

## Chapter 98

# Does a Federal Glass Ceiling Have Differential Effects on Female and Male Technology Entrepreneurs?

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### ABSTRACT

*Glass ceilings are invisible organizational barriers encountered by underrepresented groups in large hierarchies. This chapter empirically investigates the existence and characteristics of an internal, government-wide glass ceiling for female employees using aggregate pay grade and demographic data on nearly 1.5 million U.S. Federal employees between 2001-2011. The external consequences for over 15,000 technology ventures seeking R&D funding from 12 federal agencies is explored. In this context, the researchers analyze over 50,000 grants and find that a unit increase in a novel, government-wide, glass ceiling measure is a meaningful and negative predictor of subsequent Phase II funding outcomes for Phase I grantees. More importantly, the negative external effects of the identified glass ceilings are significantly larger for women technology entrepreneurs when compared to their male counterparts.*

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## INTRODUCTION

The term “glass ceiling” entered the corporate conversation in 1986 when Hymowitz and Schellhardt first coined the expression in the *Wall Street Journal*.<sup>1</sup> The concept continues to gain currency among scholars and is emerging as a core topic in the management literature (e.g., Adams & Funk, 2012; Akande, 2013; Glass & Cook, 2016). Glass ceilings are defined as invisible organizational phenomena in which overt and subtle barriers to managerial advancement exist for women (Ragins, Townsend, & Mattis, 1998). As described in the quote below from Robert B. Reich, U.S. Secretary of Labor, and Chairman of the Federal Glass Ceiling Commission, glass ceilings are perceived to exist and persist in management leadership hierarchies:

*“The research [conversation] indicates that where there are women and minorities in high places, their compensation is lower ... Nor does the evidence indicate that the glass ceiling is a temporary phenomenon. In fact, the research cited [in the Federal Glass Ceiling Commission Report] finds relatively few women and minorities in the positions most likely to lead to the top—the “pipeline” ... In short, the fact-finding report tells us that the world at the top of the corporate hierarchy does not yet look anything like America.” --- Glass Ceiling Commission Final Report (1995)*

Since publication of this landmark report in 1995, a number of research studies support its basic claims. White males have been found to most likely achieve higher pay and increased promotion opportunities (Judge, Cable, Boudreau, & Bretz, 1995), women are more likely to experience greater challenges when promoted to CEO and then are allowed less room for error when in place as compared to males (Cook & Glass, 2014), and women appear to have less authority than men in the workplace. For cases where women do have authority, it is more likely to be at lower levels and more often than not, it is in the supervision of other women or minorities (Smith, 2002). Research on ethnic minority glass ceilings as the focus are rare. At the beginning, literature on glass ceilings pertained to just gender, but fairly quickly ethnic minorities have been grouped together in the diversity research conversation. The majority of studies do confirm that glass ceilings still exist for minorities, and that stereotyping, biases, and subtle racism still stand as barriers to removal (Wilson, 2014).

Prior research on glass ceilings primarily deal with identification of the phenomenon by considering differences in salary or management level between women and men with similar qualifications. This is extremely useful in measuring progress made in the commitment to improving diversity and equality in the workplace. However, a societal and institutional commitment to change does not necessarily translate into substantial and visible organizational change. According to the *Women in the Workplace 2016* Report produced by LeanIn.Org and McKinsey & Co., the percentage of women in the corporate pipeline shows a modest increase since 2015, but the results also indicate that at every level in the corporate hierarchy, women remain largely underrepresented.<sup>2</sup> While the authors acknowledge that identifying glass ceilings is the first critical step in making progress towards removing these barriers, if scholarly inquiry is limited to the problem of identification, then the results are also limited in ability to recommend strategy shifts and policy changes relevant to improving firm performance, economic, and societal outcomes.

A related emerging stream of research tackles this challenge by taking a functional perspective on the relationship between status and performance. For example, recent work finds that gaps in power such as glass ceilings may persist because women and minority corporate executives are discouraged from performing diversity-valuing behavior (e.g., outreach, training, etc. of minorities and women) (Hekman,

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