1998).

The good news is that an emerging stream of research suggests that crowdfunding platforms such as Kickstarter or Indiegogo are well suited to help women overcome at least some of the effects of horizontal sex segregation in that women have increased access to financial resources that allow them to start their business. For example, the broad and diverse set of investors available on these platforms have more trust in women entrepreneurs, resulting in women-led campaigns being more likely than male-led campaigns to reach their campaign goal and start their business (Johnson, Stevenson, & Letwin, 2018). Similarly, crowdfunding investors may better understand or be more aware of the social and structural barriers female entrepreneurs face, and thus actively support women in starting their business (Greenberg & Mollick, 2017). These results suggest crowdfunding provides a more “level” playing field for enterprising women to start their ventures (PwC, 2017), helping women overcome horizontal sex segregation (Ridgeway & Correll, 2004) and avoid the sanctions resulting from role incongruity (Eagly & Karau, 2002).

However, concluding that crowdfunding is the “place” for female entrepreneurs may be premature given that we still know little about whether crowdfunding can help women overcome vertical sex segregation. Although crowdfunding may decrease horizontal sex segregation (i.e., women can more easily *become* entrepreneurs) and limit the sanctions resulting from violating occupational-related social norms, it is less clear whether these nascent social financing platforms similarly limit vertical sex segregation (i.e., how successful they are as entrepreneurs) and the sanctions associated with violating success-related social norms. Vertical sex segregation results from hierarchical, often socially ingrained, biases that provide more resources, rewards, and higher positions of status and power to men as compared to women (Charles & Grusky, 2004). Understanding the processes leading to vertical sex segregation is important because it can effectively limit the ability of women to amass critical resources needed to not only start a new venture, but to grow and thrive in their entrepreneurial endeavors (Tonoyan, Strohmeyer, & Jennings, 2020).

Consider the example of a recent Kickstarter campaign seeking \$15,000 to create an action figure of a prominent political figure in the United States. Current research would suggest that if this campaign was led by a woman, the campaign would have an advantage over men in reaching the initial \$15,000 goal, which would allow the venture to actually begin (i.e., reducing horizontal sex segregation). However, a notable aspect of crowdfunding platforms is that campaigns can receive funding far beyond their campaign goal. In our example, by the time the Kickstarter campaign for the action figure ended, more than 6,000 investors had contributed over \$240,000, or 1,600% of the original campaign target. The additional funds the campaign received allowed the entrepreneur to not only start their business but to expand and grow much more quickly than originally planned<sup>1</sup>. Furthermore, this campaign was featured on prominent media sites such as CNN, resulting in additional status and resources for their business. Failing to consider the effects of vertical sex segregation thus has important implications for the social support and status entrepreneurs receive, as well as their ability to survive and grow following the campaign’s completion. Unfortunately, current research has yet to fully explore the impact vertical sex segregation has on female entrepreneurs.

In this paper, we examine the processes leading to vertical sex segregation on female-led startups within the crowdfunding context. We integrate role congruity theory (Eagly & Karau, 2002) with sex segregation theory (Ridgeway & Walker, 1995) to explain why women entrepreneurs still face what we term vertical success bias in crowdfunding. This vertical success bias or financing gap occurs when

<sup>1</sup> This crowdfunding campaign proposed creating an action figure of Nancy Pelosi, the current Speaker of the United States House of Representatives. It was, incidentally, led by a man. The additional resources provided beyond the campaign goal allowed the campaign to add additional clothes to the action figure, as well as introduce another action figure based on Dr. Anthony Fauci, the Director for the National Institute of Allergy and Infectious Diseases.

women are sanctioned to keep them from being too successful. Although crowdfunding may make it easier for women to *enter* the field of entrepreneurship due to its social nature (thus potentially reducing instances of horizontal success bias, Greenberg & Mollick, 2017; Johnson et al., 2018), women are still limited in their ability to succeed compared to men (i.e., a glass ceiling Gupta, Han, Mortal, Silveri, & Turban, 2018; Heilman & Okimoto, 2007). This bias is further strengthened when gender roles become especially salient, such as in male-dominated industries or during macro-economic crises. Our findings, using more than 8,500 Kickstarter campaigns from 2018–2020, provide broad support for our hypotheses and provide critical implications for both theory and practice. By integrating role congruity theory with sex segregation theory, we shed light on the shadow that socially based gender biases continue to cast on women seeking financing through crowdfunding by limiting the success they have beyond reaching their campaign goal. Although prior literature suggests that female entrepreneurs have an advantage in crowdfunding (Johnson et al., 2018), this work considers only horizontal sex segregation (i.e., can women become entrepreneurs). Our study extends this work to explain why women still face a substantial vertical success bias that effectively places a “glass ceiling” on their ability to succeed in entrepreneurship. Women in crowdfunding are still sanctioned (Heilman, 2012) through loss of continued support beyond their campaign goal. This is an important finding because prior work suggests that women find greater trust and support in the more diverse network of crowdfunding backers.

Second, although role congruity theory suggests that stereotypes are dependent on context—little work has examined how different contexts (i.e., industry or the occurrence of a pandemic) influence the sanctions resulting from social role incongruity. Our theory and empirical results increase our understanding of how the sanctions resulting from violating social roles can increase. Social roles have many components, and women who violate multiple components will be sanctioned more severely. For example, a woman who enters entrepreneurship may be sanctioned because entrepreneurship is considered male gendered (Ahl, 2006). However, she will face greater sanctions in an industry which is predominantly male, such as construction.

## HYPOTHESIS DEVELOPMENT

Role congruity theory suggests that socially constructed stereotypes promote either positive or negative evaluations and behavioral differences towards others (i.e., gender bias) based on strongly held underlying beliefs regarding sex roles and norms. These socially constructed stereotypes—which are reinforced over time and are widely supported through popular media and social cues—induce individuals to positively view women as being more communal (i.e., being affectionate, sympathetic, and understanding) and to positively view men as being more agentic (e.g., independent, aggressive, proactive, assertive, Eagly & Karau, 2002). When an individual’s actions or roles conflict with these gendered stereotypes (e.g., a female CEO), the incongruity can introduce prejudice against the individual (Gupta et al., 2018). Female entrepreneurs reflect a misfit (i.e., they violate injunctive norms) between social norms and role expectations that view women as being communal (non-agentic) but expect entrepreneurs to be more agentic. Furthermore, entrepreneurship is typically characterized as a male-gendered context (for a review, see Ahl, 2006). Lee & Huang (2018) explain that cultural images of entrepreneurs routinely emphasize and stereotype masculine attributes as successful qualities for entrepreneurs. As a result, “female gender roles are viewed as systematically mismatched with the professional role of entrepreneurship” (Lee & Huang, 2018, 2). These sanctions threaten the future success of female-led ventures by limiting their ability to obtain critical resources (Gupta, Turban, Wasti, & Sikdar, 2009).

### Vertical Success Bias

Although female entrepreneurs may increasingly be supported through crowdfunding platforms—which allows them to reach their initial funding goals and reduces horizontal sex segregation and horizontal bias—there remain substantial social norms regarding the ideal image of a successful entrepreneur. These ideals can continue to impact and bias the accumulation of advanced resources, what we refer to as *vertical success bias*. More specifically, socially constructed perceptions and ideals about gender have important implications on an entrepreneur's ability to generate additional financial capital. Female entrepreneurs are particularly likely to experience a vertical success bias when they go beyond initial expectations regarding appropriate behavior for women entrepreneurs, such as when females seek high-growth business opportunities (Morris, Miyasaki, Watters, & Coombes, 2006). In part, this bias occurs because highly successful women violate underlying social norms and roles (Heilman & Okimoto, 2007; Heilman, Wallen, Fuchs, & Tamkins, 2004). As competence or success provides status to women, this elevated status may violate investor expectations and societal norms that women should have lower status than men (Rudman, Moss-Racusin, Phelan, & Nauts, 2012), particularly in male-gendered contexts (Heilman, 2012) such as entrepreneurship.

Furthermore, high achievement or even displaying competence in male gender-typed positions is typically viewed as socially uncharacteristic for women (Heilman, 2012), which is, in part, why women face increasing hurdles to obtaining promotions as they advance in competence, status, and rank, even though women often receive higher performance ratings. Although crowdfunding investors may be more inclined to support women entrepreneurs (Greenberg & Mollick, 2017), women-led ventures that violate societal expectations regarding success and status for women will still experience a vertical success bias in the amount of funding that they receive. This violation of gender norms is one of the leading reasons prior research on venture capital, private-equity, and more traditional forms of capital has often shown that women are at a disadvantage as they seek financing (for discussions, see Brush, Greene, Balachandra, & Davis, 2018; Hughes & Jennings, 2012). Thus, while other mechanisms such as trust or activist choice homophily may lead to increased support for women seeking to achieve their campaign target—once the goal is reached, investor perceptions about how much success a woman should have may trigger societal norm violations and vertical success bias that adversely impact funding.

*Hypothesis 1: Female-led crowdfunding campaigns will experience higher levels of vertical success bias as compared with male-led campaigns.*

### Conditions that Moderate Gender Bias

One of the main criticisms regarding role congruity theory pertains to our lack of understanding about contextual factors that influence the underlying mechanisms that trigger gender bias. To address this, we focus on two critical and theoretically important contextual conditions that directly impact the salience of role congruity and thus impact vertical success bias for women entrepreneurs: the salience of role congruity based on the chosen industry (prescriptive influence), and the salience of a macro-environmental crisis (injunctive influence). Long-standing gender stereotypes and norms influence gender-roles which often cause a division of labor by gender (Gerson, 2017). This division of labor has led to the development of “female ghettos” whereby women are expected to work in more domestic industries (such as healthcare, hospitality, and education) and men are work in higher-paying and more demanding industries (such as engineering, computer science, and higher-level management). This sex-typed segregation of industries amplifies the salience of gender roles; thus the industry of choice can enhance gender bias and inequality in the resources, status and social capital available to entrepreneurs. Women who already experience bias

for violating gender roles by simply being an entrepreneur thus experience additional bias for being in a male-typed industry.

*Hypothesis 2: Industry gender will moderate the relationship between female-led crowdfunding campaigns and vertical success bias such that women entrepreneurs in male-gendered industries will experience increased vertical success bias in crowdfunding support.*

Although gender biases generally have a negative impact on entrepreneurial funding, macroeconomic crises, such as COVID-19, are particularly problematic as they dramatically increase uncertainty on a large scale. As a result of this sharp rise in uncertainty, the cognitive loads of the population also increase (e.g., anxiety, fear, worry), resulting in a greater reliance on heuristics to limit the complexity of decision-making in these conditions (e.g., Tversky & Kahneman, 1974). These decision-making shortcuts allow individuals to ignore information as a means of decreasing cognitive burdens under uncertainty (Gilovich, Griffin, & Kahneman, 2002). Heuristics are heavily influenced by socially constructed stereotypes and can lead to gender bias (i.e., increased focus on women's domestic responsibilities; Shockley et al., 2020). With the extreme uncertainty induced by COVID-19, individuals are more likely to rely on heuristics, which will increase the salience of gender bias. As a result, men will reap greater rewards for starting a business because doing so exemplifies agentic characteristics that align with social roles (Eagly, 2002). As a result of the increased uncertainty caused by COVID-19—heightening reliance on heuristics—vertical success bias is likely to provide even greater resources to men.

*Hypothesis 3: COVID-19 will increase gender bias in crowdfunding support for female-led crowdfunding campaigns, thus enhancing vertical success bias between female- and male-led campaigns.*

## METHOD

We collected archival data from Kickstarter.com and limited our sample to campaigns with entrepreneurs whose gender is identifiable that were launched in the United States and had a funding goal of at least \$1,000 USD. Our final sample included 8,527 campaigns, 35% of which were led by women. Of these campaigns, 2,038 were launched during COVID-19. Our analysis includes HLM and propensity score matching models, as well as a separate experiment to verify our argued mechanisms. We operationalized funding bias via three mechanisms: *funding success*, *percent raised*, and the *number of backers*. These operationalizations allowed us to examine the disparity between female-led and male-led campaigns, as each captures different aspects of funding support. *Funding success* captures the amount of funding received above the campaign creator's initial goal. *Percent raised* is a ratio-based version of funding bias calculated as a percentage above the campaign goal. Finally, the *number of backers* also provides a proxy for funding bias. The campaign creator's *gender* was determined algorithmically using the R package *gender*. To confirm accuracy, the authors manually audited roughly ten percent of our sample, confirming an accuracy rate above 95%. We capture *industry* using the campaign category. Our models utilize two measures assessing COVID-19. First, we capture the *year* that the campaign was launched as means to capture the impact of COVID-19 (e.g., 2018, 2019, and 2020). We control for the *month* that the campaign was launched, whether the campaign was identified as a *staff pick*, the overall *funding goal* of the campaign, and the *campaign length*, measured in days. *Funding goal* is the target amount set by campaign creators and is measured in dollars. For the campaign creator, we capture *membership time* to assess tenure on Kickstarter, the number of *campaigns backed* and *campaigns created* to assess crowdfunding experience (Soublière & Gehman, 2020). We also controlled for the number of words in the creator's submitted *biography*.

## RESULTS

We find that although successful male and female-led campaigns set similar campaign targets (\$10,580 for male and \$10,194 for female), on average, male-led campaigns received \$21,974 while female-led campaigns received \$11,402 of total funding, suggesting that men still have a significant advantage over women in crowdfunding. Furthermore, during COVID-19, men received \$49,346 while females received just \$8,254 (a more than 400% percent increase in funding, and more than triple the number of backers). Tables 1 and 2 show results for Hypotheses 1 and 3. While we could not test Hypothesis 2 with propensity score matching, our models provided strong support that females in industries that are male-gendered receive significantly less funding than male-led ventures ( $p < .001$ ). The results of our experiment confirm that once women reach their initial target, support from backers decreases substantially.

**TABLE 1 Average Treatment Effect Of Gender On Funding Bias (Hypothesis 1)**

DV	Male (n = 3,999)	Female (n = 2,745)	p
Exceeded Goal	\$25,543	\$11,305	> 0.001
Percent Raised	275%	217%	> 0.001
Number of Backers	415	267	> 0.001

*Note.* p-values reflect t-tests between the gender conditions

**TABLE 2 Average Treatment Effect Of COVID-19 on Funding Bias (Hypothesis 3)**

DV	Pre COVID-19	COVID-19	p
<i>Male</i>	n = 2,505	n = 1,241	
Exceeded Goal	\$21,974	\$49,346	0.018
Percent Raised	285%	418%	> 0.001
Number of Backers	444	700	0.011
<i>Female</i>	n = 1,332	n = 657	
Exceeded Goal	\$11,402	\$8,254	0.073
Percent Raised	235%	231%	0.875
Number of Backers	300	239	0.121

*Note.* n = 8,527; p-values reflect t-tests between the COVID-19 conditions

## DISCUSSION AND IMPLICATIONS

Recent entrepreneurial research has championed crowdfunding as the “place” for women, stating that women have better access to resources via crowdfunding than through other funding mechanisms (e.g., Greenberg & Mollick, 2017; Johnson, Stephenson, & Letwin, 2018). Although female entrepreneurs are more likely to reach their campaign target (allowing them to become entrepreneurs), we suggest that women still face a significant vertical success bias in that men receive substantially more funding beyond their target than women do. We also consider two contingency effects that increase the bias against women because of how they impact role congruity sanctions: the industry of the venture and the COVID-19 crisis. Our paper challenges the idea that women have an advantage in crowdfunding and provides key insights to how sex segregation and role congruity influence the “glass ceiling” that women face in crowdfunding. We also extend role congruity theory (Eagly & Karau, 2002) by examining how abrupt changes in social contexts increase the salience of gender stereotypes, exacerbating gender bias.

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